Draft Specification of the Primary Mathematics Curriculum

Infants – 2nd Class

Submission on behalf of the INTO

March 2018

Introduction

The INTO welcomes the opportunity to respond to the draft specification of the *Primary Mathematics Curriculum (PMC)* for junior infants to second class. Since the 1999 Primary School Curriculum, the INTO has been involved in ongoing engagement with members to seek feedback on the opportunities and challenges of that curriculum. The results of an INTO survey on mathematics in 2004 highlighted some of the constraints of the 1999 mathematics curriculum including a lack of resourcing and content overload (INTO, 2005). The survey also suggested that there was a large emphasis on the use of textbooks. Similar findings emerged from another survey on numeracy which informed the INTO Education Conference in 2013 *Numeracy in the Primary School*. The majority of respondents called for a skills-based curriculum that was both challenging and relevant and one that incorporated increased use of ICT (INTO, 2014). At the 2015 Education Conference on *Primary School Curriculum: Have Your Say* a number of challenges were identified including curriculum overload; lack of time; over-emphasis on standardised testing and accommodating the needs of children with SEN and EAL (INTO, 2017).

In order to inform its position, the INTO organised a number of consultation sessions, and invited written feedback from teachers. A number of local district consultations took place together with a national seminar in Dublin between February and March 2018, facilitated by INTO Officials, Education Committee representatives and INTO trained facilitators. Approximately 150 teachers attended the various consultations, and a small number of written submissions were received from individual teachers. The draft proposals were also discussed by the INTO Education Committee and the Central Executive Committee.

In light of the significance of the teacher's voice in policy, the INTO supports the partnership approach to curriculum development. Teachers appreciate the opportunity to engage in consultation to ensure that their views and concerns regarding the draft specification are captured. While the INTO notes the various strands of the NCCA consultation process, there was concern that the process did not provide adequate notification to teachers of the various consultation opportunities. The lead-in time was considered insufficient to allow for widespread awareness of the process, and to facilitate meaningful engagement with the draft specification.

The INTO welcomes the recent decision by the DES in February 2018 to revise the schedule for the implementation of the new Primary Mathematics Curriculum and to introduce the Maths curriculum as a single unified specification, from junior infants through to 6th class. The INTO has sought a slowing down of the process of curriculum change. Schools are under a lot of pressure at present with the introduction of many initiatives, and in particular with the demands being made arising from new legislation in relation to child protection and data protection. The extended timeframe will allow for further and more comprehensive consultation with teachers on the full specification in due course. The INTO requests that the NCCA give careful consideration to the provision of time and support for teachers to engage meaningfully and professionally with the new proposals.

Rationale

In general, teachers support the rationale and aims of the PMC. The rationale reflects the philosophy underpinning previous curricula and what teachers expect from a maths curriculum, such as the importance of mathematical proficiency, mathematical language and collaborative interactions. The INTO acknowledges that there were many challenges with the 1999 mathematics curriculum such as curriculum overload; over-emphasis on content and an incoherence in aims, goals and pedagogy. In addition, the Aistear framework has been developed since 1999 and its principles are not reflected in the current mathematics curriculum. Therefore, the move from a content-based curriculum to a skills-based curriculum was widely welcomed. In a similar regard, teachers also valued many aspects of the 1999 mathematics curriculum including the holistic and child-centred approach; the emphasis on collaboration and active learning; the clarity of strands, strand units and objectives for each class level and the support and guidance for planning. The INTO recommends that any new mathematics curriculum should harness the strength of the 1999 curriculum while using the opportunity of a revision to address the current challenges.

Some teachers continue to express concern regarding what they perceive to be an ad-hoc approach to curriculum change, for example, the sequence of recent curriculum developments. Notwithstanding policy emerging from *The Literacy and Numeracy Strategy* (DES, 2011), the INTO reiterates that developing curricula in specific subject areas in advance of addressing the philosophy underpinning the primary curriculum and its overall structure is causing unnecessary flux and uncertainty for teachers. A long-term approach to curriculum development must be adopted and clearly communicated to teachers to ensure a coherent and holistic approach. The absence of a context and rationale for curriculum change is frustrating for teachers in considering proposals to change.

General

There are a number of positive opportunities emerging from the PMC as identified by teachers. The effort to make the curriculum more relevant for today's changing society was valued by teachers. In particular, teachers appreciate the emphasis placed on skills development such as computational and problem solving skills. Notwithstanding the emphasis on active learning in the 1999 mathematics curriculum, teachers welcome the continued commitment to child-led, active and collaborative learning.

The INTO recognises the commitment to inclusivity in the PMC. Teachers feel strongly that the needs of children with SEN should be reflected within the curriculum, and that special education should not be an after-thought in a separate document. Primary classrooms have evolved to become much more inclusive than when the current mathematics curriculum was developed in 1999. It is anticipated that the inclusion of milestone A in the progression continua will support teachers to meet the needs of children with special educational needs. Teachers also noted that the progression continua offers an increased opportunity for differentiation.

The INTO recommends that the Special Education Support Service (SESS) support teachers in special educational settings with additional professional development for the PMC suitable for their specific contexts as was provided with the Primary Language Curriculum. This approach was well received in relation to the Primary Language Curriculum.

The NCCA video, which outlines the new PMC, received some positive comments as it communicates the underpinning theories of the curriculum clearly in accessible language. It was considered to be a useful starting point to support staff meetings and parent-teacher evenings.

Learning Outcomes

The INTO notes the move to a learning outcome approach whereby the expected mathematical learning and development for children at the end of each stage is described, while due account must be taken of children's abilities and varying circumstances. The INTO has always been of the view that teachers cannot pre-determine what a child will learn and therefore appreciates the addition to the learning outcome stem which clarifies that individual contexts and varying abilities are factors that should be taken into consideration.

The concept of learning outcomes is still relatively new and many teachers continue to have strong reservations about a learning outcomes approach. Notwithstanding the fact that the *Literacy and Numeracy Strategy* recommended that the primary curriculum be represented in the form of learning outcomes, further research is required on the meanings, understandings and interpretations of learning outcomes in curriculum, particularly, for young children at the junior end of primary school. It remains to be seen whether a learning outcomes approach will be appropriate to the Irish primary context.

A learning outcomes approach creates a significant shift in curriculum culture which will require investment and support for teachers to enable them to develop a curriculum that meets the needs of their individual contexts. Any curriculum process model which relies on teacher judgement is far more demanding on teachers and thus far more challenging to implement in practice (Stenhouse, 1975). Therefore, the INTO reiterates that teachers need more time, support and professional development opportunities to allow them to engage with the new approach to curriculum.

According to the PMC, the statements of learning are intentionally broad and less prescriptive than before in terms of content. The INTO acknowledges that this is with a view to allowing teachers to employ their professional judgement based on their individual contexts. However, this must be balanced with the need for some degree of clarity and definition in the context that teachers in Ireland are often working in demanding and complex environments with an over-loaded curriculum, super-sized classrooms, inclusive education and multi-grade settings.

Broad learning outcomes offer positive opportunities in terms of teacher agency to enable them to cater for and modify learning for their own class or group of children. However, when learning outcomes are overly broad they can be vague and unclear. For example, a learning outcome for Stage 2 states that '*Children should be able to recognise the value of money and use money in a range of meaningful contexts*' (NCCA, 2018, p. 33). Such learning outcomes provide teachers with insufficient detail of the learning experiences they should create, or what content to teach, therefore, they require clarification and guidance on where they can go for further detail whether to the progression continua, the samples of children's learning or a combination of both.

Teachers are of the view that they have sufficient professional autonomy at present in that they determine the appropriate resources and teaching methodologies. They also differentiate their teaching to meet the diversity of needs within their classrooms. In general, teachers cautioned that the learning outcomes don't offer sufficient guidance, and that there is a strong possibility that some teachers may continue to refer to the 1999 mathematics curriculum or rely on textbooks for direction. It takes time and experience for teachers to build up the necessary levels of knowledge and confidence to make professional judgements, and to interpret a broad learning outcomes approach. In particular, it was suggested that less experienced teachers may be challenged by the lack of guidance and clarity within the learning outcomes.

It does not resonate well with teachers to suggest that this PMC addresses curriculum overload with a reduced number of learning outcomes vis-à-vis the number of content objectives in the 1999 curriculum. Teachers advised that the content and time involved in navigating the progression continua has eroded any gains made in terms of reducing curriculum content objectives.

Progression Continua

Similarly, teachers remain uncertain about the intention of the progression continua and they require clear guidance about its purpose and how they should use the continua. Mixed messages were initially communicated to teachers regarding the purpose of progression continua during the early stages of the implementation of the Primary Language Curriculum. Consequently, teachers remain concerned about their link to individual profiling as experienced in other education systems. The INTO notes the clarification by the Chief Inspector, Harold Hislop, outlining that '*progression continua are not designed for assessing or for tracking individual students and they are not intended for reporting either*' *(NCCA, 2015).* Unfortunately, this is not how teachers interpret the progression continua at present.

There are concerns that the progression continua are being foregrounded in the PMC. While teachers may find them useful in terms of planning, progression continua should not be used for individual reporting or evaluation. The combination of learning outcomes and progression continua, could, if misused, lead to a box-ticking approach to teaching and assessment, which is not in the interests of children's learning. It should be clearly communicated to teachers that the intention of progression continua

is to guide and support teachers with suggested learning experiences, rather than a means of profiling individual pupils. Teachers are of the view that the use of progression continua may lead to increased paperwork and bureaucracy.

In light of the fact that the 1999 curriculum had content objectives for each class level, teachers would welcome guidance as to where the 'average' child might be placed along the progression continua at each class level.

Accountability

There is a tension between the need for teacher agency as advocated in the draft specification, and the demands for assessment regimes and quality assurance mechanisms, including external inspections and mandatory standardised testing (Edwards, 2007). While more autonomy is being given to teachers in terms of the broad learning outcomes approach, this is not the case from an assessment perspective with mandatory obligations to share standardised test results. While the PMC places more emphasis on teacher agency and professional judgement, teachers have expressed concern that their interpretation of the broad learning outcomes may not align with that of the inspector. Therefore, a balance must be achieved so that assessment does not drive the curriculum. It is also clear that there is a need for updated standardised tests to reflect the revised curriculum.

Aistear

Notwithstanding teachers ongoing commitment to a play-based approach to teaching and learning, teachers appreciate that Aistear is being considered within the overall curriculum, and they are hopeful that this development will address the tension that currently exists for infant teachers juggling the Aistear framework together with the Primary School Curriculum. The INTO notes the stem of the learning outcomes which outlines that 'Through appropriately playful learning experiences, children should be able to...'. Despite the absence of state funded CPD for infant teachers, Aistear appears to be a fundamental part of the new curriculum. The INTO reiterates that a vast number of schools do not currently engage with Aistear and there should not be any assumption that all teachers are aware of the framework or competent in its use.

The INTO recommends that professional development for teachers on Aistear and play-based pedagogy should take place either prior to the introduction of the PMC or as an integral part of the implementation process.

Language

In general, some of the language of the curriculum does not resonate with teachers and was considered to be inaccessible. For example, the terms used to describe the five aspects of mathematical proficiency were considered to be verbose and unfamiliar to

teachers (NCCA, 2018, p. 21). The INTO notes that the NCCA intend to develop a glossary to support the curriculum. Some teachers believe that a glossary should not be necessary to access a curriculum, and that language should be explicit and unambiguous to ensure consistency of interpretation across the board. The language used in the progression continua could also be more precise and succinct in order to eliminate any possible misconceptions. The concerns about the language points to a need for further simplification of the language but also to a need to provide opportunities for teachers to engage in professional development in regard to recent curricular and pedagogical developments.

The language used to explain the various aspects of the curriculum may also cause confusion as it does not appear to reflect the language used in the Revised Language Curriculum. In the Language Curriculum the term 'element' describes essential language learning, and each element has a set of learning outcomes (NCCA, 2015, p 30). Conversely, in the Primary Mathematics Curriculum the term 'elements' refers to mathematical processes/skills, and each learning outcome label has a set of learning outcomes (NCCA, 2018, p. 28). Teachers are currently investing considerable time and energy in embracing the language and structure of the Primary Language Curriculum. While it may not be possible to retrofit all aspects of mathematical learning to language learning, every effort should be made to ensure continuity and consistency across all subjects in the curriculum.

Resources

Teachers were unequivocal in their demands regarding funding and resources to support the implementation of the PMC. In particular, large class sizes lead to difficulties in implementing any new curriculum particularly when the focus is on a play-based approach incorporating active methodologies and differentiated learning. Teachers noted similarities between the PMC and Maths Recovery. However, teachers attribute the success of Maths Recovery to the reduced pupil teacher ratio (PTR) associated with many DEIS schools. While teachers are supportive of Aistear and the play-based approach advocated in the PMC, there is also a strong view that using Aistear is challenging in most infant classrooms due to large class sizes.

In light of the radical change in how the PMC and PLC are structured and presented, teachers require significant time and opportunities for sustained professional development. The new approach envisages that teachers will develop a curriculum at local level to suit each school's varying contexts. Such an approach involves a huge culture shift for teachers and significant investment to ensure effective implementation. Teachers are not convinced regarding the rationale for this shift, and they feel constrained to engage in such a way by wider issues such as class size and curriculum overload. In addition, it is not clear what theories of curriculum underpin the current language and mathematics developments e.g. curriculum as process; curriculum as outcomes or curriculum as content (Walsh, 2018)

There was widespread agreement that the PMC must be accompanied by guidance on planning. Teachers were unequivocal in their demands for a planning template and professional development to support them and their schools in planning.

The online support tool will provide an excellent opportunity for the NCCA to embed high quality examples and interactive resources for teachers to access.

Conclusion

Having considered the draft PMC, the INTO recommends that more consultative network schools should be invited to participate to work with the NCCA as the mathematics curriculum continues to be developed over the next number of years. The revised timeline for the maths curriculum developments provides a unique opportunity for the NCCA to use the feedback garnered, thus far, to better inform future developments and to allow teachers more opportunities to provide feedback. Further engagement with schools during the school-year 2018-2019 should provide an opportunity for schools to explore and respond to these draft proposals. When implementation of the PMC does commence it must be on a gradual basis with sustained opportunities for professional development. In conclusion, the INTO reiterates that the wider issues of class size, resourcing, time and sustained CPD must be addressed to ensure effective implementation of any new curriculum.

References

Edwards, R. (2008). Education-an impossible practice? *Scottish educational review, 40*(1), 4.

INTO (2005). Maths in the Primary School. Dublin: Irish National Teachers Organisation

INTO (2014). *Numeracy in the Primary School.* Dublin: Irish National Teachers Organisation

INTO (2017). *Primary School Curriculum: Have Your Say*. Dublin: Irish National Teachers Organisation.

NCCA (2015). *Primary Language Curriculum*. Dublin: National Council for Curriculum and Assessment

NCCA (2018). *Primary Mathematics Curriculum: Draft Specification Junior Infants to Second Class*. Dublin: National Council for Curriculum and Assessment

Stenhouse, L. (1975*) An introduction to curriculum research and development*. London: Heinemann

Walsh, T. (2018) *Towards an Overview for the Redeveloped Primary School Curriculum: Learning from the past, learning from others.* Discussion paper commissioned by the NCCA.