




Resourceful approaches in CALL for less-commonly taught languages (LCTLs): Case studies on Icelandic, Irish, and Nawat

Jane O'Toole^a, Branislav Bédi^b and Monica Ward^c

^aSchool of Education, Trinity College, Dublin, , otooleja@tcd.ie; ^bInternational Department, the Árni Magnússon Institute for Icelandic Studies, , branislav.bedi@arnastofnun.is and ^cSchool of Computing, Dublin City University, , monica.ward@dcu.ie

How to cite: 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*. 15-18 August 2023, University of Iceland, Reykjavik. <https://doi.org/10.4995/EuroCALL2023.2023.16995>

Abstract

This article explores challenges in supporting Less-Commonly Taught Languages (LCTLs) both in and outside of traditional classroom settings. The focus here is on three case studies of Icelandic as a second and foreign language (L2), Irish as a second or additional language (L2/ IAL), and Nawat as an endangered language. The linguistic contexts of the featured languages may differ but all three have common ground in being less digitally resourced. Common practices in Computer-Assisted Language Learning (CALL) have shown that limited access to digital resources not only hampers development of CALL tools but also marginalizes pedagogical efforts in teaching and learning this language. In spite of this, CALL practitioners have shown resilience in adapting existing resources and developing new tools, while involving learners and speakers in collaborative efforts in CALL for LCTLs. Here, we showcase innovative approaches in piloting CALL applications for learning L2 Icelandic, integrating CALL into Irish language pedagogy and practice at English-medium primary level, developing game-based engines for Irish learners, and revisiting CALL resources for the endangered Nawat language. Our examples can offer valuable insights and inspiration to empower other CALL practitioners in supporting LCTL educators and learners, and indigenous and endangered language communities.

Keywords: CALL, Less-Commonly Taught Languages (LCTLs), endangered languages, less resourced languages, collaborative efforts.

1. Introduction

The term LCTLs refers to less frequently studied languages by students at North American universities¹, a definition which has been widely adopted to describe the teaching of languages other than French, German, and Spanish that are by this definition considered as More Commonly Taught Languages (MCTLs) (Gor & Katz, 2009). While its application may vary across countries and continents, we understand LCTLs as languages that are not frequently taught in a particular geographical region or a country (Ward, 2016). Both the spoken Irish and Icelandic languages enjoy official language status in their respective countries but are considered LCTLs in

¹ <https://carla.umn.edu/lctl/definition.html>

the wider learning context. For instance, the population of Iceland is relatively small (390,000 people) whereby English is widely spoken as an additional language of communication. The efforts to teach L2 Icelandic are hindered by relatively limited CALL resources in the local context of an increasing multinational population, who represent 16.3% of the total population. In Ireland, 40% of the population claim knowledge of the Irish language (1.8 million people) but only approximately one third of the population therein speaks Irish daily (Central Statistics Office, 2023). This includes *in* the education system, and the ever-decreasing figure of 71,968 of daily speakers of Irish *outside* of the education system (ibid.) is an ongoing cause for concern. The number of native speakers of the Nawat language in El Salvador has been estimated as less than 100 (Ward & Genabith, 2003), with more conservative estimates of 20 speakers proposed (ibid.). Nawat preservation and revitalization faces a range of complex challenges reflective of its critically endangered status.

Learners of these three languages face a mutual challenge of having limited access to digital resources. Some CALL resources may no longer be available or limit access to educators and learners (Gor & Vatz, 2009, p. 238), which may adversely affect resource visibility and the development of further digital resources. Our paper outlines resourceful approaches taken to support the teaching of Icelandic, Irish, and Nawat languages using various online tools and digital courseware. The specific examples of EL CALL projects and tools outlined in this article are informed by the collective research interests and collaborative review of the authors.

2. Facilitating and developing CALL resources for learners of Icelandic, Irish, and Nawat

2.1. Resourceful approaches in CALL for L2 Icelandic

To avoid digital minoritisation of Icelandic, i.e. when certain properties of the majority language disappear and characteristics of a minority language such as English emerge due to changes in society and technological advancements², the Icelandic government decided to strategically support language technology development (Nikulásdóttir et al., 2020) by launching a five-year programme in 2019. This programme aims at developing open access, open-source digital resources, and software to cater to the increased need for new technologies, such as Text-To-Speech (TTS) and Automatic Speech Recognition (ASR) systems, machine translation tools, and grammar spell checks, to name a few. Similarly, other language technology projects and language tools, such as text and speech corpora, the database of Icelandic inflections DIM³, to name a few, represent a crucial technological turning point in supporting the development of new and the enhancement of current CALL-related tools for both L1 and L2 Icelandic.

Accessibility to digital language resources and CALL tools for L2 Icelandic for children is still limited. For adult L2 learners, the most popular tool is *Icelandic Online*⁴, which has reached over 80,000 users over the past 20 years (Arnbjörnsdóttir et al., 2020). This tool has undergone different technical and content improvements and is now offered in three different delivery modes: free, paid course with a tutor, and a hybrid course used in combination with in-classroom teaching. Moreover, this technology can be adapted to assist with L2 Icelandic literacy courses for children. To other CALL projects for teaching L2 Icelandic belong, the Learning And Reading Assistant – LARA⁵ (currently being reimplemented with ChatGPT-4 as a software component) platform, the grammar-training application TunguPal⁶, and the pronunciation training application CAPTinI⁷. All

² The MOLICODILACO Project: <https://molicodilaco.hi.is/description/#deumert14>

³ <https://bin.arnastofnun.is/DMII/>

⁴ <https://icelandiconline.com>

⁵ <https://lara-portal.unige.ch/view/index.php>

⁶ <https://tungupal.is>

⁷ <https://captini.tullius.dev/index>

of these facilitate the learning of different language skills online. When exploring the Internet, 36 different online tools supporting the learning of L2 Icelandic have been found (Bédi, 2022).

Developing resources for CALL in L2 Icelandic poses various challenges. The main one is securing funding to guarantee steady work and completion of projects. Governmental and/or private funding bodies have partially or fully supported the projects and tools mentioned above. Researchers' and practitioners' own funding and time have also been used here. Enthusiasm at both individual and governmental level is thus a combined driving force behind supporting the development of digital resources for CALL in L2 Icelandic. The most recent example of a successful initiative taken by the Icelandic government is the established collaboration between OpenAI and private industry to use GPT-4 and create resources to promote the preservation of the language in the digital era⁸. Collaboration with local and international research, and educational consortia, has proved very important in sharing experience and knowledge among researchers, practitioners, and policy makers in CALL-related fields.

2.2. Resourceful approaches in CALL for Irish as an Additional Language (IAL)

This section introduces two Irish language CALL studies that contributed to the development of online/virtual learning domains for learners of Irish in a primary education setting, where limited opportunity to engage with Irish exists for learners.

A sociocultural theory-informed Irish language action research study introduced a Class Online Learning Zone (COLZ) as one of its piloted pedagogical approaches in order to engage senior Irish language learners. Utilising an established blog platform in primary education, the teacher-researcher curated a closed language learning area accessible by the teacher-researcher, children, and parents over the course of 10 weeks. The study outlines: (i) encouraging engagement levels overall; (ii) positive disposition of learners to the platform and to individualized and asynchronous aspects of the language exchange; (iii) a preference for goal-oriented and CLIL language activities; and (iv) active engagement of learners with teacher feedback online. In addition, learner participation with COLZ also supported engagement with a class Twitter (now X) account (O'Toole & Devitt, 2022)-reflective of how blog-based platforms can act as a gateway to engage with other platforms. A positive disposition towards goal-oriented computer-based activities was reflective of other school-based studies, including those specific to the Irish language (Dalton & Devitt, 2016). Finally, it was apparent that the COLZ platform provided an authentic domain for children to engage with the Irish language. It complemented the class Twitter account post writings by enabling students to publish their work for their teacher and parents only. Written Irish language exchanges in the form of feedback and informal posts constituted a new form of language interaction between teacher and child which extended beyond the classroom. Technology-related difficulties which arose for students included device access, parental engagement, and navigating Irish language orthography and diacritics for the first time.

Incorporating a sociocultural framework, a VR interactive game named *Cipher: Faoi Gheasa* [Cipher: Under a Spell] aims to foster student engagement and to provide enriched learning activities that empower student agency and choice (Xu et al., 2023). This initiative exemplifies how existing Natural Language Processing (NLP) resources can be adapted to introduce new educational tools for LCTL learners (ibid.). By repurposing the English version of 'Cipher' and integrating it with an established Irish language tool, 'Gramadóir' [Grammar Checker], the project effectively leverages available resources, offering cost-effective LCTL tools for educators and students. Preliminary feedback from senior primary students and teachers has been positive, underscoring the tool's potential integration into Irish education (ibid.). This proactive engagement with primary schools signifies the commitment of CALL developers to transition university-based NLP research into practical applications for Irish language education, maintenance, and revitalization.

Overall, both Irish language CALL studies contribute to the development of online/virtual learning domains for learners of Irish; which is particularly relevant to Irish language teaching and learning in English-medium education, where Learners' limited opportunity to engage with Irish is apparent. The Digital Plan for the Irish

⁸ <https://openai.com/customer-stories/government-of-iceland>

Language (Government of Ireland, 2022) five-year programme can further contribute to and support the development of additional CALL resources for all Irish language learners and speakers (e.g. speech and text corpora to support pronunciation and grammar training, and spell checker systems). Its successful implementation will require partnership between commissioned speech and language technology project leaders, the education sector, and policy makers.

2.3. Resourceful approaches in CALL for the endangered language Nawat

The development of CALL courseware for speakers and learners of the Nawat language for the Pipil community in El Salvador (Ward, 2002; Ward & Genabith, 2003) is revisited. The additional challenges faced by the indigenous Pipil community speakers of Nawat are explored with reference to the tragic history of its speakers, economic challenges, critically endangered status of the language, and cultural sensitivities (ibid.). Within this complex cultural context, clarity, transparency, and ease of access to CALL resource development is essential both on a practical and cultural level. It is thus recommended that the development of CALL resources in this context is lean in terms of system requirements, low-cost (or ideally free), and can enable rapid-prototyping. Relatedly, it is also suggested that the developed courseware “be clear, consistent, reliable, easy to use, and be available in multiple modalities” (Ward & Genabith, 2003, p.248).

Drawing on Hubbard’s (1996) Methodological Framework, the Nawat language courseware incorporated XML-based in order to develop web-based, CD-based, and printed language CALL materials in addition to a draft a syllabus which could be adapted as necessary (Ward & Van Genabith, 2003). The sustainable model supports an incremental development of additional lessons and courseware when and if required (ibid.). As we acknowledge the Decade of Indigenous and Endangered Languages 2022-2032 (UNESCO, 2021), this project highlights the critical importance of CALL resource development in relation to EL language documentation, community development, language publicity, and language prestige.

3. Conclusions

The three case studies presented here raise several important points for reflection. Across all three languages, the commonalities are as follow.:

- The importance of engagement of researchers and practitioners to develop CALL resources and to ensure open and free access to the target language learners
- The utilization of established programmes and courseware for MCTLs and leveraging this knowledge for the benefit of LCTL/EL learners

The differences in all three LCTLs are as follows:

- The lack of state support in the case of the Nawat language compared to the five-year programmes for developing digital language resources for Icelandic and Irish
- The development of digital resources specifically for children in Icelandic and Irish but not necessarily in Nawat
- The potential negative impact of globalization in the case of Nawat in contrast with globalization and migration as a possible driver of Icelandic and Irish language learner engagement

We can conclude that initiatives to collaborate not only with learners and the target language community groups, but also with local and international CALL research and educational teams, can stimulate useful insights and positively affect the development of resourceful CALL deployment across learning contexts.

References

Arnbjörnsdóttir, B., Friðriksdóttir, K., & Bédi, B. (2020). Icelandic online: twenty years of development, evaluation, and expansion of an LMOOC. In K.M. Frederiksen, S. Larsen, L. Bradley & S. Thouësny

- (Eds), CALL for widening participation: short papers from EUROCALL 2020 (pp. 13-19). Research-publishing.net. <https://doi.org/10.14705/rpnet.2020.48.1158>.
- Bédi, B. (2022). Development of online tools supporting the learning of Icelandic as a foreign and second language. In B Bédi, H.J. Þorlákssdóttir & K. Friðriksdóttir (Eds), *Perspectives on language and context, festschrift in honor of Birna Arnbjörnsdóttir* (pp. 47-56). Reykjavík: Stofnun Vigdísar Finnbogadóttur í erlendum tungumálum. <https://vigdis.hi.is/wpcontent/uploads/2022/03/birnaarnbjornsdottir.afmaelisrit.mars2022.pdf>.
- Central Statistics Office. 2023. *Census of population 2022: Summary Results*. <https://www.cso.ie/en/releasesandpublications/ep/p-cpsr/censusofpopulation2022-summaryresults/educationandirishlanguage/>
- Coppens, X., Rico, M., & Agudo, J. E. (2013). Using blogs: authentic material and ranking quality for SLA. *The EUROCALL Review*, 21(1), 20-34.
- Dalton, G., & Devitt, A. (2016). Irish in a 3D world: Engaging primary school children. *Language Learning & Technology*, 20(1), 21–33. doi: <http://dx.doi.org/10.125/44440>.
- Gor, K., & Vatz, K. (2009). Less commonly taught languages: Issues in learning and teaching', in M.H. Long & C.J. Doughty (Eds), *The handbook of language teaching* (pp. 234-240). Oxford, UK: Wiley-Blackwell.
- Government of Ireland. (2022). *Digital plan for the Irish language: Speech and language technologies 2023-2027*. Dublin: The Stationery Office.
- Nikulásdóttir, A., Guðnason, J., Ingason, A. K., Loftsson, H., Rögnvaldsson, E., Sigurðsson, E.F., & Steingrímsson, S. (2020). Language technology programme for Icelandic 2019-2023. In *Proceedings of the Twelfth Language Resources and Evaluation Conference* (pp. 3414–3422). Marseille, France: European Language Resources Association. <https://aclanthology.org/2020.lrec-1.418>
- O'Toole, J., & Devitt, A. (2022). Twitter as a dynamic language learning platform for learners of Irish as an additional language (IAL) in a primary school setting in Ireland: Review and recommendations. In Arnbjörnsdóttir, B., Bédi, B., Bradley L., Friðriksdóttir, K., Garðarsdóttir, H., Thouësnny, S., & Whelpton, M.J. (Eds), *Intelligent CALL, granular systems and learner data: short papers from EUROCALL 2022* (pp. 302-307). Research-publishing.net. <https://doi.org/10.14705/rpnet.2022.61.1475>
- UNESCO. (2021). Global action plan of the international decade of indigenous languages, abridged version.
- Ward, M. (2016). CALL and less commonly taught languages – still a way to go. In S. PapadimaSophocleous, L. Bradley & S. Thouësnny (Eds), *CALL communities and culture – short papers from EUROCALL 2016* (pp. 468-473). Research-publishing.net. <https://doi.org/10.14705/rpnet.2016.eurocall2016.608>
- Ward, M. (2002). Reusable XML technologies and the development of language learning materials. *ReCALL*, 14(2), 283–292.
- Ward, M., & Genabith, J. (2003) CALL for endangered languages: Challenges and rewards. *Computer Assisted Language Learning*, 16(2-3), 233-258. <http://doi.org/10.1076/call.16.2.233.15885>
- Xu, L., Ward, M. and Uí Dhonnchadha, E. (2023). Exploring the synergies between technology and socio-cultural approaches in CALL for less commonly taught languages. *10th Language & Technology Conference, Poznan, Poland, 21-23 April*.