



Charlemont grant report

Recipient name:	Dr. Emily Barnes
Discipline and subject area:	Humanities and Social Science
Amount and year awarded:	€2,175 in 2023
Title of project:	Towards accessibility in minority languages: a roadmap for the development of Augmentative and Alternative Communication (AAC) systems in Celtic Languages.

Summary of findings:

This funding allowed me to visit Canolfan Bedwyr (a centre for Welsh Language Services, Research and Technology) at Bangor University in June 2023. The aim was to examine opportunities to share expertise and resources in the development of Augmentative and Alternative Communication (AAC) systems for Irish and Welsh.

At Bangor University, I was hosted by Professor Delyth Prys who has – along with her team – developed an extensive range of Welsh language technologies, including spelling and grammar checkers, online dictionaries, synthetic voices and, most recently, an AI assistant called Macsen which is akin to a Welsh version of Alexa.

The AAC system we are developing for Irish, titled Geabaire, allows the user to press a number of words which are concatenated into a sentence and are then spoken out by a synthetic voice. The development of Geabaire was prompted by children in Irish-medium schools who are non-speaking or minimally-speaking and needed such a system to communicate. This system is now at a pilot testing phase.

Delyth and her team are interested in developing a Welsh language version of the AAC system, and we had various meetings and workshops with the aim of sharing resources and expertise which would benefit the development of both the Irish and Welsh AAC systems.

Delyth organised a visit to M-SParc Science Park, owned by Bangor University, which supports the commercialisation of products and helps to identify funding and investment opportunities for products arising from search. We also visited Welsh-speaking communities in various parts of North Wales where I developed a better understanding of the linguistic and educational in Wales.

Canolfan Bedwyr has many of the technologies and expertise in place which are needed to develop a Welsh AAC system. These include linguistic expertise (to inform development and layout of system), high quality synthetic voices, which include child voices and programming skills. Given the structural similarity between Irish and Welsh, I shared how we had overcome some of the challenges (e.g. accommodating the complex grammar of Irish, including the cases of nouns, or the various number systems). In turn, the team shared information on their development of code-switching voices which can speak Welsh and English within the same sentence.



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Together, we mapped the key components of – and resources needed for – AAC development in the Celtic Languages and put together a plan for future collaboration.



Plans for continuing collaboration:

Since this research trip, we have set up a working group for AAC in the Celtic Languages. We have had two online meetings with regard to AAC development, one in August and one in September. We plan further online meetings in 2024, the first of which will take place in late January. We plan to invite researchers in other Celtic Languages interested in AAC development, to join the working group also.

Publications associated with this project that you have been involved in:

A paper will be published based on this work in the proceedings of the Wales Academic Symposium on Language Technology in early 2024, and we will look for opportunities to co-publish papers on AAC development in the Celtic Languages over the coming year also.

Dissemination and plans for future dissemination:

I was invited as a keynote speaker to the Wales Academic Symposium on Language Technology on 1 December 2023 at Bangor University, where I spoke about the development of Geabaire and met again with the working group. We are actively seeking joint funding opportunities for further collaboration over the coming years.