

Chapter 11

Gamification as a pedagogical instrument in interpreter training

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Translation & Interpreting (T&I) have only recently recognised the potential uses of simulated learning on market- and emotional-readiness of students. Educational simulation games have been found to contribute to increased performance and the motivation to learn. Utilizing games as a pedagogical instrument may not be novel, but the incorporation of gamification within the strategies of teaching and lesson planning is an innovative endeavour. There are research gaps that underline the need for a practice-based approach that supersedes the use of existing technology with specialist T&I-centred technology. With that in mind, this chapter presents a study that introduces Project “[Al]phra”, simulation software aiming to establish an interdisciplinary approach to interpreter education and training using gamification. The main goal is to develop skills before and after entering the professional market and to obtain a better understanding of the cognitive and emotional processes that take place during interpreting, especially in demanding contexts. [Al]phra consists of a virtual reality environment, simulating various scenarios where interpreters can practice in different settings and envisions an online platform, fostering connectivity and facilitating resource sharing including videos, articles and other interpreting-related materials.

1 Introduction

Simulated learning has developed as a powerful tool for preparing students for the job market, where they will inevitably encounter metalinguistic and emotional challenges. Many translation students graduate without understanding that the market demands a certain set of entrepreneurial skills upon which their



success will hinge. Discrepancies between graduates' expectations and realities in Translation and Interpreting (T&I) may stem from the misapprehension that their jobs are inherently isolated from the unpredictability of human interaction.

While T&I can be considered a discipline and industry eager to adopt technology and interdisciplinary research to create a hybrid environment for students to train and grow academically and professionally, research on how this might be initialised in the foundational years of translation education remains relatively scarce. Taking into consideration the many emerging conversations about the notion of artificial intelligence (AI) being trained by major corporations to replace human translators, the rising interest in utilising this technology to enrich students' learning experience seems to be a reasonable and timely response. There appears to be some reluctance to use AI in the classroom (He 2021: 1). The literature suggests that courses teaching machine-assisted translation or machine translation (MT) post-editing require swift adoption, as the developments in the field are moving quickly. In addition, as project-based T&I education is starting to pick up pace in the European Commission through projects like OPTIMALE and CEL/ELC, the T&I industry is entering a new era of consolidating pedagogy and professional outputs.

Simulated learning in T&I has been explored through projects such as The International Network of Simulated Translation Bureaus,¹ yet its systematic integration into curricula that bridge academia and the market remains limited. Research on simulations that can be used to teach the basics of T&I mostly relates to case studies of simulating workflows from translation offices (Konttinen et al. 2020). Outside of the translation classroom, however, technologies and simulated environments such as the Metaverse have made the concept of utilising simulated environments highly appealing. Simulation has long been employed in fields such as aviation and the military, yet its appeal and feasibility have only recently been recognised in other domains. This growing attention can probably be attributed to the expected positive impact on student engagement and learning experiences. As reported by Nyström & Ahn (2024: 1), several meta-analyses of simulation-based learning demonstrate significant positive effects on learning and facilitation of complex skills across different fields.

Simulated learning, we argue, inherently involves the use of gamification in education. There are several definitions of simulation and gamification that, depending on their usage and context, allude to this connection to other fields. Within the context of education, the focus of this chapter, we rely on the definition of simulation from Alessi & Trollip (2000: 246) as:

¹<https://www.instb.eu>

a dynamic representation of a real or hypothetical system that allows learners to interact with a model of the system, explore its behaviors, manipulate variables, and observe the resulting outcomes without the risks, costs, or practical limitations of engaging with the actual system directly.

This definition accounts for variables that will change with different needs and requirements from a pedagogical perspective, such as student levels, different assessment types, and even expected learning outcomes.

With gamification, the core principle is to create a motivating environment for solving ordinary problems and to break down the ideas introduced by a new concept in a digestible manner. It also involves the gradual introduction of higher-level education according to student levels with a degree of flexibility (Park & Sangkyun 2021). Gamification as a term only entered the mainstream vocabulary around 2010 (Dichev & Dicheva 2017: 1). Simões et al. (2013: 345) define gamification as the use of video games or some of their elements in non-game applications or as learning tools, which they also refer to as Game-Based Learning (GBL). Kapp (2012), Wang (2021) and Zicherman (2011, quoted in Deterding et al. 2011) propose that gamification involves engaging people, motivating action, promoting learning, and solving problems using game thinking and game-based mechanics and aesthetics. Kiryakova et al. (2014: 679) state that gamification, in general, is the integration of game elements, game thinking, and game approaches in activities and contexts different from games. In their review, Dichev & Dicheva (2017: 2) suggest that gamification in education involves the introduction of elements of game design and gamified experiences in the design of learning processes.

A close relationship between games and learning has already been the subject of study in lower-level education, and in fields such as medicine, aviation, and architecture. However, it remains relatively new in T&I. The application of gamification in learning can create very promising opportunities, particularly in learning simulations. The stated research goals, along with an understanding of how game design features such as points, levels, challenges, and rewards can be applied in educational simulations, align with the principles of gamification, enabling learners to develop skills needed for the job market while supporting their integration into academic contexts. We propose a new way to use simulations as teaching tools, encouraging students to maintain a good level of operation by introducing game elements.

The authors propose adopting gamification in simulated learning in T&I as in Project [AI]Phra, a pilot project by the authors from 2023. In essence, it aims

to confront the pressures in the field by utilizing AI to enrich the learning experience in a manner befitting the future of education in T&I and the future-readiness of the profession. It is, to an extent, an attempt to address the concerning reliance on machine-assisted translation, the changes occurring in the field of interpreting, and the technological necessities that are becoming an evident reality in teaching and training interpreters. It involves a human-made simulator model that hinges on the generation of arbitrary scenarios that are used to train interpreters in the Middle East and North Africa region (henceforth MENA for generalisation, with Arabic the predominant lingua franca). The languages are English and standard Arabic, at least for the duration of the pilot testing. The interpreting settings are mainly medical, legal, and public service. One of the main interests of the project is to address the issue of underqualification of interpreters in the aforementioned fields, on both academic and professional levels. On that note, this chapter aims to illustrate the set of realities that necessitate the project [AI]phra in its current form, and to illuminate the realities and expectations in the context of interpreting studies in Arabic-speaking regions.

2 Interpreting studies: Realities and expectations

Research in interpreting studies has progressively been growing in a manner that matches the advancements occurring on a professional and an academic level in the anglophone academic sphere. However, it remains a relatively young, under-regulated and under-researched field of study in the Arabic-speaking world. Interpreting in general is not given its due, as most translation programmes in the Arab world focus mainly or exclusively on translation. Even within translation, Al-Batineh & Bilali (2017: 198) note a mismatch of focus between these translator education programmes and the translation industry: “[L]iterary translation represents 25% of the field-specific courses offered at the graduate level while the required experience in literary translation represents 3% of market demand.” In addition, bachelor and master programmes for interpreters are notably absent, despite the urgent need for qualified professionals to meet the demands of a region that has witnessed a drastic influx of refugees and involuntary migration over the past few decades.

The need for trained professionals is under-acknowledged in public service settings in the MENA region, and little has been done in terms of regulation, education, and certification (Raddawi 2015, Taibi 2011, quoted in Taibi 2021: 73). The most common settings for interpreting are conferences, hospitals, legal and immigration settings. Conference interpreting is, to an extent, a regulated field

where qualifications and quality are expected. As a profession, it is what interpreting students aspire to do, and as a field of study, what educators aspire their students to be capable of performing. The same, however, cannot be said about the other aforementioned settings. According to a study conducted by Taibi (2021: 73), when attempting to uncover the nature of interpreting in the MENA region, there are issues related to training and qualifications. A survey conducted on medical interpreting in the United Arab Emirates and Saudi Arabia shows that “most of the language services offered at Al-Ain hospitals [United Arab Emirates] are now performed by ad hoc interpreters who are neither professional and well-trained, nor accredited or certified.” (Taibi 2021: 73). As for interpreting in legal settings, reliance on ad hoc interpreters has been normalised in the context of less common languages. The number of interpreters in said settings is never quite sufficient to allow for choice in quality. For instance, in Saudi Arabia, this shortage has led defendants to interpret for other defendants (Taibi 2021, 73).

The means to solve these issues start from the classroom. The provision of adequate education hinges on several factors, including fitness for purpose, utilisation of technology, and most importantly, acknowledging the gaps that exist in the educational system in monitoring compliance and quality assurance. This field requires a high degree of emotional and situational awareness. Therefore, the education in question must also be at a level that enables the delivery and coverage of such skills. Adding to that, the context of the MENA requires a degree of acknowledging the variations in diglossia and dialectical issues that arise in the setting of public service interpreting (PSI), where there is a lack of training, as mentioned. All in all, the traditional modes of delivering interpreter education appear to be no longer sufficient nor fit for the realities of the job market in the region. Therefore, and as a way of acknowledging the changes and shifts in teaching paradigms in other regions in the world, the authors have devised a project that enables the use of generative AI in a manner that can make use of the arbitrary nature of scenarios used in different simulations, among other considerations such as providing a gamified approach to interpreting education, and use technology to provide access to real-life scenario-based situations. Moreover, the project seeks to foster a stimulating and engaging environment to increase motivation and engagement among novice and professional interpreters and to empower female interpreters and researchers who are relatively under-represented in interpreting and computing-related fields.

3 Training as pedagogy: An entry point into simulations as teaching tools

3.1 Interpreter competencies

As a starting point, the type of simulations that a project like [AI]phra entails are quite similar in *modus operandi* to the types of simulations utilised in the training of medical students. The principle relies on the creation of real-life scenarios that are expected to occur on a daily basis in an interpreting task. The generation of said tasks is mainly reliant on human-generated ideas that are extended and modified through generative AI. It is true that current models of generative AI that are commonly used can generate arbitrary scenarios that appear to be consistent with the pedagogical requirements of any interpreting curriculum. To break down that idea into practical pieces, it is important to divulge two things: first, what the pedagogical requirements are considering the developments in the field, and the context of the region, and second, the value of simulation as an illustration of practices that build metalinguistic and emotional capacities in interpreting students. A third, consequential aspect that may be considered is the sustainability of the model to be usable beyond the classroom, namely in the training of professional interpreters based on their varying degrees of experience in the field and in their respective interpreting settings (medical, legal and social services).

When designing the curriculum for interpreting courses at both undergraduate and postgraduate levels, there are well-recognised fundamental competences that must be addressed. Phelan et al. (2020: 25) categorise core competencies into several areas, as may be seen in Table 1.

An argument can be made that these competences are intertwined and complement each other from the perspective of an educator. However, for the purposes of this chapter, the connection can be made through the competence of technology. The training provided aims to create a sustainable opportunity to develop all competencies through one medium. Regardless of the type of setting, there are essential skills that are meant to be developed through the training of the competences. They include, but are not limited to, listening and comprehension skills, memory and note-taking abilities, public speaking skills, proficiency both in the context of language and in metalinguistic elements (body language, business skills), and gaining insight into real-life practices and intricacies of every interpreting task.

Additionally, Hale (2007), Wadensjö (2014) Tipton & Furmanek (2016) and Phelan et al. (2020) point to the need for an extensive understanding of the ethical

Table 1: Types of interpreter competencies

Competences	Details
Linguistic competences	grammar, specialised terminology, register, prosody.
Thematic	identifying relevant topics for interpreting assignments, researching and extracting relevant terminology from resources, demonstrating knowledge of various interpreting modes.
Interpersonal	interaction coordination, trust-building strategies, bias awareness.
Intercultural	understanding cultural differences and power asymmetries, knowledge of users' cultural backgrounds.
Technological	terminology management, videoconferencing.
Business-related	client and assignment management, finance, membership of professional associations.
Developmental	ongoing learning, collaboration, flexibility, and change management.

and professional considerations of interpreting. This entails, for instance, understanding client confidentiality and the fact that an interpreting task starts before the linguistic exchange takes place. Another example is maintaining an acute awareness of the nuanced differences in discourse between different interpreting settings (hospital, solicitor's office, court, police station, or mental health counselling session).

3.2 Training as a social capital: equipping interpreters for real-life scenarios

While considering the educational importance of training, literature has also stated that there is a social function for training, seeing as it provides a context for professional socialisation and contributes to advancing the interpreting profession and improving its status (Hale 2007: 167) especially in the case of PSI. It can be argued that one of the main aims of teaching interpreting is to fulfil a social responsibility towards the community. In the MENA region, the clients that benefit from PSI in particular and interpreting services in general are disempowered

minority groups, or those who may not be fortunate enough to have received a bilingual education. It also serves individuals who have been contracted from different countries around the world. There is an overlooked human rights aspect to interpreting that requires an advocate's approach in certain instances, which may prove difficult to grasp unless an interpreter is faced with it in a real-life scenario. Therefore, a simulation can be a low-risk instance where that interaction is enabled and navigated in the presence of a more experienced interpreter or educator.

3.3 What are we training when we train interpreters through simulation?

Simulation-based training, which involves replicating realistic situations in a controlled environment, offers opportunities to develop reflection-on-action skills, deliberate practice (entailing individualised training activities tailored to enhance an individual's current level of performance through repetition and successive refinement - see Chapter 2 of this book), and achieving and tracking technical, cognitive, and behavioural objectives (Anderson et al. 2008: 596). Additionally, simulation allows the modification of preconditions that are typically difficult to replicate for a specific learning element (Nyström & Ahn 2024: 138). Simulation-based learning can provide a safe environment for all types of learners, regardless of age, and be more accessible, especially for learners with disabilities.

Kincaid et al. (2003: 273) assert that simulation is significant to the field of education as it:

- Can be applied to learners of all levels and ages,
- Enables learners to view complex relationships that might otherwise involve costly equipment or risky experiments,
- Provides learners with new problem-solving methods and realistic training and skills, and
- Reduces risks to learners and is cost-effective.

Despite the prevalence of simulation in some fields, language-related fields, including interpreting, are still relatively far behind. Interpreting, however, is an excellent candidate for simulation due to the nature of the job. Interpreters often face a high level of unpredictability, especially in public service contexts, where

they can be exposed to sensitive situations, traumatic events, physical and verbal abuse, health risks, highly specialised terminology, and cultural barriers. Interpreters may encounter all these challenges simultaneously or not at all, depending on their specific encounters. Without comprehensive and proper training, interpreters can struggle not only to provide adequate and quality interpretation, but also to manage emotional and psychological distress. Unfortunately, it can be quite difficult to replicate all possible scenarios in real-time within a safe environment that is accessible to all students and ensures their engagement.

A virtual simulation game application that facilitates the holistic comprehension of a subject is necessary to allow students to delineate the interrelationships between concepts, recognise the trade-offs and resource constraints, and comprehend their practical applicability. This would maximise the transferability of academic knowledge acquired by students to practical tasks in the industry (Loureiro-Koechlin & Córdoba-Pachón 2012).

Many studies have explored the potential benefits of simulation in different fields. Educational simulation games have been found to be a source of increased performance and motivation to learn (Randel et al. 1992, Terrell & Rendulic 1996, Prensky 2003, Schwabe & Göth 2005). In addition, simulators offer learners an opportunity to hone their skills in a risk-free and less stressful environment, make mistakes without consequences and thus increase their confidence (Alinier 2003, Salas et al. 2009, Mahboubian 2010, Lean et al. 2021), enable reflection and the assessment of alternative decisions (Cousens et al. 2009), present scenarios that require critical skills and are unlikely to be encountered, and allow repetition of similar scenarios which enhance learning (Baker et al. 2005, Salas et al. 2009). It is pertinent to note that the learning style of the new virtual generation (V-gen) is distinct from preceding generations, characterised by higher levels of visuality, interactivity, and problem-solving (Proserpio & Gioia 2007). Despite that, it appears that stimulation is largely absent from language studies and humanities for that matter, which can be attributed to the fact that their primary focus is on the examination and analysis of existing works instead of the generation of new ideas.

The data we collected with help of research conducted by Deshpande and Huang (2011) reveals that there is a multitude of game types that are both computerised and noncomputerised which have been consistently used in various pedagogical contexts for the purpose of gamifying the learning experience. For instance, in medical fields, *Pharmacy Simulator*, *Pharmlator*, *Capitalism II*, *STEM-Pilot*, *Ghost Medical: Animation and VR Surgery*, *Police Training Simulators: Police 1* by Lexipol are some of the most popular simulations (Raddawi 2015). In the field of physics and mathematics, there is a common use for computer-based

drill and problem-based simulators such as *Heart-Sense*, *Spectrum*, and *Frantic Physics*. In fields such as environmental engineering and child development, non-computerised games tend to be more fitting for the context where case-based role-playing and exercise-based practice takes a more prominent lead. In more business-oriented contexts, simulations are mostly related to acquiring skills related to logistics and enterprise management. Mini-case games such as *MURSH-Bikes* and *SimEnterprise* are commonly used in courses about production planning and control (Thomas 2018). Therefore, the pedagogical instrumentalisation of the simulation plays a role that can be renewed and updated according to market requirements, not only for students but also for employees and trainees. Simulations and games as educational tools have long been part of common practice in a multitude of disciplines and hold great potential for enriching the teaching and training of interpreters in various contexts, not only in Arabic-speaking ones, to begin addressing this gap.

In addition, simulated learning can help learners to achieve higher cognitive learning targets by consolidating the theoretical knowledge they have acquired, telegraphing an opportunity to intervene and guiding actual business processes. Business simulation increases psychological readiness, which is an important factor for novice learners in understanding work. A study conducted on students of law at the University of Fenerbahçe (Doğan et al. 2024) to understand how their immersion in a simulated environment with the help of virtual reality affects their performance in creative tasks, and have reached the conclusion that they enjoy a learning process that supports creativity. This study suggests that simulated learning can also improve translation or interpretation – in other words, improve a student's practical preparedness before going to work.

All in all, the concept of simulations in the context of interpreter training and education has significant merits that may prove to be exactly what the field in the region needs to address its different challenges and concerns. Furthermore, the simulations can be nuanced and adapted to be fit-for-purpose in a way that encourages learners to pursue self-study and training on their own accord when we insert the gamification of education into the road map for the creation of the simulations that are utilised in the classroom.

4 Gamification in education

Despite recent growing interest and research in gamification, the concept is not new: it has been utilised in education for many years, predominantly in primary and secondary schools. The use of gamification begins as early as kindergarten,

where educators employ tools such as image cards, letter cubes, and colourful abacuses. However, adult students can also benefit significantly from the integration of games into their educational experiences. Given that more people of all ages play games – the average video game player has been involved in gaming for more than twelve years (Kapp 2012: 18) – gamification may be even more advantageous for today's students, as they are more accustomed to non-traditional learning methods. It provides a way for educators to adapt the learning process to meet student learning styles and new requirements, as contemporary learners are also viewed as “digital natives”, having grown up with technologies (Kiryakova et al. 2014: 679). This can make the combination of gamification and technology a highly effective approach to enhance learning outcomes.

Games have been utilised in the past to create a stimulating environment, helping individuals overcome different types of turmoil or to come to terms with certain adversaries that arise in different fields. For example, there is a game called *Re-mission* (2008) which has been designed to help young patients fight cancer. The game has been localised to French and Spanish and has, according to Tiemann (2008), proved to help patients' sense of self-efficacy and their attitude towards taking medication.

Another example is a game titled *Revolution 1979*, in which the player takes on the role of a journalist and witnesses the events leading up to the Iranian revolution from a very different perspective or can be perceived as a historical documentary. In 2018, the University of Texas created a game titled ARTE: Mecenas, which is the first art history game in the world. Researchers at that university have reported an improvement of 24.7% in recalled knowledge after just two hours of gameplay (Thomas 2018). There are many other examples of games that historically play an important role in providing an educational experience through an interactive medium. In fact, the adoption of games as tools for learning and development has become one of the methods employed by museums to engage with younger audiences (Styx 2022) as it has proven to heighten the benefits gained from visits, and to allow visitors retain information for longer periods of time.

4.1 Why incorporate gamification into education?

As learning and gaming share many fundamental mechanisms, more educators are exploring the possibility of gamifying the learning process to make it as automatic and enjoyable as gaming (Wang 2021). Gamified learning approaches, often based on digitalisation, increase accessibility for students, promote individualized learning, sustain students' attention, motivate them, and enable the

free flow of information, leading to various educational possibilities and a positively developing educational environment. These approaches positively change students' behavior and attitudes towards learning, enhancing their engagement and motivation. Consequently, they potentially improve academic outcomes, increase subject mastery, level of commitment, and understanding of the educational content (Balalle 2024: 4, Kiryakova et al. 2014: 679). Wang (2021) further argues that incorporating a gamified learning process makes learning less laborious and immerses students in the curricular content. Similarly, a study by Smiderle et al. (2020: 7) shows a significant improvement in the quality of submitted solutions by participants in a gamified group, who achieved higher accuracy. The same study reveals that introverted participants scored higher in terms of points, medals, and logins than extroverted ones, demonstrating a statistically significant difference in the accuracy improvement of the introverted participants. This indicates how gamification can potentially contribute to creating a more inclusive and safer environment that accommodates students' diverse needs and personalities.

Kapp (2012: 9) emphasizes the importance of placing individuals in a safe learning environment, allowing them to gain experience through trial and error, and introducing an allowable element of failure into the learning process. The integration of gamification can also improve accessibility to educational material remotely, thereby increasing both reach and engagement. Furthermore, gamification has been successfully applied in a wide range of disciplines such as engineering, finance, marketing, and healthcare. As Dichev & Dicheva (2017: 1) state, effective collaboration in different contexts, such as customer engagement and employee performance, is among the reasons for gamification's growing popularity and its applicability across various domains. An example of gamified learning can be found in almost every industry, as many organizations employ gamification to train employees and educate students. These organizations range from schools to government institutions. For instance, INNOV8 created by IBM, is an interactive first-person thinker game used in business and information technology programs in hundreds of schools internationally. It teaches complex ideas of business process management through players' decision-making (Kapp 2012: 20).

4.2 The need for comprehensive research in gamification

Although it is suggested that gamification can enhance students' motivation, engagement, knowledge attainment, and understanding of educational content, Dichev & Dicheva (2017: 12) assert that more studies are needed to support this

claim, as there is still insufficient empirical work that thoroughly examines gamification's educational potential. They argue that understanding the target population of a gamified system is vital to effectively gamify a learning activity. Continued theoretical research and systematic empirical studies across diverse gamification settings and contexts are necessary to establish a practical, comprehensive, and methodical understanding of the benefits of applying gamification in educational contexts. In the same vein, recognizing the significance of understanding the needs and preferences of each group of learners, as well as the need for a more accessible and safe learning environment, led to the idea of project [Al]phra, an interpreting simulator.

5 Project [Al]phra

Creating a situated learning simulation that puts interpreters in real-life situations can foster a three-dimensional comprehension of basic interpreting strategies. It can enable interpreters to develop self-awareness and reflection skills, enhancing their capacities even after entering the professional market. Additionally, it assists in obtaining a better understanding of the cognitive and emotional processes that take place during interpreting, especially in public service contexts. Therefore, this chapter introduces Project [Al]phra, a new interdisciplinary approach to interpreter education and training using gamification as underlying notions to support capacity building in interpreting. [Al]phra addresses the lack of adequate training for interpreters, with a particular emphasis on sustainable innovation for community interpreters. It seeks to establish an interpreter-centered use of technology to provide access to real-life scenario-based situations, creating a stimulating and engaging environment to increase motivation and engagement among novice and professional interpreters. Moreover, as an interdisciplinary endeavor, the project aims to create long-lasting connections with other fields such as IT, the sciences, and others from which lessons can be learned.

5.1 Methodology

5.1.1 Phase 1: Developing [Al]phra

Phase one of the project involves two main steps: diagnostic research and initiation of execution. Research begins by gathering preliminary data about simulated learning and studying lessons learned from other studies, acting like a

comprehensive linguistic and cognitive mapping process. The simulation conducts a multi-dimensional evaluation of the learner's linguistic capabilities, going beyond traditional language proficiency tests. As an initial step, this research aims to create an adaptive testing algorithm to precisely measure not just vocabulary and grammar, but also interpretation-specific skills like cognitive processing speed, context switching ability, and cross-linguistic transfer competence. Through fed data, a set of learner profiles that captures linguistic strengths and weaknesses, learning preferences, and potential cognitive challenges specific to Arabic-English interpretation are built in real time.

This forms the basis for the scientific research that will enable step two. Step two involves hiring software developers and animators and adapting existing simulators from other fields to create a prototype of the interpreting simulator, [Al]phra. Upon agreeing on the necessary modules and alpha scripts, the testing extends to functionality and usability with only a small group of testers that is mostly comprised of educators and trainers.

5.1.2 Phase 2: Testing and modification of [Al]phra

This phase moves the learning profile of a trainee interpreter into a structured, gamified learning experience by breaking down the intricate process into manageable, interconnected skill modules. Each of the skills is integrated within the interface as an interactive target. The cognitive and linguistic competencies required for high-level interpretation translate into levels, questions, and scripted interactions. The cognitive processing module, for instance, challenges learners with rapid-fire exercises that simulate the intense mental demands of community interpretation. The linguistic conversion aspect entails exposure to specialized terminology within a realistic context which focuses on cultural and contextual adaptation, presenting learners with scenarios that require not just linguistic knowledge but deep cultural understanding. By gamifying these skill components, the simulation transforms what could be a dry, challenging learning process into an engaging, motivational experience.

In this phase, the simulation creates an environment that simulates real-world interpretation scenarios with intentional complexity. Unlike traditional training methods, these scenarios are not linear. They are responses to the created profiles and the feed of assessment results provided within the span of the testing phase. The simulation uses generative AI to adapt the scripts created for learners based on their linguistic proficiency, their cultural awareness, their cognitive agility, and their adaptability to change. Since feedback will be provided in real time, the learner will be able to receive immediate insight into their real

time feedback mechanisms and provide immediate, constructive insights into performance, highlighting linguistic errors, suggesting improvement strategies, and tracking cognitive processing metrics. The branching narrative structure ensures that each scenario feels unique and unpredictable, mirroring the complex, high-stakes environments where professional interpreters operate.

Since this phase involves testing [AI]phra with student focus groups and collecting data, a call for volunteers will be created and invitations sent to universities and selected professionals. The focus group will test the beta version, extracting data that will then be analysed and used to modify [AI]phra as necessary.

5.1.3 Phase 3: Final modifications and release of [AI]phra

In this phase, the simulation creates a rich, dynamic environment that simulates real-world interpretation scenarios with unprecedented depth and complexity. Unlike traditional training methods, these scenarios are not static or linear, but dynamically responsive to the learner's performance, creating a truly adaptive learning experience. Virtual environments range from international conferences and diplomatic negotiations to medical consultations and technical briefings, each designed to challenge different aspects of interpretation skills. The simulation uses advanced AI to generate contextually nuanced scenarios that test not just linguistic accuracy, but also cognitive agility, emotional intelligence, and professional adaptation. Real-time feedback mechanisms provide immediate, constructive insights into performance, highlighting linguistic errors, suggesting improvement strategies, and tracking cognitive processing metrics.

Phase three includes final modifications made to [AI]phra based on the results of the first two phases, which involves thorough analysis of the data collected during the earlier phases. This may include user performance metrics, error patterns, and participant feedback. Adjustments at this point will address weaknesses, such as difficulties in managing shifts in scenarios or issues with cognitive load. During this phase, a final test run of [AI]phra should be conducted before it is officially released. Interpreting students, novice interpreters, and professionals will be invited to participate in a controlled pilot study through which they will perform tasks using [AI]phra, along with other traditional training methods. The goal is to measure improvements in target language quality, speed, accuracy, and confidence. Quantitative metrics such as error rates and scenario completion times, combined with qualitative insights from participants and supported by pre- and post-test evaluations will provide empirical evidence of [AI]phra's efficiency. The outcomes of the data analysis will be incorporated into version Alpha of the project.

5.1.4 Phase 4: Evaluation

The fourth and final phase entails evaluating [Al]phra post-release. This evaluation will involve obtaining user feedback and surveys to determine if [Al]phra is achieving its desired objectives. User engagement and performance, focusing on leaderboard activity, feedback, and completion rates, will be tracked using post-release data analysis combined with surveys conducted months after the release. This will contribute to assessing the long-term impact of [Al]phra on users' professional skills, such as handling high-pressure scenarios and managing cultural nuances. This will also be reflected in the research paper accompanying the pitch to the industry for real-life testing and distribution.

5.1.5 Maintenance

Ongoing maintenance and support for [Al]phra will be provided throughout the project and after release. This will include bug fixes, security updates, and any other necessary adjustments or updates. It is important to ensure that scenarios and features integrated into [Al]phra remain relevant to emerging interpreting practices, regular updates will be informed by users' and industry partners' feedback.

The estimated timeframe for completing [Al]phra is three to five years, underscoring the need for comprehensive research on gamification.

5.1.6 Expected experimental setup and results

Project [Al]phra will use a simulated environment and a gamified approach to interpreting, involving a virtual reality environment with various scenarios where interpreters can practice in realistic situations. It will provide a range of different settings such as medical, legal, and humanitarian. To gamify this environment, there will be rewards for completing tasks or achieving goals, as well as a leaderboard to track progress. This will be combined with a tutorial and assessment system to ensure that interpreters are making progress and advancing. The project will also develop an online platform to link interpreters and researchers, sharing additional resources, including videos, articles, and other materials related to interpreting.

The expected results of [Al]phra on interpreting students, novice, and professional interpreters include:

- Increased understanding of the interpreting process, as [Al]phra will provide an interactive and engaging platform where interpreters can practice

their skills in an accessible and safe environment and gain insights on how to recognize and appropriately convey meaning across languages and effectively manage time and resources.

- Increased efficiency in the interpreting process.
- Increased accuracy and speed of interpreting.
- Improved communication between interpreters and clients.
- Increased understanding of cultural nuances.
- Enhanced confidence in interpreters' abilities.
- Increased understanding of how to approach various interpreting tasks.
- Sharpened cognitive and receptive skills.
- Increased motivation and engagement among interpreters.
- Better handling of unexpected and challenging scenarios.

6 Conclusion

It remains crucial to continuously collect and coordinate data that demonstrate the successes and failures of gamification to establish an empirical knowledge base, compile best practices, extract guidelines, and ultimately develop predictive theories (Dichev & Dicheva 2017). Building on this foundation, this chapter outlines Project [Al]phra's potential to bridge the divide between academic preparation and market demands and address gaps in interpreting training through the application of gamification and simulation-based learning. These gaps include the lack of practical experience with lifelike high-pressure scenarios, insufficient attention to emotional and psychological challenges and the limited integration of technological competence despite its integral role in remote interpreting services and the management of translation memories and specialized terminology. The interdisciplinary approach of [Al]phra tackles pedagogical limitations while aligning with recent developments and emerging trends in education and professional training. A gamified, simulation-based training could effectively transform interpreting education especially where interpreting training programs and regulatory frameworks are underdeveloped. [Al]phra seeks to provide a learning space to address key challenges such as linguistic accuracy, cultural competence

and cognitive agility, which are essential for interpreters, especially those working in complex, demanding and high-risk settings. It serves as a basis for further research and development focusing on the validation of the feasibility and efficacy of gamified and simulation-based training in interpreting education.

Although the project's reliance on data-driven modifications and agility may ensure its relevance, its scope in the initial pilot phase will be limited by the focus on the use of standard English and classical Arabic. This is because the sample of participants will consist only of learners who speak English and Arabic. In subsequent phases, inclusion of more languages and dialects will be prioritized to increase accessibility and inclusivity. Furthermore, there is the potential to develop a mobile application for [Al]phra, enabling learners to access it at any time and on their preferred devices. This can be particularly beneficial for younger generations, who are heavily reliant on their mobile phones. Project [Al]phra represents a major step forward in incorporating simulation and gamification into interpreter education. It has the potential to revolutionize the field and embrace the use of technology and AI and employing them in ways that collectively serve interpreters and other end users.

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