SUMMER RESEARCH 2024/25
PROJECT ABSTRACT

THE UNIVERSITY OF WAIKATO
Te Whare Wānanga o Waikato

PROJECT # 10

SUPERVISOR/S:	AProf Wendy Fox-Turnbull
PROJECT TITLE:	Integrating Computational Thinking and the Writing Process in Primary School
FIELD:	Digital Technologies in Education
DIVISION/SCHOOL:	DEDU - Te Kura Toi Tangata School of Education
PROJECT LOCATION:	Hamilton

PROJECT ABSTRACT:

Computational thinking and the ability to craft text are both essential skills in today's world. In collaboration with the principal, teachers, and students at Ngaruawahia School.

The summer scholar research is part of a long-term project investigating technology in the digital technologies space; by looking at how the computational thinking aspect of digital technologies can be embedded authentically into students' technological practice. This year's project will advance the findings from last year's research and focus on teachers' understanding, implementation and insight into computational thinking and its relationship to the writing process. It will explore possible synergies between the computational thinking concepts of abstraction, decomposition, algorithmic thinking and debugging and the process writing skills of planning, sequencing, crafting, and editing text. The project will develop and trial learning sequences for middle primary students that provide authentic contexts for learning about each of these curriculum areas. The sequences will include opportunities for transferring knowledge, so ideas are revisited and reinforced in ways that are mutually beneficial.

Identification of the link between computational thinking and the writing process was identified in the 2023 study by one of the student participants who said " This [programming] is just like editing my writing but way cooler!' This is an area of key strategic interest for the university and the Ministry of Education. The context for learning continues to be embedded in the local community- a community with a high proportion of Māori learners.

The summer scholar will be supported to conduct qualitative data analysis using NVivo or something similar for data gathered in the research programme that is to occur in Terms 3 and 4 2024 at Ngaruawahia Primary School in the fields of writing process, computational thinking for children in Years 5-8. This year most of the data will be generated from the teachers, who will be videoed teaching. These recordings will be used as stimulated recall to the teacher interviews.

In addition to the qualitative data analysis the scholar will write up the findings as an executive summary of the results. The team will consist of members from both the Te Kura Toi Tangata School of Education (SoE) and Au Reikura School of Computing and Mathematical Sciences (SCMS). Dr Shaoqun Wu from SCMS is also applying for a summer scholar to contribute to the software programming aspect of this project. It is envisaged that the team will consist of her, me and the two new summer scholars, building further on last years' summer scholarship programme in the same project.

This opportunity will offer the student a solid foundation from which they could undertake qualitative data analysis. They will gain greater insight into working in a multidisciplinary team across schools within the university and deeper understanding of the analysing data through coding.

STUDENT SKILLS:

- Preparing raw data for coding, including transcribing when needed
- Upload a range of data types into Nvivo- qualitative software tool for analysis
- Using Nvivo to analyse data and present initial findings to research team
- Succinct and professional communication skills-communicating initial results to research team
- Collaboration Skills
- Task and Time management Gantt Chart
- Professional written communication and poster design skills

PROJECT TASKS:

1. Assist with data gathering in situ, video recording teachers, transcribing interview data
2. Read and review literature about qualitative coding to determine the best approach for data coding and read through data, transcribe where necessary and format for coding in NVivo
3. Load data into NVivo and undertake qualitative code for gathered data to identify initial themes
4. Work with the research team to identify final themes
5. Write up results findings
6. Be involved in co-authoring a paper on the integration of computational thinking and writing for learners in Years 5-8
7. Prepare final research poster, sharing some initial results and present findings at the Summer Scholar Summative evening,

EXPECTED OUTCOMES:

- Student's Research Poster (as per clause 6 of the Scholarship regulations)
- Paragraph on methodological approach to coding qualitative data and using stimulated recall as an interviewing tool
- Data loaded into NVivo with initial themes identified
- Executive Summary of findings
- Poster presenting initial findings
- Work with team to draft paper for presenting findings.