This paper analyses how new learning approaches based on gamification can be used for professional growth in teacher training seminars. To address this matter, we designed and implemented a Breakout Edu competition — a sequence of game-based tasks mixing up education and entertainment. The pilot study involved fifteen plurilingual educators tackling the efficacy of social and cognitive groundworks of collaborative learning through gamification. It is important to highlight that the participants were also experts in teaching non-linguistic subjects in English (Content and Language Integrated Learning or CLIL methodology). The researchers designed and implemented a methodological plan to ensure the process feasibility and confirm the motivational value of the training set. The project comprised the experimental part (workshop, training materials), feedback (questionnaire, discussion), analysis and dissemination of the results. Our results based on an original questionnaire showed a general acceptance of new gamified knowledge building and raised awareness of active learning techniques. Overall, 80% of participants fully agreed with the possibility of implementing this technique in the classroom with the students across different educational stages; the same number of educators considered that the Breakout Edu workshop fully encouraged motivation and teamwork. Despite certain limitations in terms of sample size, our experiment strengthens the dissemination of learner-focused approaches. Profiling professional development challenges of future CLIL instructors was aligned with sustainable development goal 4 (General Assembly Resolution). Research findings will deserve careful thought by the education community, policymakers and teacher-trainers currently promoting CLIL, active learning methodologies and gamification. 

**Keywords:** Educational breakout, teacher training, active methodologies, Content and Language Integrated Learning (CLIL), CLIL teacher training, plurilingual education, sustainable development.

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Использование методики «Educational breakout» в рамках устойчивого профессионального развития педагогов CLIL

Оксана Полякова
Политехнический университет Валенсии, г. Валенсия, Испания
ORCID: https://orcid.org/0000-0003-0575-2386, e-mail: okpolnes@upv.es

Лусия де Рос Косера
Католический университет Валенсии, г. Валенсия, Испания
ORCID: https://orcid.org/0000-0001-9844-4213, e-mail: lucia.deros@ucv.es

Целью настоящего исследования является изучение вклада новых подходов к обучению, основанных на геймификации, и их применение для профессионального развития на семинарах по подготовке учителей. Для решения этой задачи мы разработали и внедрили Breakout Edu — последовательность игровых заданий, совмещающих обучение и развлечение. В пилотном исследовании приняли участие пятнадцать полилингвальных педагогов, проверивших эффективность социальных и когнитивных основ совместного обучения с помощью геймификации. Важно отметить, что участники проекта также являются экспертами в преподавании языковых предметов на английском языке (методология «Content and Language Integrated Learning — CLIL»). Исследователи разработали и реализовали методический план, призванный обеспечить реализуемость процесса и подтвердить мотивационную ценность учебного комплекса. Проект включал экспериментальную часть (семинар, учебные материалы), обратную связь (анкетирование, обсуждение), анализ и распространение результатов. Данные, полученные с помощью авторского опросника, продемонстрировали положительные результаты нового игрового построения знаний и повышение осведомленности о методах активного обучения. В целом, большинство участников (80%) полностью согласилось с возможностью применения этой методики в классе с учащимися на разных образовательных этапах; столько же педагогов посчитали, что семинар Breakout Edu положительно повлиял на динамику мотивации и командную работу. Несмотря на некоторые ограничения, связанные с размером выборки, наш эксперимент способствует распространению нового подхода, ориентированного на обучающихся. Определение проблем профессионального развития будущих преподавателей CLIL совместимо с задекларированными ООН целями устойчивого развития (цель № 4, Генеральная ассамблея ООН). Полученные в ходе исследования результаты заслуживают тщательного анализа со стороны образовательного сообщества, законодательных органов и преподавателей, занимающихся продвижением CLIL, методик активного обучения и геймификации.

Ключевые слова: Breakout Edu, подготовка учителей, активные методологии, предметно-языковое интегрированное обучение (CLIL), подготовка педагогов CLIL, многоязычное образование, устойчивое развитие.

Финансирование. Данная работа является частью исследовательского проекта «Коммуникация в CLIL. Развитие коммуникативных компетенций преподавателей CLIL», финансируемого Католическим университетом Валенсии (исследовательский грант № 2019-271-002).
Introduction

Education in a globalised society takes on different aspects. One might quickly identify schooling, vocational training or university degrees characterised by capacity-building and life-long learning. However, the worldwide challenge these days is called quality education. Why are we concerned with this factor? As highlighted by the United Nations in the 2030 United Agenda [35], the Sustainable Development Goal 4 (Quality education), is the response to paradigm shift required for providing access to a high-quality education that is inclusive and equitable, as well as opportunities for life-long learning.

The global perspective of mutual understanding and cooperation has led many European countries toward quality and plurilingual education. The language domain no longer uniquely belongs to a specific nation; it opens up to a wider angle of a cross-linguistic curriculum design. Therefore, for embracing a compelling plurilingual education setting, we need to tackle the practical promotion and development of this stance [9; 15; 36].

Modelling professional preparation teacher training worldwide [21] and integrating ongoing content-based L2 (second language) needs, teaching personnel is critical for addressing this issue. As a result, the goal of this pilot project was to apply innovative teaching and learning approaches to addressing the difficulties of organising workshops “From educators to educators”. Furthermore, incorporating a plurilingual environment effectively could aid in handling quality education goals more assertively. The entertaining game-like format was quite challenging whereas advantageous as it followed the paradigm of social interaction, challenge and competition [12].

As explained in greater detail in the next section of the paper, this pilot study explores the updated plurilingual teacher training scenarios and their applicability to future classroom dynamics. In particular, the critical research questions addressed here are the following:

\[RQ1. \text{What role could the educational breakout game play in exposing educators’ to an updated active learning methodology?}\]

\[RQ2. \text{How practical and motivational could an educational breakout training be?}\]

Literature Review

Plurilingualism and Content and Language Integrating Learning (CLIL)

In 1999, the UNESCO General Conference provided the starting point for understanding the idea of multilingual education [34, pp. 35—36], or “linguistic pluralism,” by referring to the use of at least three languages in education: the mother tongue, a second language, and a modern international language. Almost 20 years later, the Council of Europe reviewed and updated this notion by stating that [4, p. 31], “plurilingualism can in fact be considered from various perspectives: as a sociological or historical fact, as a personal characteristic or ambition, as an educational philosophy or approach, or — fundamentally — as the sociopolitical aim of preserving linguistic diversity”.

By enabling a new social and cultural foundation for EU members, the plurilingual basis encourages them to develop new skills and learn new languages. To achieve these goals, European schools focus on plurilingual and pluricultural values. As a result, globalisation emerges as a critical component in spreading sociolinguistic and pragmatic traits that may support and enhance the value of educational outcomes [2; 3; 27; 30].

The implementation of plurilingual education policies in Europe and Spain is closely linked to the Content and Language Integrated Learning (CLIL) approach [8; 10; 20; 31]. Nevertheless, what is CLIL? According to Marsh [22, p. 5], it is “a dual-focused educational approach in which an additional language is used for the learning and teaching of both content and language”.

Numerous specialists have emphasised CLIL’s valuable didactic, methodological, instrumental and innovative functions [5; 22; 24; 28]. While
teaching a curricular subject at school, this technique seeks to achieve an equally relevant language and content training position. Even though the CLIL method has been questioned because of some political or ideological constraints [7; 33], we firmly support and encourage its usage.

**CLIL teacher training**

Whereas no doubt has been cast on the usefulness of the CLIL approach for promoting plurilingualism, teacher training represents one of the most critical components of this paradigm. Studies conducted over the last ten years have provided a compendium of CLIL teacher competences on common principles for content and L2 educators. Chronologically arranged, the following outline presents their remarkable diversity:

a) 2010 — the CLIL Teacher’s Competences Grid by Bertaux et al. [1], comprising two main stages — underpinning CLIL and setting CLIL in motion — was launched under the guidance of the CLIL Cascade Network. Being the grid a starting point for CLIL teaching and professional development, each section featured different needs.

b) 2011 — the European Framework for CLIL Teacher Education by Marsh et al. [23] addressed such professional competences for CLIL educators as personal reflection, CLIL fundamentals, content and language awareness, methodology and assessment, research and evaluation, learning resources and environment, classroom management or CLIL management.

c) 2018 — CLIL teacher competences considered by Pérèz-Cañado [29] identified seven crucial areas for CLIL teacher skills that stand out from all other considerations: linguistic competence, methodology, scientific knowledge, organisational, interpersonal and collaborative competence, continuing professional development.

The Valencian Community (Spain) provides a remarkable backdrop for this research study regarding the subject and linguistic approach. The area combines the need for trilingual teaching in Spanish, Valencian and English with the steady progress of multiple arrangements at institutional and curricular levels [6]. In terms of CLIL educator training, official specialised programmes and courses deliver methodological foundations of the approach. However, practical hands-on experience working with gamification and enriching the plurilingual context of the teacher training was missing. For this reason, a permanent expert update is, therefore, the guiding line of the current research, as is seen in the following figure.

![Fig. 1. Key aspects of the theoretical foundations](image)
Materials and Methods

Notwithstanding the broad scope that plurilingualism and content-oriented professional development may reach, the present study focuses on using active learning strategies for CLIL educators in the construction of successful classroom interaction. Our teacher training approach is related to the research into the educational breakout case and, specifically, its application for educators’ preparation.

Methodological principles of educational breakout

Here, we motivate our research structure for verifying the feasibility of the experimental approach suggested. To the best of our knowledge, no previous study has investigated the formal implementation of technology and Breakout Edu for educating CLIL instructors. We apply the following methodological principles and ideas:

— the Technological Pedagogical Content Knowledge (TPACK), based on content, pedagogy and technological knowledge, lies at the centre of this paradigm. Quality teaching, according to the TPACK paradigm, requires a sophisticated grasp of the intricate relationships between three dominant sources of knowledge: technology, pedagogy and content, as well as how these interplay play out in specific situations [25];

— the Breakout Edu consists of solving all the riddles prepared to open a final chest with a prize. Additionally, the escape room leads us to the code or key that will allow us to leave the classroom [13];

— Escape Rooms are connected to gamification, game-based learning and cooperative games with a pedagogical aim. One of the primary benefits of Edu-Escape Rooms is the possibility of learners’ involvement and motivation [14];

— in some cases, Breakout Edu is used as a teaching strategy in higher education to boost student motivation while acquiring specialised content [11].

Specifically, we reviewed the educational innovation project of the Polytechnic University of Madrid [18; 19] and applied some of its guidelines to our educational breakout experience.

Piloting Process

This pilot study objective is to test the viability of a training activity implementation experimentally. Its relevance as a small-scale examination gives vital information on monitoring, adapting, and improving educational methods. They are widely utilised in clinical research and social sciences [17; 32]. A pilot study-based creation of new methods provides a once-in-a-lifetime chance to assess the feasibility of educational interventions and adapt some of its activities to the new plurilingual training environment [16; 26]. The sequence and methods utilised are depicted in the accompanying diagram.

As Figure 3 shows, the design for the piloting process consists of four interrelated phases: preparation stage, implementation stage, closing stage and, lastly, follow-up and dissemination. The overall planning helps develop a sequence of stages linked to specific scenarios and participants.

Setting, materials and participants

The idea of the training event relates to two major projects: the Science Week and the Plurilingual Instruction and Competences Outlines Seminar (PICOS) of the Catholic University of Valencia back in September 2019. Being the practical implementation of the innovations presented during the seminar on the top of our agenda, a group of organising committee members (Lucía de Ros Cócer, Verónica Alarcón García and Oksana Polyakova) developed the concepts, designed the contents, produced the materials, carried out the training and conducted research on it. While on the one hand the coordinating team was fully engaged in the whole process, on the other hand, the focus group supported the initiative by actively participating in it.

Within the group, 15 contributors participated in a discussion of the experience and 12 of them provided helpful feedback on the workshop through an anonymous questionnaire. By designing the anonymous questionnaire, the research team ensured the privacy and confidentiality of the data obtained. The study involved 12 teachers with expertise in CLIL methodology and second languages (9 female and 3 male participants).
We use our previously defined theoretical background as a basis for the process. The procedure design relies on the Educational Breakout structure at its core. Furthermore, we show an applied approach for CLIL educators' scenery. Despite the fact that there is no previous precedent in this training area, our pilot study depends on the usefulness for the focus group. The question is, will Breakout Edu prove its worth?

**Implementation and Results**

To answer this question and explore the feasibility of running a unique professional development workshop for CLIL educators, we combined...
educational innovation and teacher training opportunities. Therefore, a range of outcomes seeks to offer a proportionate response to the research questions stated at the beginning of the study.

Implementation process

First, throughout the Preparation stage, after several sessions of brainstorming and onerous optimising, we finally have a working implementation scheme for the Educational breakout workshop about CLIL and education. The capacity-building objectives were designed to enhance the teacher experience on active learning approaches, increasing their ability to implement similar tasks at schools. According to the typology mentioned above, it is a competitive event with a set route which requires a variety of skills (search, logic, observation, calculation, linguistics, creativity, memorisation). With regard to the types of enigmas, riddles and puzzles, we designed a sequence of activities based on locked boxes, invisible ink, whiteboard, worksheets, songs, tangrams, word searches. The overall timing was 40—50 minutes.

Second, during the Implementation stage, the participants completed the activities previously designed (see Figure 4). Since the workshop realisation is almost entirely based on the preliminary phase, the coordinators mainly followed the plot, reminded the rules, monitored the process and supported the contestants. Challenges design demonstrated that subgroup tasks provided an enjoyable learning way to successful professional training. Specifically, the combination of different multiple intelligence types encountered in the design of the exercises allowed specific individual skills of group members to highlight and support the final game outcome — active learning-by-doing commitment.

Third, the Closing stage included questionnaire data collection (12 participants) and trainees experience discussion (15 persons) and feedback.

Outcome 1: questionnaire

In terms of surveying, the study utilised a short questionnaire validated by a panel of experts on plurilingual education and languages (Dr. Maria Jesus Carrera, Dr. Laura Planells Bolant, Rosa Maria Alonso, Verónica Alarcón García, Lucía de Ros Cócera and Dr. Oksana Polyakova).

The results of the questionnaire are displayed in Table 1. Accordingly, the statistical analysis (conducted manually) of all items led to the apparent relationship between validity and representativeness. Moreover, the Likert scale used in the questionnaire comprised 5 points of approval varying from positive to negative strength or intensity of feeling. An option called “Neither disagree (unsatisfied) nor agree (satisfied)” for undecided respondents was also introduced in the middle of the scale.

With respect to the answers, Q1 (question 1) revealed that over 80% (10 persons) of study participants were Spanish citizens plus only two non-EU nationals.

Getting familiar with the new methodologies for collaborative teaching and learning were gen-
Table 1

### Reliability Analysis for the Breakout Edu Results (N=12)

#### Q1. Country of origin

| Valid   | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------|-----------|---------|---------------|--------------------|
| Spain   | 10        | 83,3    | 83,3          | 83,3               |
| UK      | 1         | 8,3     | 8,3           | 91,7               |
| Russia  | 1         | 8,3     | 8,3           | 100,0              |
| Total   | 12        | 100,0   | 100,0         |                    |

#### Q2. The workshop allowed me to become familiar with the new methodologies for collaborative teaching and learning.

| Valid   | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------|-----------|---------|---------------|--------------------|
| Agree   | 1         | 8,3     | 8,3           | 8,3                |
| Fully agree | 11    | 91,7    | 91,7          | 100,0              |
| Total   | 12        | 100,0   | 100,0         |                    |

#### Q3. The workshop allows for diversification in the classroom

| Valid   | Frequency | Percent | Valid Percent | Cumulative Percent |
|---------|-----------|---------|---------------|--------------------|
| Agree   | 1         | 8,3     | 8,3           | 8,3                |
| Fully agree | 11    | 91,7    | 91,7          | 100,0              |
| Total   | 12        | 100,0   | 100,0         |                    |

#### Q4. It is possible to carry out this kind of activities in the classroom with my students across different educational stages.

| Valid       | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------------|-----------|---------|---------------|--------------------|
| Neither disagree nor agree | 2      | 16,7    | 16,7          | 16,7               |
| Agree       | 2         | 16,7    | 16,7          | 33,3               |
| Fully agree | 8         | 66,7    | 66,7          | 100,0              |
| Total       | 12        | 100,0   | 100,0         |                    |

#### Q5. The BreakOut Edu workshop encourages motivation and teamwork.

| Valid                               | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------------------------------------|-----------|---------|---------------|--------------------|
| Neither disagree nor agree          | 1         | 8,3     | 8,3           | 8,3                |
| Agree                               | 1         | 8,3     | 8,3           | 16,7               |
| Fully agree                         | 10        | 83,3    | 83,3          | 100,0              |
| Total                               | 12        | 100,0   | 100,0         |                    |

#### Q6. The BreakOut Edu can be applied to any subject.

| Valid                               | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------------------------------------|-----------|---------|---------------|--------------------|
| Neither disagree nor agree          | 1         | 8,3     | 8,3           | 8,3                |
| Agree                               | 2         | 16,7    | 16,7          | 25,0               |
| Fully agree                         | 9         | 75,0    | 75,0          | 100,0              |
| Total                               | 12        | 100,0   | 100,0         |                    |

#### Q7. General level of satisfaction with the workshop activities.

| Valid       | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------------|-----------|---------|---------------|--------------------|
| Satisfied   | 1         | 8,3     | 8,3           | 8,3                |
| Extremely satisfied | 11 | 91,7 | 91,7 | 100,0 |
| Total       | 12        | 100,0   | 100,0         |                    |
erally perceived to be a strong point of the workshop — Q2 — by all respondents fully agreeing (over 90%, 11 persons) and agreeing (over 8%, 1 person). Similarly, the perceptions of classroom diversification — Q3 — rated at the same level.

The possibility of implementing workshop-like activities in the classroom with the students across different educational stages — Q4 — prompted a bit more doubtful general response, varying from about 70% (8 persons) of complete agreement as well as equal number of neutral position and agreement of over 15% (2 persons) accordingly.

Educators who consider the Breakout Edu workshop fully encouraged motivation and teamwork — Q5 — totalled over 80% (10 persons), meanwhile over 8% (1 person) agreed and the same number of participants neither agreed nor disagreed. The applied side of the educational escape room being useful for any subject — Q6 — showed slightly more diversity of views: 75% (9 persons) fully agreed with the statement, whereas over 16% (2 persons) agreed and over 8% (1 person) expressed a neutral position.

Most teachers surveyed mainly felt extremely satisfied with the workshop activities — Q7 — totalling this quantity over the 90% (11 persons) and satisfied (over 8%, 1 person). Precisely this point guides us toward the second part of the feedback — the final discussion.

**Outcome 2: discussion and Word cloud**

Additionally, the group discussion performed at the training was conducted in the following manner: the workshop organisers asked the trainees to comment on the conclusions and write a short phrase making reference to the Breakout Edu outcomes or implications on their teaching practice. The sentence was added to the statistical questionnaire and then envisioned by forming a Word cloud poster.

The frequencies were exposed in brackets meanwhile font sizes varied from the smallest one (mentioned only once) to the biggest one (repeated up to seven times). Figure 5 beneath reveals a steady trend to express gratitude for organising the venue (“thank”, word count: 7). Apart from that, the “experience” (word count: 5) was characterised by adjectives “innovative”, “meaningful”, “great” and “original”. Some participants confessed the ability to “bring the new method to the classroom” and “encourage teamwork”.

The final point of interest of the experiment is the dissemination of its results. To this end, the Final Master's degree project presented by Lucia de Ros Cócer helped turn the experimental evidence into a staging environment for the innovation and ICT in the plurilingual teaching-learning process.

**Discussion and Conclusion**

This pilot study covers a description and analysis of the Educational escape room and begins with a literature review focused on plurilingual education and CLIL teacher training and suggests a list of the research questions. The detailed method description is followed by a com-

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Fig. 5. Word cloud representation of the participants' opinions

| Word       | Frequency |
|------------|-----------|
| able       | 2         |
| adults     | 1         |
| blast      | 1         |
| bring      | 2         |
| classroom  | 2         |
| completely | 2         |
| congresses | 1         |
| dedication | 1         |
| dynamic    | 2         |
| encourage  | 1         |
| enjoyed    | 1         |
| enriching  | 2         |
| experience | 5         |
| fantastic  | 2         |
| finally    | 2         |
| innovative | 2         |
| interesting| 1         |
| learning   | 1         |
| lifelong   | 1         |
| meaningful | 2         |
| multilingual | 1   |
| original   | 1         |
| purpose    | 1         |
| real       | 1         |
| really     | 2         |
| speakers   | 2         |
| teamwork   | 1         |
| thank      | 7         |
| tool       | 1         |
| understand | 2         |
| used       | 1         |
| workshops  | 1         |
plete overview of the project implementation and outcomes.

On the whole, in this study we constructed and tested a framework for highly-engaging training gamified approach. Further, we also motivated an outreach workshop for answering the list of initial research questions:

RQ1. What role could Educational breakout game play in exposing educators’ to an updated active learning methodology?

We were able to design a specific configuration of the Educational breakout experience while introducing a professional development process based on motivation. What is more, in-service and pre-service CLIL teachers vividly described the active learning procedure as an “enriching lifelong learning”.

RQ2. How practical and motivational could an Educational breakout training be?

By aiming at linking new teaching methods and plurilingualism, the pilot study aligned a commercial gamification scheme with the need to encourage teachers and promote active learning methods in their classrooms. The Educational breakout experience has proved itself as a valid technique for building social cohesiveness and motivation.

In conclusion, this workshop employed a novel model of teaching community engagement by new benchmark for plurilingual classrooms. General high satisfaction levels of the focus group provide the reliable feedback for future online design of the breakout experience.

The project follow-up is based on structured study planning that permits logical sequencing and technical application of the experiment in a programmed training setting. Moreover, the study also allows educational materials to be developed and enables wide dissemination of information.

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Information about the authors

Oksana Polyakova, PhD in Applied Linguistics, lecturer and researcher, Department of Applied Linguistics, Universitat Politècnica de València, Spain, ORCID: https://orcid.org/0000-0003-0575-2386, e-mail: okpolnes@upv.es

Lucía de Ros Córera, Master’s degrees in Teaching of Spanish as a foreign language and Educational innovation, academic coordinator, Instituto de Lenguas, Universidad Católica de Valencia, Valencia, Spain, ORCID: https://orcid.org/0000-0001-9844-4213, e-mail: lucia.deros@ucv.es

Информация об авторах

Оксана Полякова, PhD, научный сотрудник, доцент, кафедра прикладной лингвистики, Политехнический университет Валенсии, г. Валенсия, Испания, ORCID: https://orcid.org/0000-0003-0575-2386, e-mail: okpolnes@upv.es

Лусия де Рос Косера, магистр в области преподавания испанского языка как иностранного и инноваций в образовании, академический координатор, Институт языков, Католический университет Валенсии, г. Валенсия, Испания, ORCID: https://orcid.org/0000-0001-9844-4213, e-mail: lucia.deros@ucv.es

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