NCSE PRACTICE-BASED RESEARCH PROGRAMME 2025/26

SCHOOL RESEARCH SUMMARY

School name: Coláiste Chiaráin,Leixlip

Practising teacher lead: Jennifer McManus

Research theme: Differentiation, Universal Design for Learning (UDL) and Inclusive Practice

Research aim:
The aim of this research was to develop and evaluate the Jigsaw Model, an original teaching approach that I developed and refined through ongoing classroom practice and feedback from students and colleagues.

During my studies on the DCU Graduate Diploma in Inclusive and Special Education, I was inspired by the concept of differentiation by choice. However, when trying to apply this approach in mathematics, I found that it often required teachers to create multiple versions of the same lesson or worksheet, making it difficult to sustain in everyday classroom practice. I wanted to create an approach that retained the benefits of differentiation by choice while remaining practical and manageable for teachers. The Jigsaw Model was designed to reduce the "blank page" barrier by breaking exam-style questions into manageable sequential steps and providing students with structured support that could gradually be removed as their confidence grew.

As the research progressed and I reflected on my own classroom practice, I recognised that the model aligns closely with the principles of social constructivism and scaffolded learning. Students are encouraged to discuss, question and construct understanding together, while the teacher facilitates learning by listening to conversations, asking probing questions and providing support only when needed.

The aim of the research was to explore if the Jigsaw Model could provide a practical, sustainable and inclusive approach to differentiation that increases student confidence, promotes collaboration and supports all learners to engage successfully with the same learning intentions.

Methods

The research adopted a practice-based, iterative approach and included:

- Professional reading and reflection on differentiation, UDL, inclusive practice and collaborative learning.
- An initial staffsurvey exploring existingapproaches to differentiation and team teaching.
- The development and ongoing refinement of the JigsawModel and accompanying Choice Board activities.
- The use of generative AI to supportthe creation and adaptation of jigsaw resources, with prompts refined through repeated classroom use and feedback.
- A staff workshopwhere teachers experienced the Jigsaw Model,explored the use of AI to create their own subject-specific jigsaws and provided written feedback.
- Classroom implementation of the JigsawModel with studentsacross a range of topics, followed by student questionnaires.
- Ongoing classroom observations and reflective notes throughout the project.
- Continuous refinement of the model,AI prompts and Choice Board activities based on suggestions and feedback from both staff and students.

The research involveda total of 68 participants.

- Initial staff surveyon differentiation and team teaching:8 teachers. This anonymous survey included both closed and open-ended questions exploring teachers' experiences of differentiation and team teaching.
- Staff workshop and follow-up evaluation survey: 34 teachers. Following participation in the Jigsaw Model workshop, teachers completed an anonymous evaluation survey containing Likert-scale and open-ended questions.
- Student feedback surveyfollowing implementation of the JigsawModel: 26 students.

Students completed an anonymous questionnaire containing both closed and open-ended questions relating to engagement, confidence, perceived benefits and suggestions for improvement.

The research involved teaching staff and students from Coláiste Chiaráin. Student participants were drawn from a 3rd Year Out of Irish support group and a TY Mathematics class, both of which had experienced the Jigsaw Model as part of their Mathematics lessons. The students represented a range of abilities and learning needs, reflecting the inclusive focus of the research.

In addition, the school's SSE Team played an active role in planning and supporting the staff workshop. The Board of Management was informed about the project and expressed its appreciation for the school's participation in piloting the Jigsaw Model of differentiation.

Parents were not directly involved in this research project.

Research Findings

The researchsuggests that the Jigsaw Model has considerable potential as an inclusive teaching strategy and, most notably, as a way of reducing the "blank page" barrier experienced by many students when approaching complex tasks.

My top three findings

1.The Jigsaw Model helps reduce the "blank page" barrier.

The most consistent finding across both classroom observations and student feedback was that breaking questions into manageable sequential steps gave students a clear starting point and increased their confidence to engage with the task. Rather than feeling overwhelmed by a blank page, students were able to focus on one step at a time before gradually working towards completing the question independently.

Student responses repeatedly referred to knowing how to begin and understanding what to write next. One student commented that the activity helped with: “Knowing how to start the question and progressing through the question piece by piece.” Another reflected: "It makes you feel confident becauseyou know exactlywhat to do."

My top three findings

2.Meaningful scaffolding and student dialogue can support inclusive practice without lowering expectations

Staff feedback highlighted the potential of the Jigsaw Model to support mixed-ability classrooms and inclusive practice by providing meaningful scaffolding while maintaining high expectations for all learners. One teacher commented that the approach "helps build learner discussion" by encouraging students to practise sequencing their ideas and responses. Another described it as "very repetitive and hands on"and felt this would help students learn.

The research highlighted the value of structured scaffolding combined with collaborative learning. Students learned through discussion, questioning and shared problem-solving, while teachers could facilitate learning by listening to conversations and providing targeted support when needed. Staff identified particular benefits for mixed-ability classrooms, student confidence, engagement and inclusive practice, while maintaining the same learning intentions for all students.

3.Effective differentiation should be flexible, sustainable and adaptable across subjects.

One of the most significant reflections arising from the research was that there is no single Choice Board suitable for every subject area. Practical suggestions from both staff and students led to improvements in resource design, Choice Board activities and classroom implementation. For example, one teacher suggested the use of "visual formats of clear diagrams of the sequence" as an additional activity option, while another commented that they would need to "trial the model further to be able to evaluate accurately." These responses reinforced the importance of maintaining flexibility and adapting the model to different subjects, topics and learners.

Student feedback also directly influenced the ongoing development of the model. Suggestions included the introduction of a competitive "Quiz Master" activity and clearer labelling of model answers and hints. In addition, feedback from the staff workshop highlighted that some activities may be more suitable for certain subjects than others, reinforcing the need for a flexible rather than standardised Choice Board.

The research also highlighted the potential of AI to support sustainable differentiation. Once an effective prompt had been developed, teachers were able to create and adapt subject-specific jigsaw activities quickly, reducing preparation time while preserving the core principles of the model.

Impact of my research

The research has already led to significant refinement of both the Jigsaw Model and its associated Choice Board activities. Feedback from staff and students informed practical improvements to resource design, the development of new collaborative and retrieval-based activities, and greater flexibility in how the model can be adapted across different subject areas.

Practical improvements arising directly from staff and student feedback include:

- clearer labelling of “Model Answer” and “Hint” on jigsaw pieces;
- consideration of scaffolded worksheets alternating between model answers and hints;
- development of competitive retrieval-based activities suggested by students;
- reflection on the suitability of the model for different subject areas and question types;
- recognition that Choice Board activities should remain flexible rather than standardised.

An important finding was that there is no single Choice Board suitable for every subject. While the Jigsaw Model itself appears transferable across disciplines, the most effective follow-on activities are often subject-specific and should remain flexible rather than standardised.

Perhaps the most significant impact has been on my own classroom practice. Rather than viewing differentiation as creating multiple versions of the same lesson, I now see greater value in reducing barriers to learning through meaningful scaffolding, collaboration and opportunities for student choice while maintaining high expectations for all learners.

Conducting this research has deepened my understanding of inclusive practice and encouraged me to critically reflect on my own teaching. It has enabled me to develop and refine an original classroom approach through authentic feedback from colleagues and students, rather than relying on assumptions about its effectiveness.

The project has fostered professional discussion within the school, encouraged collaboration across subject areas and highlighted the potential of AI to make high-quality differentiated resource creation more practical and sustainable. Perhaps most importantly, the research has transformed my own understanding of differentiation. I no longer see it as producing different work for different students, but as reducing barriers to learning through carefully designed scaffolds, purposeful student dialogue and meaningful opportunities for choice.

Rather than viewing the Jigsaw Model as a finished product, I now see it as an evolving framework that will continue to develop through classroom experience, collaboration and ongoing reflection.

I am now lecturing on the Graduate Diploma in Special and Inclusive Education with DCU about the jigsaw method and other inclusive methodologies. The focus for my lectures is inclusive numeracy.