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# Playing with *Climate Fresk*: an interdisciplinary project to promote French and Education for Sustainable Development (ESD)

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**Abstract:** This article examines the implementation of a Vertically Integrated Project (VIP) at the University of Strathclyde, aimed at connecting French-language students and Initial Teacher Education (ITE) students under a common goal: to embed Education for Sustainable Development in French to Primary pupils. The VIP allows for interdisciplinary research and offers French and ITE students a chance to collaborate on designing educational activities based on *Climate Fresk*, a card game created in 2018 which raises awareness and understanding of climate change science. First, this article offers an overview of research on *Climate Fresk*. It then focuses on a case study, which describes how French and ITE students discovered and collaborated on *Climate Fresk*. Students of French acted as language experts while ITE students acted as mentors to the former to develop their pedagogical skills. This exchange of expertise created bonds between the two student groups, as they shared their knowledge of pedagogy and language learning. Finally, this article offers reflection on the VIP and *Climate Fresk*, and offers suggestions for further development of the project.

**Keywords**: French, Education for Sustainable Development, Climate Fresk, interdisciplinary, Vertically Integrated Project (VIP), Initial Teacher Education (ITE)

## Introduction

This article stems from the realisation that Modern Languages undergraduates, and in particular undergraduates in French, at the University of Strathclyde do not have access to interdisciplinary projects. This lack of collaboration presents challenges for students aspiring to teach, who must acquire pedagogical skills and practical experience early on to bolster their employability. In response, a Vertically Integrated Project (VIP) was created with the Strathclyde Institute of Education, aimed at establishing a languages community including ITE students, undergraduate students of French and pupils from a primary school in Glasgow. It offered students of French a chance to practise teaching and ITE students an opportunity to gain experience in language instruction. This project promoted Education for Sustainable Development (ESD) through the creative and collaborative *Climate Fresk* card game, which is designed to explore climate change issues (Climate Fresk, n.d.). During one semester, students of French acted as language experts, helping students from the Institute of Education understand and play the game in French. There were multiple objectives for this collaboration such as enhancing climate change understanding, promoting French skills, fostering local community engagement, and creating opportunities for students to apply their knowledge to real-life environments.

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This article first offers a literature review of the current research carried out on *Climate Fresk*. Then, it explores the design and impact of the VIP, detailing how *Climate Fresk* allowed students from varying disciplines and skill levels to engage meaningfully with climate education and language learning. Through this description and analysis, this article offers insights into the potential of interdisciplinary projects at university level. Finally, the conclusion reflects on the success of the project and its potential changes that might improve its usefulness in the future.

## Literature Review

*Climate Fresk*, or *La Fresque du Climat* in French, was created by the French professor Cédric Ringenbach in 2018 and is run by the *Climate Fresk* organisation (Nordin & Wahlström, 2022). It is an innovative educational tool designed to raise awareness about the challenges of climate change (Widmann, 2024). Designed as a card game, students engage in an interactive and collaborative learning experience, which culminates in the group creation of a 'climate fresco'. Once completed, the *Fresk* displays the causes and consequences of climate change, as seen in Figure 1. *Climate Fresk* caters to different audiences: workshops can be organised in schools, universities, public and community settings, NGOs, companies, and political settings (Spyckerelle, 2022). The cards are often updated with "some changes to the card titles, images, and text to improve the quality and accuracy of the workshop" (Climate Fresk, n.d.). The card game is currently in its ninth version.

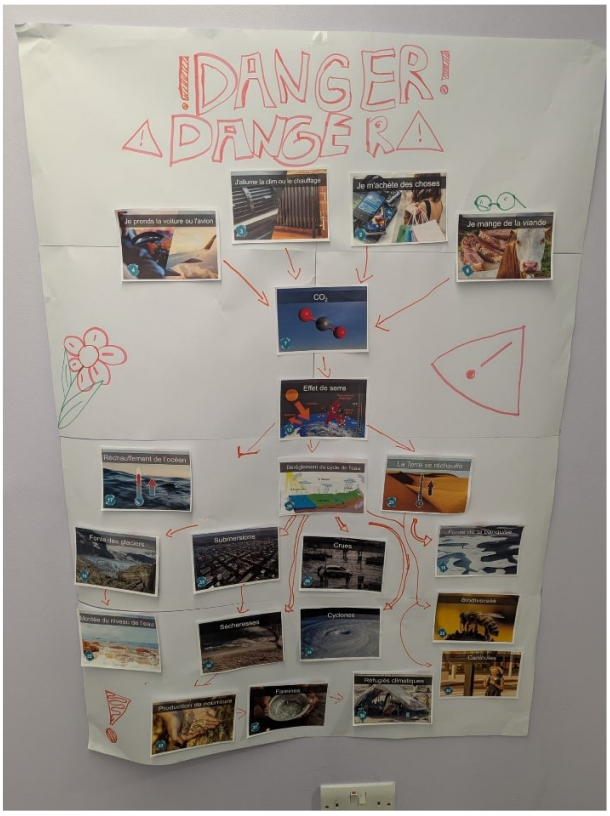


Figure 1: Example of a completed frescos. (Jollet, 2023; Climate Fresk, n.d)

Due to its relatively recent creation, there remains a lack of dedicated academic research on the use of the resource (Ravelli, 2024). Most of the research focuses on the climate issues developed by the card game and on the climate knowledge of players, rather than on the enhancement of pedagogical approaches in teachers and communication skills in participants. The underlying facts in *Climate Fresk* are drawn from the respected scientific publications of the Intergovernmental Panel on Climate Change (IPCC). Therefore, *Climate Fresk* sits under the Climate Change Education (CCE) research umbrella developed by UNESCO, which focuses on new forms of educational programmes, projects and tools, which in turn spread knowledge and awareness of climate change among the public at large (Spyckerelle, 2022; UNESCO, n.d.).

Ravelli highlights papers that examine *Climate Fresk*'s educational potential on adult participants, with a focus on learning about the environment or on the understanding of the information discussed while playing the game (2024). For example, Nordin & Wahlström study *Climate Fresk* in a corporate organisation, at Schneider Electric Sweden, and investigate how the game affects the employees' climate change knowledge, attitudes and behaviours (2022). Spyckerelle's research examines focus groups and interviews on adult learning, evaluating the extent to which the game's

outcomes were achieved by participants (2022). Similar analyses on *Climate Fresk* are available in French, where the research focuses mostly on engineering students and the difficulty experienced by the facilitators in dealing with emotions linked to the *Climate Fresk* (Faure, 2024).

At the University of Strathclyde, several papers have been published on the topic of *Climate Fresk*. Strachan et al. mention the Strathclyde Climate Ambassadors Network (StrathCAN), created with "a purpose to scale-up climate education inside and outside the University of Strathclyde as a co-creative and collaborative community of staff and students" (2023). Strathclyde's Institute of Education has led the way in using the card game to "not only educate participants on climate change, but also to prepare them to facilitate these workshops, specifically involving an audience of young people" (Strachan et al., 2023). With the involvement of more than one hundred students, the Institute of Education has been able to disseminate Education for Sustainable Development (ESD) with the use of *Climate Fresk* in Primary and Secondary schools. "Pupils received input from a student teacher with the ability to embed a climate informed pedagogy into their professional practice" (Strachan et al., 2023).

There is a gap in the research as no papers connect *Climate Fresk*, communication and foreign language learning. However, Ravelli considers the role of communication to be essential to raise participants' understanding when playing the game (2024). *Climate Fresk* is a creative game and "creative approaches can be considered as a way of communicating, as they convey the storytelling of the topic with visuals and drawings" (Ravelli, 2024). Thus, it is clear that this article offers new perspectives on the use of *Climate Fresk* at university level while embedding itself in the research already available from the University of Strathclyde.

## Playing with *Climate Fresk*

For undergraduate students of French at the University of Strathclyde, it can be challenging to engage in interdisciplinary activities outside of core studies. The university timetables, for staff and students alike, rarely allow for collaboration across departments and faculties. For instance, undergraduates studying French along with another language within the Department of Humanities never engage with the Strathclyde Institute of Education, which is the oldest and largest Initial Teacher Education (ITE) provider in Scotland (Strachan et al., 2023). This lack of collaboration can create gaps and lack of opportunities as some Modern Languages students will later apply for a Professional Graduate Diploma in Education (PGDE) in order to become a Primary or Secondary teacher in Scotland. Therefore, it is necessary to improve students' pedagogical skills and employability by offering learning environments that resemble their future workplace. This is greatly emphasised by one of the main values of the University of Strathclyde, which promotes itself as 'a place of useful learning' for its students (The University of Strathclyde, n.d.). As such, it becomes essential to foster more collaboration between students and both internal and external partners.

The project is based on a Vertically Integrated Project (VIP), "a new, innovative style of research-based education that the University of Strathclyde has adopted from Georgia Institute of Technology (GTech), where it was originally conceived" (Strachan et al., 2019). In 2016, Strathclyde demonstrated its commitment to ESD by realigning its VIP programme with the UN SDG framework and renaming its programme "VIP for Sustainable Development" (VIP4SD) (Strachan et al., 2019). It is embedded into the Institute of Education's programmes, allowing students from all year groups with different skills and experiences to work together on a project. "VIP was designed to enable undergraduate students to earn academic credits while working on real-world research challenges, in conjunction with research staff and academics" (Strachan et al., 2019).

While VIP is offered to students of Education, it is not currently available to students of Modern Languages. However, Strathclyde introduced a horizontally integrated dimension to the VIP model in order to foster cross-faculty collaboration, which allowed students of French to collaborate voluntarily with Education students in 2023.

> Horizontal integration of project teams opens the opportunity for students to interact with, and teach and learn from those working out with their own discipline. It is in the interests of the project that students not only become experts in a focussed area of research relevant to the project goals, within their own field of study, but that they learn new skills and gain new knowledge in other fields outside of this (Strachan et al., 2019).

Over the course of a semester, ten students from of French came together with ten second-year and seven fourth-year students from the Institute of Education to create educational tasks using the cards from *Climate Fresk*. However, to play the game, it is necessary to have a facilitator. To become a member of the organisation and then become a facilitator, training is required (Strachan et al., 2023). The three co-leaders (i.e. Mr Robert Collins, Ms Noémie Jollet, Ms Clare Mouat) of this project became facilitators through the support of StrathCAN at the University of Strathclyde. This granted access to an online version of the cards, which are available in more than 45 languages (Climate Fresk, n.d.). The facilitator has three important roles: organiser, expert, and mediator (Spyckerelle, 2022).

*Climate Fresk* is accessible in person and online, and the content and structure can vary depending on the age of participants. The "kids' version" (aimed at 9-14 year-olds) contains 23 simplified cards, and it is mainly used in schools. It requires groups of six to eight participants and lasts one hour. The "adult version" is intended for individuals older than 14 and contains 42 cards, and the game lasts three hours (Ravelli, 2024). The main purpose is to create a Fresk, i.e. a fresco. According to Strachan, the 'fresk' "graphically depicts the complex interconnections of the earth's climate system, its causes, effects and impacts" (2023). There are several phases within the game. During phase 1, the participants get access to the cards in small batches and start finding links between them. They get only five cards initially, then six and finally the last ten cards. This allows time for everyone to become familiar with all the cards, and to discuss their

significance in groups. In between phase 1 and phase 2, the facilitator helps with corrections. Once all cards have been placed to form a fresco, the first phase is over. In phase 2, “the participants are instructed to colour their Fresks (map of connected cards) with pencils, add a fitting title and be creative in ways to give them a nicer look” (Nordin & Wahlström, 2022). This phase creates camaraderie and reinforces engagement between participants. Adding decoration and drawing can be an easy way to introduce a mix of French and English to the Fresk. The phases of *Climate Fresk* encourage “participants to take a collaborative, peer-to-peer, systems thinking approach to understanding the causes and effects of climate change” (Strachan, 2023). Even though the game focuses mainly on its participants, the role of the facilitator is also crucial for managing time and discussions. During phase 3, the facilitator engages in a group discussion about climate change. Spyckerelle highlights the importance of a mix of teacher-led and learner-led learning when playing the card game, “since the facilitator has a role of guide but the players are in charge of building the collage and brainstorming solutions” (2022).

The main objective of the VIP was for the students of French and Education to play the “kids’ version” of the game together, with the cards written in French. The cards contain specific and complex vocabulary linked to climate change. The adults’ version may prove too challenging for a mixed group of students with different skills and levels of knowledge of French. However, playing the “kids’ version” of the card game allows all participants to develop ESD skills such as “non-technical but transferrable communication, project management and team-working skills in an authentic real-world, problem-solving context” (Strachan et al., 2019). In *Climate Fresk*, the findings of the IPCC report are communicated neutrally and objectively on different cards. ITE students can discover the cards in French and try to form sentences or develop pronunciation while receiving support from the students of French. As previously mentioned by Ravelli, communicating and sharing experiences and knowledge is key for the game to be successful and enjoyable for all participants (2024).

*Climate Fresk* served as an entry point for exploring complex systems and causes of climate change in an accessible format. As seen in Figure 2, participants have access on one side to an image with a title and, on the other side, an explanation of the concept is introduced.


Figure 2: Example of two cards from the French "kids' version" of *Climate Fresk*. (Climate Fresk, n.d.)

After exploring the game and playing in groups, students of ITE and French moved away from the original use of the card game and designed their own climate science activities to develop several notions displayed on the cards. The Vertically Integrated Project's main objective was to introduce climate science and French to Primary 6 and Primary 7 pupils. Using some of the concepts developed on each card, students designed their own small game-activity by incorporating French vocabulary related to environmental issues. This gave an opportunity for students of French to learn about pedagogy and to develop their teaching skills, and an opportunity for ITE students to implement French words into their activity. It challenged them to communicate in French and find ways of sharing concepts to 'non-experts' using a 'common vocabulary' between all participants (Strachan et al., 2019). Allowing students to create their own teaching activity enforces the development of "skills that can be difficult to teach with any degree of authenticity in the conventional classroom setting" (Strachan et al., 2019). For example, based on the concepts developed in Figure 3, students found their own way to adapt the content to be more age-appropriate for Primary pupils, between the ages of 7 and 9. One card mentions 'Je mange de la viande' [I eat meat]. From this card, students decided to introduce a list of animal names in French on flash cards with images. The animal cards represented the food chain. The first card was a 'cricket', eaten by a 'rat', eaten by a

'snake', eaten by an 'eagle'. The pupils had to find the right order while discovering new vocabulary in French. This was a fun way to introduce new and useful vocabulary in a foreign language but it also allowed pupils to understand the basics of the network of links in the food web.


Figure 3: Four parts of the IPCC report developed by *Climate Fresk*'s "kids' version". (Climate Fresk, n.d)

A second activity was developed by students in relation to the card 'Montée du niveau de l'eau' [Rise of sea level] in Figure 3. Students came together to create a chemistry experiment with water bottles changing colours with different colorants added to the liquid. Pupils added the colorant and guessed which colour was going to appear. The colours were then learned in French with an emphasis on pronunciation. This activity can be a perfect introduction to some climate science notions in relation to colour and light reflection.

While at the school, pupils engaged in French through interactive activity-based lessons delivered by the university students. Pupils could move from one student-led activity to another and the session lasted about two hours. This interdisciplinary collaboration demonstrated how French can be integrated to an ESD project and how VIP can provide a valuable experience for both university students and school children. These

collaborative workshops strengthened links between departments and fostered an interdisciplinary educational community.

## Conclusion

This VIP allowed three separate communities to contribute to a collaborative project. This type of opportunity is, as mentioned previously, very rare. The project was completed in 2023. While no formal way of gathering data on the project was offered, students and Primary pupils provided oral feedback at the end of the project and the replies were very positive, with comments emphasising the richness of skills of all participants and the community created by students of French and ITE. This exchange of expertise simultaneously addressed attainment goals for ESD and language education, contributing to the development of sustainable citizens and the promotion of French. This not only strengthened interdepartmental links but also allowed students to develop pedagogical and interdisciplinary skills. For students of French, it was one of the first opportunities to teach languages in front of pupils. It allowed them early access to the Institute of Education.

This project will be run again in the year ahead to develop data on its success, with written feedback collected in a survey offered to students and pupils. It is important to remember that the students of French were volunteers on the project, while for students of ITE it was credit bearing. This can create a discrepancy in the collaboration, as this project requires time and commitment from students in order to offer the best experience to pupils. This needs to be addressed and possibly corrected in the future. It is also necessary to gather information on the linguistic abilities gained by the primary pupils after the completion of the project. The pupils understood the environmental concepts and vocabulary being introduced and used it independently at the end of the project. However, was one session at the Primary school enough to introduce new vocabulary in French? Were there misunderstandings of the climate science notions introduced because of the language barrier? Should there be a keeping-up-to-date follow-up meeting to ensure clear understanding of the content presented? Further observation of the pupils' engagement with ESD and French is required. The time spent with the pupils might need to be redesigned, and a light formative assessment could be put in place to collect data. Sufficient evidence of impact is required for the feasibility of the project in the long term.

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