

# Transition Year Mathematics – The Forgotten Middle Child?

Understanding mathematical preparedness in Transition Year using a Delphi study methodology

## Research topic

Richard Burke, the father of Transition Year, was a visionary of his time – a man who encouraged students to ‘stop and stare’ on their academic journey (Jeffers, 2011). This innovative former Minister for Education wanted to travel off the beaten track in education and hoped to avoid its ‘increasingly academic tread-mill’ nature (ibid.).

Transition Year (TY) is nestled between Junior Cycle and Leaving Certificate education, an internationally unique middle-year programme (Smyth et al., 2004, p.7). Its mission is to ‘promote the personal, social, educational and vocational development of pupils’, away from the academic pressures of examinations and competition (DES, 1993, p.3).

In Ireland, the Department of Education and its subsidiaries are responsible for producing curriculum guidelines, but it is up to classroom teachers to convert the theory into practice. Burke acknowledged the vital role that teachers play in developing this programme, stating that the success of Transition Year would depend solely on ‘teachers’ imagination and commitment’. He viewed TY as an opportunity for the teaching profession to engage in education in the strictest sense of that term.

## Maths education in Ireland: stay static or reform?

Ireland’s recent large-scale reforms to mathematics education were influenced mainly by the OECD’s PISA report and the 21st-century mathematics economy (NCCA, 2012; Shiel & Kelleher, 2017). These reformed curricula, titled Project Maths, aimed to address ‘issues in syllabuses, teaching, learning and assessment of post-primary mathematics’ (NCCA, 2012, p.5). Project Maths



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**Mathematics education at Junior Cycle and Leaving Certificate levels has experienced major reforms over the last decade, largely influenced by the Organisation for Economic Cooperation and Development’s (OECD) Program for International Student Assessment (PISA). However, Transition Year has remained largely unreformed and unaltered since its introduction in 1974. This article aims to understand mathematical preparedness in Transition Year using a Delphi study methodology.**

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was followed by further Junior Cycle curriculum reforms in 2015. Unfortunately, while Ireland overhauled its lower- and upper-secondary maths curricula, Transition Year has received only minor alterations since its inception, remaining largely static since 1974 (Shiel & Kelleher, 2017).

The mission of Transition Year is to 'prepare students for their role as autonomous, participative, and responsible members of society' (DES, 1993, p.3). This raises the questions of what it means to be prepared and how teacher education can be used to prepare students. Our research study explores just that, by using a Delphi study methodology to address a complex research question: What does it mean to be mathematically prepared?

## Methodological design

A Delphi study, wrote Dalkey and Helmer (1963), is a means of 'obtaining the most reliable consensus of a group of experts' (p.458). Linstone and Turoff (1975), as cited in Okoli and Pawlowski (2004), offer a similar definition: 'a method for structuring a group communication process so that the process is effective in allowing a group of individuals, as a whole, to deal with a complex problem' (p.16).

The complexity of this research study lies in the fact that Transition Year is unique to Ireland and is defined as a 'domesticated' programme. Jeffers (2011) used the term 'domestication' to refer to the challenges that each school faces in integrating the official TY guidelines within the parameters of the school's characteristic spirit, ethos, and vision, with the purpose of creating its own distinctive programme.

Essentially, Transition Year maths acts as a blank canvas for each school to plan, implement, and assess its own school-based curriculum. This can lead to inequalities in the content studied and the opportunities provided to students. Furthermore, some schools operate TY as an additional year of study for the high-stakes Leaving Cert Mathematics exam, while other schools focus on revising basic mathematical concepts. This results in unequal opportunities for students, though the question remains the same: What does it mean to be mathematically prepared?

## Delphi study characteristics

A Delphi study is characterised by four elements: anonymity, iteration, controlled feedback, and statistical group response (Landeta & Barrutia, 2011). Each is fundamental to the overarching process in answering a complex question. Our study followed this structured approach, starting with the selection of multiple experts from different backgrounds.

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Selection was aided by the use of a Knowledge Resource Nomination Worksheet (KRNW). Okoli and Pawlowski (2004) outlined a five-step process using the KRNW to prepare, populate, and nominate experts to participate in the Delphi study (Figure 1), before ranking their expertise and inviting them to participate.

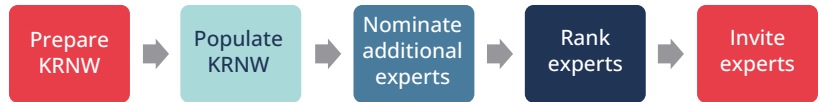


Figure 1: KRNW adapted from Okoli and Pawlowski (2004): developing the field of experts

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The 1993 TY Guidelines state that ‘schools should involve parents, work providers, and the wider community as educational partners in all aspects of the programme’ (p.2). When preparing the KRNW, the wider community was interpreted to include career guidance counsellors, curriculum experts, members of relevant organisations, parents, government officials, and practising teachers from the different post-primary school sectors in Ireland. In total, 20 potential participants were identified and 14 were contacted, with 11 participating in the Delphi study.

The use of anonymity, along with iterated rounds, empowered the experts to unreservedly articulate their stance on mathematical preparedness in Transition Year. The controlled feedback enabled the responses to be objectively summarised by each group, through a spokesperson, and evaluated on merit (Chedi, 2017). Figure 2 provides a graphical overview of the experts and their different representative backgrounds.

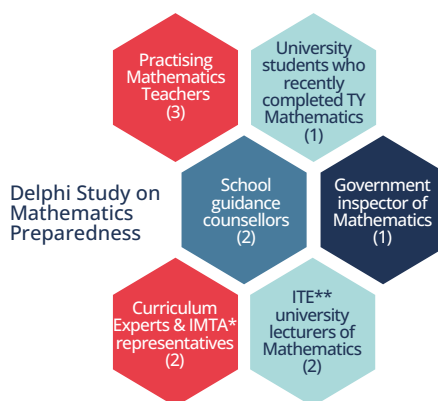


Figure 2: The categories of nominated experts for the Delphi study [\* Irish Mathematics Teachers' Association; \*\*Initial Teacher Education]

## Early conclusions

From the Delphi study, the researcher captured the suggestions and feedback of all experts into a student-friendly quantitative questionnaire. The questionnaire was then distributed to three post-primary schools in Ireland, with 248 responses. While this paper forms part of a larger ongoing study, the early conclusions have led to the development of a definition for Mathematics Preparedness, based on four quadrants of preparedness: Academic, Social, Emotional, and Skills-Based Preparedness (Figure 3).

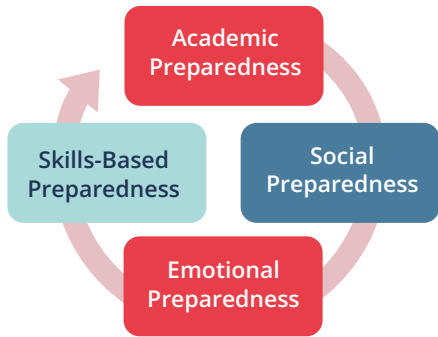


Figure 3: Early emerging graphic of the Four Quadrants of Mathematics Preparedness

Each quadrant refers to numerous related subsections. Quadrant One, Academic Preparedness, encompasses the wide range of curriculum content and knowledge, centred on algebra and other fundamental areas of mathematics. Quadrant Two, Social Preparedness, refers to students' self- and social confidence, knowledge and use of mathematical literacy, and academic self-image.

Quadrant Three, Emotional Preparedness, refers to the emotional learning factors of mathematics preparedness, including motivation and resilience, enjoyment, and mathematical relevance. Lastly, Quadrant Four, Skills-Based Preparedness, refers to the processing of information, independent learning skills, and the ability to be critical and creative.

## REFERENCES

Chedi, J.M. (2017) 'A preliminary review on needs analysis and Delphi technique: Effective tools for data collection', *Journal of Asian Vocational Education and Training*, 10, 44–52.

Dalkey, N. and Helmer, O. (1963) 'An experimental application of the Delphi method to the use of experts', *Management Science*, 9(3), 458–467.

Department of Education and Science (DES) (1993) *Transition Year Programmes – Guidelines for Schools*. Dublin: Government Publications.

Department of Education and Skills (DES) (2010) *Report of the Project Maths implementation support group*. Dublin: Government Publications.

Jeffers, G. (2011) 'The Transition Year programme in Ireland: Embracing and resisting a curriculum innovation', *The Curriculum Journal*, 22(1), 61–76.

Landeta, J. and Barrutia, J. (2011) 'People consultation to construct the future: A Delphi application', *International Journal of Forecasting*, 27(1), 134–151.

Linstone, H.A. and Turoff, M. (eds.) (1975) *The Delphi Method*, pp. 3–12. Reading, MA: Addison-Wesley.

National Council for Curriculum and Assessment (NCCA) (2012) *Project Maths: Responding to current debate*. Dublin: Government Publications.

Okoli, C. and Pawlowski, S.D. (2004) 'The Delphi method as a research tool: An example, design considerations and applications', *Information & Management*, 42(1), 15–29.

Schmidt, R.C. (1997) 'Managing Delphi surveys using nonparametric statistical techniques', *Decision Sciences*, 28(3), 763–774.

Shiel, G. and Kelleher, C. (2017) *An evaluation of the impact of Project Maths on the performance of students in Junior Cycle mathematics*. Dublin: Educational Research Centre on behalf of the National Council for Curriculum and Assessment.

Smyth, E., Byrne, D., and Hannan, C. (2004) *The Transition Year Programme: An Assessment*. Liffey Press.

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According to new figures obtained by TG4's current affairs programme Iniúchadh TG4, the number of host families in the Gaeltacht has fallen by 30 per cent since 2018.

The increasing age profile of "mná tí", changing social habits, a move out of the sector into self-catering, and insufficient pay for keeping students are among the reasons given.

The fall in host families means thousands of students are being turned away from summer colleges in the Gaeltacht because there is nowhere to house them.