

Balancing the integration of cutting-edge research methodologies in CALL with context-specific approaches in less commonly taught language (LCTL) and endangered language (EL) settings

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Abstract

The teaching and learning of Less Commonly Taught Languages (LCTLs) present distinct challenges and opportunities that differ significantly from those in more commonly taught language environments. This paper explores how advances in Computer-Assisted Language Learning (CALL) and emerging research methodologies can support learner engagement across a number of LCTL contexts in primary education and higher education settings internationally. The three case studies relating to integration of CALL in primary education settings explore the teaching and learning of both the Irish language and the Japanese language in Ireland. The teaching and learning of Irish, Maltese and Jamaican Creole at higher education institutions provide a further three case studies which inform CALL research methodologies and practice. The collective outcomes of the featured case studies inform the exploration of key opportunities and challenges which face LCTL educators and learners across global learning contexts. It is argued that while AI and cutting-edge tools offer clear potential (Mohsen et al., 2024), person-centred, context-sensitive methodologies remain essential to support effective CALL integration in specific settings (O'Toole, 2023).

Keywords: Less Commonly Taught Languages (LCTL); Endangered Languages (EL); Computer-Assisted Language Learning; case study.

1. Introduction

It is widely accepted that approaches to teaching and learning of Less Commonly Taught Languages (LCTLs) pose more nuanced considerations and challenges to language educators compared with More Commonly Taught Languages (MCTLs) (Godwin-Jones, 2025, Ward et al., 2024a). This has implications for LCTL in terms of; (i) chosen pedagogical approaches, (ii) the creation and dissemination of teaching and learning materials, and (iii) research methodologies applied to LCTL and Endangered Languages (EL) teaching and learning. Computer-Assisted Language Learning (CALL) is nestled within these three spheres and demonstrates its potential to contribute to the teaching and learning of LCTL and EL in various capacities, and to the research field of LCTL and EL more broadly.

‘Cutting-edge’ can be defined as “the most modern stage of development in a particular type of work or activity” (Cambridge, 2025). While the field of CALL is well established and unequivocally intertwined with the field of (Second) Language Acquisition (SLA), it is of note that there is historically a more tenuous link with CALL and LCTLs, ELs and indigenous languages (Ward, 2018; Godwin-Jones, 2025). As we progress through the UNESCO Decade of Indigenous Languages, the prospect of ongoing language endangerment and the potential permanent loss of certain languages juxtaposed with the evolving potential of AI and cutting-edge technologies and advancing CALL (research) methodologies, it is a timely opportunity to review a number of LCTL case studies from Ireland, Malta and Jamaica.

The selected LCTL case studies each illustrate how CALL tools are being adapted to address the sociolinguistic, pedagogical, and technological constraints that LCTLs often face. In the primary education sector in Ireland, a project which leverages VR technology to create a medieval-themed interactive Irish language CALL game represents cutting-edge technology in LCTL and provide important opportunities for learners of Irish to experience the Irish language. A second primary-based project which facilitates the introduction of readily available Irish language CALL to parents of young learners highlights the potential of Irish CALL resources to support family learning of the language whereby English represents the dominant language. Similarly, student engagement with and review of Japanese CALL resources by primary school ab initio learners demonstrates how a facilitative approach to CALL can support learner engagement with complex writing systems. In Malta, innovative pedagogies integrating a CALL-based digital storytelling platform has supported student engagement with Maltese at undergraduate level. Further teaching and learning innovations at Ulster University in Ireland are reflected in the creation of a task-based learning unit culminating in a radio production for an Irish language radio station develops key technical CALL skills in sound and radio production, in addition to creating a meaningful domain of language use for students and Irish language speakers. Finally, the Jamaican Creole case study highlights how CALL can support the teaching and learning of Jamaican Creole and the necessity to further develop CALL resources and Jamaican Creole programmes in Jamaica with CALL integration in order to build on veritable progress in CALL developments in recent years. Table 1 below provides a summary of the six LCTL case studies featured in this paper. The LCTLs featured include Irish (Case Studies 1, 2 and 4), Japanese (Case study 3), Maltese (Casey Study 5) and Jamaican Creole (Case Study 6). The first three case studies relate to LCTL teaching and learning at primary level in Ireland, and the second three case studies relate to LCTL teaching and learning in higher education in Ireland, Malta and Jamaica.

Table 1. Summary of case studies

	(i) Country & Learner setting (ii) LCTL	Participants	Research Project	Type of LCTL resources
1.	(i) Ireland, primary school sector (ii) Irish	Pilot: Senior Primary classes (4th and 5th class)	CALL research in LCTL: Cipher: <i>Faoi Gheasa</i> Project	Video game and Virtual Reality (VR)
2.	(i) Ireland, primary school sector (ii) Irish	10 parents of primary school-going children	Outreach project for parents to engage with Irish. Funded by the Foundation for Endangered Languages	Showcasing readily available online dictionaries and useful websites; demonstration of VR for Irish; Q&A discussion with CALL expert
3.	(i) Ireland, primary school sector (ii) Japanese	15 children at senior primary level (5th Class)	School-based experimental study	Piloting and student review of selected Freemium Japanese language writing apps
4.	(i) Ireland, Higher Education (ii) Irish	7 adult learners at undergraduate level	Teaching and learning innovation to promote productive language skills via task-based learning	

5	(i) Malta, Higher Education (ii) Maltese	12 international adult learners attending university	Qualitative intervention using digital storytelling in a DegreePlus study-unit in which they learnt about Maltese Culture	Custom-built CALL platform, 'I-istorja Tiegħi' (My Story) with morphological scaffolding, pronunciation tools, and bilingual glosses
6	(i) Jamaica, Higher Education (ii) Jamaican Creole	31 Jamaican university students who took the course Academic Literacy for Undergraduates	Teaching language and writing to distinguish between the structures of Jamaican Creole and Standard Jamaican English	Tailored <i>YouTube</i> videos on Jamaican Creole with historical, syntactical, and proverbial scaffolding.

The case study approach undertaken to bring together the research and practice of EUROCALL LCTL Special Interest Group (SIG) members is briefly explored in the next section. This leads to the introduction of each case study in more depth with a focus on the methodological and pedagogical approaches utilised therein. Both the shared and context-specific results and outcomes of the LCTL CALL case studies are then presented. These inform the discussion of key opportunities and challenges that face LCTL educators and learners in the context of how cutting-edge CALL technologies and research methodologies can be leveraged and applied in LCTL contexts.

2. Method

Defining case study as a method is not straightforward. It could be proposed that any research in social science is indeed a case (Cohen et al., 2018). A case study by its very nature might encompass experimental, participatory, or naturalistic approaches, which include multiple forms of data collection (*ibid*). The study of a particular instance that is often devised to inform a more general principle (Nisbet and Watt, 1984), a case study is the detailed examination of a potentially small sample of participants, a real-life project, an institution, a policy or programme in practice from various perspectives in order to capture its essence and specific attributes. While Creswell conceptualized case study as “a single instance of a bounded system” (Creswell, 1994, p.12), other views of case study are less rigid and argue that the case (e.g. a student, a school/institution, a class, etc.) and its context are inextricably linked (Yin, 2009). Yin defines a case study as “an empirical inquiry that investigates a contemporary phenomenon in depth and within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident” (Yin, 2009, p.18). The inclusion of three to five specific cases within a (multiple) case study is generally recommended (Creswell, 2002), whereas four to ten cases are recommended for the development of theory (Eisenhardt, 1989). The following sections focus on the methodological and pedagogical foundations of each the six case studies in relation to CALL integration in each of the LCTL learning contexts.

Case Study 1: The Cipher Project: Game and VR for primary school learners of Irish

How can advances in the field of Computer-Assisted Language Learning (CALL) and cutting-edge research methodologies sustain and bolster learner engagement in the Irish language context? Game-based CALL approaches, such as Cipher, which integrates cultural storytelling and technology-driven adaptive learning, can benefit learners of Irish as well as learners of other LCTLs. (Xu et al, 2024). Cipher is a Digital Game-Based Language Learning (DGBLL) tool designed for the Irish language, which has been developed to foster learner motivation through culturally meaningful gameplay (Xu et al., 2022). Unlike conventional language apps, *Cipher* integrates folklore-inspired narratives, AI-generated visual and auditory elements, and a gamified text decoding mechanic. Players identify linguistically modified (or ‘ciphered’) words embedded within stories, receiving feedback through points and animated responses. One standout feature of Cipher is its use of culturally resonant content, such as the Irish myth ‘The Salmon of Knowledge’. *The Salmon of Knowledge* is a tale from Irish mythology about a magical salmon, said to bestow all the world's knowledge upon the first person who eats it. A druid named Finnegan instructs his young apprentice, Fionn, to cook the fish for him. However, Fionn accidentally burns his finger while preparing the salmon and instinctively puts it in his mouth, thereby ingesting part of the fish. As a result, it is Fionn, not Finnegan, who gains the knowledge. AI-generated images are interspersed

throughout the story-based gameplay to contextualise the narrative. To support vocabulary acquisition and gameplay, Cipher employs a Text-To-Speech (TTS) system that enables learners to hear the pronunciation of targeted words and instructions (Xu et al, 2024a). The tool was iteratively developed and evaluated in multiple phases, and was deployed in Irish primary schools. Development stages included adaptation for low-resource environments, integration of assistive features for dyslexic learners (Ward, 2024), and an extended VR version designed to further cultural immersion (Xu et al., 2024b).

2.1. Case Study 2: Parents' perspectives on the potential of CALL for (young) learners of Irish

This specific case study is drawn from an Irish language revitalisation and research project funded by the Foundation for Endangered Languages (FEL). Led by a teacher-researcher at a North Dublin English-medium primary school in Ireland, the project sought to re-connect parents with the Irish language in order to activate adult community Irish language engagement and to support children's Irish language learning journeys at primary level. Forty percent of the population (1.9 million people) of the Republic of Ireland claim some ability to speak Irish (CSO, 2023), the vast majority of whom are second languages speakers and learners of Irish. Over half a million students encounter Irish on a daily basis through the education system which is central to Irish revitalisation efforts.

Parents can be particularly challenged in supporting their child's engagement with the Irish language compared to other subjects (Martinez Sainz et al., 2023; Darmody & Daly, 2015; Harris & Murtagh, 1999). Support and opportunities for parents to engage with the Irish language are recommended in this regard (Darmody & Daly, 2015; Harris & Murtagh, 1999). As part of series of Irish language workshops for parents of primary children, one of the workshops focussed specifically on demonstrating and discussing the potential of CALL resources to support learners of Irish. Teachers presented and demonstrated a number of readily available web-based Irish language resources a guest speaker spoke about CALL for the Irish language and demonstrated VR-based Irish language resources. This study focuses on perspectives shared by parents in relation to the potential role of CALL for learners. Data collection consisted of three discussion groups which each included four parent participants (n=12), in addition to questionnaires completed by participants at the end of the language project in its entirety (n=10). A thematic analysis (Braun & Clarke, 2020) was undertaken in relation to the parent discussion groups and the questionnaire served to further informed findings.

2.2. Case Study 3: Piloting and reviewing CALL resources to support young ab initio learners of Japanese

This school-based exploratory study sought to support young ab initio learners of Japanese to further their awareness and knowledge of the Japanese writing system by engaging with and reviewing a smorgasbord of freely available web-based Japanese language resources and Japanese language writing apps. The CALL classes were designed and facilitated by the teacher-researcher in an extra-curricular capacity with the support of the school management and leadership at a senior primary school in North Dublin, Ireland. The facilitative exploratory lessons were held for one hour after school one day a week for eight weeks, enabling students to focus specifically on understanding and becoming more familiar with Japanese writing system which can be challenging and overwhelming for students (Saito, 2016; Nesbitt & Müller, 2016). The extra-curricular Japanese language activity evolved from the school's participation in the Say Yes To Languages (SYTL) initiative which invites primary schools to engage senior primary students with a ten-week introductory module of a modern foreign language of choice (PPLI, 2025). This innovative and flexible programme readily supports the teaching and learning of LCTLs such as Japanese and Eastern European languages which was not possible in the previous national MFL pilot (Modern Languages in Primary Schools Initiative (MLPSI) 1998-2012) in its singular promotion of designated MCTLs (French, German, Spanish and Italian) for participating schools.

An exploratory pedagogical approach prioritized student voice and student agency in relation to Japanese CALL resource engagement, exploration and review. Students completed a pre- and post- intervention questionnaire, in addition to a personal learning logs, and reviews of selected CALL resources. Students also shared feedback collectively after sessions and at specific junctures of the course to ensure their perspectives informed the class content and structure.

2.3. Case Study 4: Irish Language Radio Project

This innovation is nested within an undergraduate task-based learning module that seeks to engage learners' creative skills through the development of a series of digital artefacts. This case study focuses on one of the tasks which introduces the students to radio broadcasting, and which ultimately requires them to plan and produce a radio show that will be publicly broadcasted. In terms of technology, the task involves the acquisition of new skills in using sound editing software, sound desk hardware and software, as well as a range of reference websites to support terminology acquisition and script editing. On completion of the task, the students wrote a reflective account, focusing on the task's impact in relation to learning new skills and linguistic challenges. The task was made possible by the collaboration of *Raidió Fáilte*, a Belfast-based Irish language radio station.

During the first phase of the task, a member of staff from *Raidió Fáilte* delivered an introductory training session to educate the students about the history of the radio station, its public service remit and the Ofcom regulations that apply to the station and all its output. The students were then introduced to the various programme formats that the station produces and encouraged to begin thinking about the type of programme they would like to make. The choices were narrowed down to a music programme, or a topical discussion programme, and the average duration of the planned broadcasts would be 45 minutes. The next phases of the task involved visiting the radio station and receiving hands on training from the staff, and planning and creating the content. Seven students were involved in the task, of these, two chose to collaborate on a topical discussion programme on health and fitness, one made a documentary focusing on a trip they had made to South America, one made a topical discussion programme on a rare health condition, and the remaining three students made individual music programmes, where they selected tracks and wrote scripts to introduce and provide background information on their song and artist choices. In terms of ensuring an acceptable level of production quality, the students were encouraged to work independently to prepare their material and practice their delivery, and then to share their work with the teacher to avail of feedback and advice on language prior to recording their shows. Staff at the station assisted the students with the recording process and gave students full control of the equipment.

2.4. Case Study 5: Maltese Language Revitalisation Project

This case study delves into the paradoxical marginalisation of Maltese, the national language of Malta, in higher education, where English dominates instruction and assessment. At the University of Malta, the formal use of English has led to limited spaces for students to use Maltese critically or creatively. This project addresses that gap through a qualitative intervention that integrates a CALL-based digital storytelling platform into an undergraduate Maltese language and culture study-unit.

The intervention was conducted within a DegreePlus co-curricular unit involving 12 international students with little to no prior exposure to Maltese. The students engaged with contemporary cultural themes (e.g. climate anxiety, digital identity, migration) through the creation of short, multimodal stories in Maltese. The platform, *L-Istorja tiegħi* ("My Story"), provided story templates, bilingual glosses, pronunciation tools, and morphological visualisations to scaffold creative expression. The workshops spanned six weeks and integrated language instruction, CALL training, and peer feedback. The aim was to reignite affective engagement, promote expressive risk-taking, and support learner agency. A qualitative, person-centred methodology guided the research. Data included pre- and post-intervention interviews, reflective student blogs, classroom fieldnotes, and analysis of students' digital narratives. Thematic analysis revealed patterns in learner engagement, confidence, and the creative use of Maltese, demonstrating the potential of CALL tools to support revitalisation efforts in LCTLs in higher education.

2.5. Case Study 6: Jamaican Creole Revitalisation Project/ Research

This case study investigates the ambivalent attitude young Jamaican students have toward Jamaican Creole (JC), which is considered less prestigious to Standard Jamaican English (SJE). In Jamaica, the dominant and official language is English, even though most of the population speaks JC as first language. This presents a linguistic conflict, as students continue to be educated in a language that is not their mother tongue, which has implications

on their academic performance and self-identity. While JC is primarily a spoken language, a standard has been developed – the Cassidy model, which was further updated by the Jamaican Language Unit at the University of the West Indies, Mona, Jamaica. However, most students are still either unaware of or unfamiliar with it. This project sought to bridge this gap by integrating targeted *YouTube* videos into an undergraduate academic literacy module that focuses on language and writing in two. The *YouTube* videos provided a historical overview of JC and highlighted the basic features of the language, to include grammar, orthography, and proverbs.

The intervention involved 31 local university students who took the course Academic Literacy for Undergraduates at the University of Technology, Jamaica. Students were given translation and spelling exercises from SJE to JC both before and after the *YouTube* videos to evaluate their knowledge of JC. Subsequently, they responded to a forum on *Moodle* about whether they believed JC should become an official language and accepted in more formal spaces, which was analysed through thematic analysis. Findings show patterns in students' knowledge, attitude, and perceptions of JC, suggesting that the incorporation of CALL pedagogies can assist in promoting LCTL in higher education contexts.

3. Results

The primary school-based research demonstrated interesting results for CALL implementation for Irish and Japanese language learners. In the case of Cipher, empirical classroom testing across multiple iterations of Cipher demonstrated positive learner reception. Surveys and observational data collected in primary schools indicated that students enjoyed the experience and increased motivation to engage with Irish language content. Students found the game both intuitive and enjoyable, with the cultural storytelling component particularly engaging. Evaluation of the intervention also indicated an increase in vocabulary acquisition. In addition, the TTS and AI-generated imagery were noted by both students and teachers as effective supports for learning. Importantly, children with dyslexia were able to engage with the content with minimal external support, highlighting the game's accessibility (Xu et al., 2024c). Parents' CALL workshop participation in the second case study also yielded strong support for Cipher which was demonstrated by the guest speaker. Parents (n=12) were unanimously agreed that the role of technology in children's learning is very important especially given children's positive disposition towards technology and acknowledged how CALL resources such as VR Games represent ongoing advances in education technology. Overall, it was evident that parents were not acquainted with a number of readily available Irish language resources online which could support their own Irish language learning and that of their child's. Parents expressed interest in exploring the wide range of resources available while also proposing that opportunities for children to practise in real time and daily domains of use was also important when considering CALL integration.

Regarding the task-based Irish language radio case study, a basic measure of success was the production of a programme of broadcast quality, and all participants achieved this. Out of five possible tasks and artefacts, students were permitted to choose two to go forward for the final module assessment. The marking rubric for the tasks focused on three main areas: Preparation (25%), Execution (50%) and Reflection (25%). In addition to engaging with the target language through the training and the completion of the task, the students also completed the reflective account in Irish, thereby engaging with the language of self-evaluation, while also reflecting on what they had learnt and achieved.

The Japanese case study offered a number of insights into how to integrate freemium CALL resources into programmes for teaching young ab initio L2 learners of Japanese. Valuing student voice in order to support student autonomy in CALL engagement provided student with a dual focus of increasing their knowledge of Japanese kana while also developing skills in reviewing the effectiveness of Japanese writing CALL resources and apps whereby students learned to identify CALL affordances and limitations. Findings indicate that the majority of students were positively disposed towards the course, increased their knowledge of Japanese kana, and continued to engage with Japanese writing CALL resources outside of class. Ab initio learners of Maltese at university also demonstrated notable CALL engagement whereby students with no prior Maltese rapidly progressed from basic tasks to expressive, culturally rich storytelling. The platform fostered affective and creative engagement, with students drawing parallels between Maltese and their own cultural backgrounds. Storytelling prompted

experimentation, humour, and identity exploration, supported by peer feedback and bilingual scaffolding. These findings reflect findings of less commonly taught languages, showing how useful multimodal CALL tools are for helping learners feel ownership of the language beyond just being proficient at it. Finally in the Jamaican Creole (JC) case study, students expressed difficulties completing the exercises in JC, as they were unaware of the orthographic standards that have been developed. This means that students continued to spell words in JC according to their own phonemic awareness. However, the tailored *YouTube* videos provided much needed explanation and clarity, which helped them to have a better understanding of the origins and linguistic features of the language. Nevertheless, a thematic analysis of students' responses on whether JC should be officialised and accepted in more formal spaces shows deep-rooted ambivalence in their attitudes and perceptions of the language.

4. Discussion

The Cipher case study addresses the well-documented challenge of motivating L2 learners of Irish by combining pedagogical rigour with playful, context-driven design and cutting-edge technology. Drawing on cultural approaches, it embeds language tasks within meaningful cultural contexts (Xu et al., 2022). The alignment of content with cultural narratives, such as the Salmon of Knowledge, connects learners with heritage while grounding language in context. AI technologies further support this by generating visual and auditory aids even for under-resourced languages like Irish. However, some challenges remain. For example, image generation models often lack culturally relevant training data, especially in low-resource contexts, requiring careful prompt engineering and human oversight to produce useful outputs (Xu et al., 2024a). Nonetheless, the success of Cipher in real classroom environments suggests its wider potential for LCTLs. The flexible, language-independent backend allows for adaptation into other languages, reinforcing the feasibility of scalable, low-cost CALL solutions in low-resource settings.

While the Cipher case study demonstrates the potential of cutting-edge research methodologies in CALL, the Irish for parents' case study and Japanese CALL case study demonstrate that the optimisation of open CALL resources and programmes can prove impactful in engaging returning or new learners in engaging with a LCTL in a low-stakes environment. Raising awareness of readily available CALL resources with learners on the periphery of language engagement as a point of departure supports accessibility to and autonomy in language learning, which is otherwise challenging in the LCTL context. A low-stakes CALL environment can also be enhanced over time with more advanced CALL technologies when an LCTL learning community is potentially more established.

The HE-based Irish language case study demonstrated how active learning techniques are particularly suited to language study (Blin, 2004), and where the potential exists to make effective use of ICT with a sound underpinning pedagogy, such as task-based learning, students can pursue a complex set of learning outcomes simultaneously, both linguistic and non-linguistic. The promotion of meaning-focused communicative tasks in an immersive learning setting remains a core principle of task-based learning theory and practice (Canals & Mor, 2023). Through their reflective accounts, the students reported that the task had been beneficial to them in several ways, e.g. they had developed a greater appreciation of the role of community broadcasting and volunteering, and that they felt more deeply connected to the Irish language community once they had completed their programmes. In terms of language, the process of preparation and rehearsal allowed the students to think more carefully about checking vocabulary, grammar and pronunciation, in a way that other traditional forms of assessment, such as essay writing, do not. Both this case study and the Japanese case study suggest how well-established pedagogical approaches can be enhanced through CALL engagement and production.

The Maltese case study illustrates how multimodal, creative CALL tools like *L-Istorja tiegħi* ("My Story") can enable deep learner engagement, even among international students with no prior exposure to the language. By prioritising storytelling, affect, and identity, the platform shifted the focus from grammatical precision to meaningful expression, echoing findings in other LCTL studies that emphasise learner agency and cultural ownership (e.g. Irish-language media modules and Arabic oral histories). Peer interaction, translanguaging, and narrative autonomy supported risk-taking and positioned Maltese not just as an academic subject but as a living, inhabitable language. These findings reinforce broader themes across the symposium: the need to move beyond standardised models of competence in LCTL education to design for flexibility, emotional resonance, and cross-

cultural meaning-making. Together with other case studies, the Maltese project highlights the opportunity for CALL to create low-stakes, high-creativity spaces that challenge dominant paradigms and support inclusive, student-driven language revitalisation in higher education.

A further student-informed HE language revitalisation in the Jamaican context shows how tailored CALL materials can help Jamaican students better understand the historical underpinnings and linguistic features of JC to see it as a language distinct from SJE. As all students were unaware of a standardised orthographic system of JC, it is an opportunity for universities to invest in CALL technologies and materials to better promote JC. However, beyond that, language policies are needed at earlier levels of the education system to facilitate systematic exposure to the conventions of JC. This implementation could help to address students' ambivalence towards JC (Madden et al., 2025), as many still struggle with self-identity and the effects of colonial vestiges of JC, such as equating JC with unintelligence, even though attitudes toward formal JC heritage language education are dismissive among some Jamaicans (Tucker & Murphy, 2023). While officialisation of JC is desired, the study reinforces the linguistic battle in Jamaica that CALL pedagogies could help to strengthen, especially in the era of generative artificial intelligence (Kohnke et al., 2023) given that JC is now a language featured on large language models like *ChatGPT* and *Google Translate*.

5. Conclusion

The collection of LCTL case studies which represent the research of the EUROCALL LCTL Special Interest Group (SIG) clearly resonate with the conference theme of cutting edge CALL technology integration, while also emphasising the importance of pedagogy-led approaches to CALL development and engagement. While AI and cutting-edge tools offer clear potential to engage and motivate learners (Mohsen et al., 2024), person-centred, context-sensitive methodologies remain essential to support effective CALL integration (O'Toole, 2023) in specific LCTL contexts. Across the six case studies, CALL interventions—ranging from VR storytelling and radio production to peer-led workshops and digital platforms—demonstrated that learner engagement in LCTL contexts flourishes when creativity, identity, and cultural relevance are foregrounded (Madden et al., 2024). From primary learners of Irish and Japanese to international university students engaging with Maltese and Jamaican Creole, the projects reveal that low-stakes, multimodal, and affect-rich environments allow learners to move beyond rote proficiency toward meaningful language use. For example, as part of the Irish Language Radio programme task, the artefacts and the reflective accounts which the students produced provided the teacher with an opportunity to give detailed linguistic and non-linguistic feedback on the language and outputs that had been generated. The fact that these outputs were developed within an authentic minority language context contributed greatly to the sense of accomplishment that the students reported.

In particular, the Maltese case study emphasised how digital storytelling tools like *L-Istorja tiegħi* can even help complete beginners develop linguistic agency and emotional connection to the target language. This resonates with findings from Irish language and Nawat language projects (O'Toole et al., 2023), suggesting that CALL design should prioritise learner voice, translanguaging, and flexible entry points. Together, these cases highlight how cutting-edge technologies such as VR and AI can offer powerful affordances, but only when grounded in learner-centred, context-sensitive pedagogies Xu et al., 2024b). For LCTL revitalisation in formal education, CALL must be more than technology — it must be culturally responsive (Żammit, 2022). Language educators must respond to both learners' language knowledge and learners' familiarity with CALL technologies when integrating CALL in LCTL teaching and learning. The six case studies affirm that when language is framed, not as a static object of instruction, but as a dynamic space to live, play, and connect, learners of LCTLs can thrive even in contexts of limited language or CALL exposure or institutional marginalisation (Żammit, 2024). In conclusion, it is proposed that LCTL CALL resource development and integration presents as a fine balance between assimilating cutting-edge technologies and also placing value on the utilisation and adaptation of current CALL resources while deeply cognisant of the importance of the underpinning pedagogical approach, learner readiness and prior knowledge (Ward, 2020), the creation of authentic learning domains and potential for cultural connection.

References

Blin, F. (2004) CALL and the development of learner autonomy: Towards an activity-theoretical perspective. *ReCALL*, 16 (2): 377–395. Cambridge University Press.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <https://doi.org/10.1191/1478088706qp063oa>

Canals L, Mor Y. (2023) Towards a signature pedagogy for technology-enhanced task-based language teaching: Defining its design principles. *ReCALL* 35(1), 4-18. <https://doi.org/10.1017/S0958344022000118>

Cohen, L., Manion, L., & Morrison, K. (2018). *Research methods in education* (8th ed.). London: Routledge.

Creswell, J. W. (1994) Research Design: Qualitative and Quantitative Approaches. Thousand Oaks, CA: Sage.

Creswell, J. W. (2002). Educational research: Planning, conducting, and evaluating quantitative and qualitative research. Upper Saddle River, NJ: Prentice Hall.

Eisenhardt, K. M. (1989). Building theories from case study research. *Academy of Management Review*, 14(4), 532-550.

Godwin-Jones, R. (2025). Technology integration for less commonly taught languages: AI and pedagogical translanguaging. *Language Learning & Technology*, 29(2), 11–34.

Kohnke, L., Moorhouse, B. L., & Zou, D. (2023). ChatGPT for language teaching and learning. *RELC Journal*, 54(2), 537–550. <https://doi.org/10.1177/00336882231162868>

Madden, O. N.; Williams, O.; Bernard, O. (2024). Exposing Francophone students to Jamaican language and culture: Reflections from the ClerKing telecollaborative project. In Y. Choubsaz, P. Díez-Arcón, A. Gimeno-Sanz, J. Hriňák, X. Liashuk, S. Pokrivčáková & H. Vančová (Eds.), *CALL for Humanity – EUROCALL 2024 Short Papers*. <https://doi.org/10.4995/EuroCALL2024.2024.19099>

Madden, O. N., Williams, O., & Daley, J-L. (2025). Undergraduate students' ambivalence towards Jamiekan Kriyul: Officialisation vs acceptance in formal spaces. *European Journal of Applied Linguistics Studies*, 8(2), 17- 40. <http://dx.doi.org/10.46827/ejals.v8i2.590>

Mohsen, M. A., Althebi, S., Alsagour, R., Alsalem, A., Almudawi, A., & Alshahrani, A. (2024). Forty-two years of computer-assisted language learning research: A scientometric study of hotspot research and trending issues. *ReCALL*, 36(2), 230–249. <https://doi.org/10.1017/S0958344023000253>

Nesbitt, D., & Müller, A. (2016). Sustaining motivation for Japanese "kanji" learning: Can digital games help? *JALT CALL Journal*, 12(1), 23-41.

Nisbet, J. and Watt, J. (1984) Case study. In J. Bell, T. Bush, A. Fox, J. Goodey and S. Goulding (eds) *Conducting Small-Scale Investigations in Educational Management*. London: Harper & Row, pp. 79–92.

O'Toole, J. (2023). *Is Tusa an Múinteoir: Engaging children and parents as learners of the Irish language in an English-medium primary school* (Doctoral dissertation, Trinity College Dublin).

O'Toole, J., Bédi, B., & Ward, M. (2023). Resourceful approaches in CALL for less-commonly taught languages: Case studies on Icelandic, Irish, and Nawat. In *CALL for All Languages – EUROCALL 2023 Short Papers* (pp. 234–239). <https://doi.org/10.4995/EuroCALL2023.2023.16995>

Tucker, S.-K. D., & Murphy, V. A. (2023). Beyond "Sea, Sun, and Fun": Exploring the Viability of Jamaican Creole Heritage Language Education in Toronto. *Canadian Modern Language Review/ La Revue Canadienne Des Langues Vivantes*, 79(1), 59–76. <https://doi.org/10.3138/cmlr-2021-0073>

Ward, M. (2018). Qualitative research in less commonly taught and endangered language CALL. *Language Learning & Technology*, 22(2), 116–132. <https://doi.org/10.125/44639>

Ward, M. (2020). CALL research in the primary school setting – problems, possibilities, and potential. In K.-M. Frederiksen, S. Larsen, L. Bradley & S. Thouësny (Eds), *CALL for widening participation: short papers from EUROCALL 2020* (pp. 342-346). Research-publishing.net. <https://doi.org/10.14705/rpnet.2020.48.1211>

Ward, M., Żammit, J., O'Toole, J., & Madden, O. (2024a). Designing, optimising and reflecting on CALL-informed technologies, pedagogies and practices: Case studies in Less Commonly Taught Languages (LCTL) and Endangered Languages (EL) contexts. In *CALL for Humanity – EUROCALL 2024 Short Papers*. <https://doi.org/10.4995/EuroCALL2024.2024.19075>

Ward, M., Thomson, J., Xu, L., & Uí Dhonnchadha, E. (2024b). Enhancing language learning for dyslexic learners: Integrating text-to-speech AI in CALL. *CALL for Humanity*.

Yin, R. K. (2009) *Case Study Research: Design and Methods* (fourth edition). Thousand Oaks, CA: Sage.

Cohen, Louis, et al. *Research Methods in Education*, Taylor & Francis Group, 2017.

Xu, L., Uí Dhonnchadha, E., & Ward, M. (2022, May). Faoi gheasa an adaptive game for Irish language learning. In *Proceedings of the Fifth Workshop on the Use of Computational Methods in the Study of Endangered Languages* (pp. 133-138).

Xu, L., Thomson, J., Uí Dhonnchadha, E., & Ward, M. (2024a). Learner-oriented game design: the evolution of cipher. In *2024 IEEE Gaming, Entertainment, and Media Conference (GEM)* (pp. 1-6). IEEE.

Xu, L., Du, H., Ennis, C., Uí Dhonnchadha, E., & Ward, M. (2024b). Rekindling connections to languages through socio-cultural immersion using game-based learning and virtual reality: Cipher vr case study. In *Proceedings of the 18th European Conference on Games Based Learning, ECGBL 2024* (Vol. 18, No. 1, pp. 872-877). Academic Conferences International Ltd.

Xu, L., Andrade, M., Dhonnchadha, E. U., & Ward, M. (2024c). Cipher in classrooms: evaluating digital game-based language learning for Irish vocabulary acquisition. In *International Conference on Games and Learning Alliance* (pp. 25-35). Cham: Springer Nature Switzerland.

Żammit, J. (2022). Sociocultural issues experienced by adults learning Maltese as a second language. *IAFOR Journal of Education: Language Learning in Education*, 10(1), 73–89. <https://doi.org/10.22492/ije.10.1.04>

Żammit, J. (2024). Could Virtual Reality be the next approach for international students learning Maltese? *Educational Technology Research and Development*, 72, 3471–3493. <https://doi.org/10.1007/s11423-024-10375-9>