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From textbooks to an emergent curriculum: One school's experience of reforming the Early Childhood mathematics curriculum

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Abstract: Early Childhood education in Malta is presently going through a reform. The recently published policy document entitled *Learning Outcomes Framework* proposes a significant shift for Grades 1 and 2 (ages 5 – 7 years), namely, moving away from subject specific syllabi to a more flexible 'emergent' curriculum based on children's experiences and interests. Through this approach, learning areas, such as mathematics, are targeted – directly or indirectly - as part of ongoing projects of inquiry, rather than in a structured way and as a stand-alone subject. This paper presents a case study of one school. The four Early Childhood educators therein were interviewed with regard to the change in the approach to addressing mathematics. While the teachers articulated clearly the purpose of an emergent curriculum, they expressed a number of concerns, which related to issues of collaboration, content coverage and progression, a tension with the traditional use of textbooks, and the need for training. The data illustrates the complexity of educational reform, and the importance of educators embracing the *why*, the *what* and the *how* of reform. I argue that school-based reflections and an ongoing in-house interpretation of the reform, might help schools embrace the change.

Keywords: Curriculum reform; Mathematics education; Early Childhood education; Emergent curriculum

Introduction

Malta's *National Curriculum Framework* (NCF) (Ministry of Education and Employment, 2012) promotes a move away from syllabi to a 'learning outcomes' curriculum. A learning outcomes approach views learning as a process, whereby an educator's focus is on what the student will be able to do, rather than what the teacher has to deliver to the students (Battersby, 1999). The intention is to free schools and learners from centrally-imposed knowledge-centric syllabi, and to enable them instead to develop knowledge,

attitude and skills-based outcomes that are considered national education entitlement of all learners. The change is in line with what the Organisation for Economic Co-operation and Development (OECD) has recognised as a recent shift in curriculum reform internationally, namely, a shift from a content-based curriculum to a competence based curriculum (Gouëdard et al., 2020).

The new learning outcomes are articulated in the document entitled *Learning Outcomes Framework* (LOF) (Directorate for Quality and Standards in Education [DQSE], 2015a & 2015b). For ages 8+, learning outcomes are organised under subject headings (mathematics, science, Maltese, Art, etc.) and hence retain some semblance to previous syllabi in terms of subject content. On the other hand, learning outcomes for the Early Years (ages 0 – 7) are phrased generally, for example: "*Children who are effective communicators*" (DQSE 2015a, p. 13). Outcomes related to 'subjects' are spread around the document and fall under the more general outcomes. For example, the mathematics-related outcome *"I can demonstrate understanding of number value e.g. through the use of appropriate actions in number songs, rhymes and stories etc."* (DQSE, 2015, p. 20) is subsumed under the general outcome regarding effective communication. The elimination of subjects for the Early Years is based on the theoretical perspective that young children have difficulty with explicit instruction and that, rather, learning at this age is a process which is driven by the child's natural curiosity to find out how things fit together (Van den Heuvel-Panuizen, 2001). Consequently, the NCF and LOF recommend that, at this level, learning should occur through play and playful activities that centre on children's interests and experiences. Thus, the curriculum should therefore be an 'emergent' one. The proposed change poses a radical shift for the first two years of compulsory education (Grades 1 and 2, ages 5 – 7) since, previously, these grade levels were governed by subject syllabi.

The shift to the new approach was planned to be phased in year by year, starting with non-compulsory kindergarten (ages 3 – 5). To support teachers for the change, professional development sessions were planned by the Ministry for Education (henceforth Ministry) to be held in the scholastic year prior to the implementation in the respective Grade level. For Grade 1, the outcomes approach was to be started as from the scholastic year 2020/2021, with Grade 2 following in the subsequent year. However, due to prolonged discussions with the teachers' union and disruptions caused by the COVID-19 pandemic, implementation was postponed by two years.

An emergent curriculum implies that textbooks will not play the key role that they played in the past for the first two years of primary schooling. In fact, in the State sector, the intention is that textbook schemes are now to be used from Grade 3 upwards (ages 8+). On the other hand, from my professional experience, I am aware that some *non-State* schools are, in fact, planning to retain structured textbook schemes, even for the earlier Grades. (In Malta, the

non-State sector comprises mainly Catholic Church schools that cater for 36% of the local student population and privately run independent schools (14%) (European Commission, 2022)). Given this situation, and my interest in mathematics education, I wished to investigate the challenges and dilemmas that might be encountered by Early Years teachers who are expected to adopt an emergent curriculum, yet plan to continue using a structured mathematics textbook scheme. I decided to explore this through a case study of one such school, asking: *What is the Grade 1 and Grade 2 teachers' understanding of an emergent curriculum?* And, *How do the teachers perceive a concurrent adoption of an emergent curriculum and a mathematics textbook scheme?* The aim of the case study was to get some insight into teachers' perspectives because I believe that an important step to successful reform is to understand the complexity of the situation as seen from the teachers' point of view.

The emergent curriculum

An emergent approach contrasts with predetermined curricula and commercial packages, in that the teacher and children negotiate, plan and participate in an in-depth study *of their choice* over some weeks, or even months (Krogh and Slentz, 2001). Through an emergent approach, teachers develop a curriculum that builds upon current understandings, while facilitating new avenues of inquiry (Seefelt, 1999). A holistic, and non-prescriptive, approach for Early Childhood is implemented in a number of contexts, notably Scandinavian countries (see, for example the Finnish National Agency for Education, 2018), Aotearoa/New Zealand (Ministry of Education, 1996) and a number of provinces in Canada (Nixon, 2017). The 'Reggio Emilia approach' that originated in Italy has also found application in other contexts, including ones in the US (Wein, 2008).

The emergent curriculum can be contrasted with a 'thematic' approach. In the latter approach, the teacher chooses a theme as a backdrop for a series of activities. For example, the teacher might consider '*Homes*' to be a suitable theme and consequently links curricular objectives with this theme. From my professional experience, I am aware that, when a thematic approach is used in Maltese schools, teachers of the same Grade level at a school will often work on the same theme concurrently. Consequently, it is common to find all the classes of one cohort following the same theme and for similar themes to be used from one year to the next. One advantage of this system is that teachers can support each other with ideas and the preparation of materials. However, Wein (2011) describes the thematic approach to curriculum planning as linear and segmented by subject. Unlike an emergent approach, it is teacher-directed; it does not acknowledge the uniqueness of each child, nor does it involve the children in the planning itself of the curriculum.

Textbooks

Yerushalmy (2014) explains that textbooks provide guidance and present opportunities for learning, making the objectives and ideas of the curriculum more apparent. Yerushalmy notes that, for teachers, a textbook also provides guidance in bringing their teaching in line with the expectations of the external authority which may be the school, the syllabus, or centralised assessment. In this function, the textbook serves as both syllabus and timekeeper, and can result in what Orstein (1994) calls a textbook driven curriculum. Indeed, the previous primary mathematics syllabus issued by the Ministry mirrored the textbook scheme that was in use at the time; the syllabus gave prominence to the non-standard methods of calculation promoted in the scheme.

It should be noted that, in Malta, it is common to find the same textbook scheme being used a large number of schools. So, for example, the same mathematics textbook scheme was used by almost all local schools from 2000 until recently. The choice of this scheme originated from the Ministry that first introduced it into the State sector of education. Most schools in the non-State sectors followed suit, even though these sectors are free to choose their own schemes. However, in the recent wave of the curricular change from syllabi to learning outcomes, it was also decided to update the primary mathematics textbook scheme. The Ministry recommended four publications from which State schools can choose, also leaving them free to choose something else if they preferred.

The new schemes being considered are based on what is often referred to as the 'Singapore' or 'mastery' approach. The approach is one that is used in many East Asian education systems, most notably Shanghai and Singapore (Garry, 2020), and it stresses the concrete, pictorial and abstract representations of mathematics. The approach recently gained popularity in the U.K., prompting the publication of several commercial schemes in English. Three of the locally recommended schemes are U.K. publications, while the fourth is published in the U.S. (It is beyond the scope of this paper to discuss the role that the English language plays in local education; for further information about language use in Maltese education the reader is referred to Camilleri Grima, 2013). Schools have been given talks about the key features of the new textbooks schemes, and teachers have also been offered opportunities for further professional development through optional workshops. This is in line with Gravemeijer's (2014) recommendation that, if school mathematics is to be transformed, professional development should accompany changes in text materials.

Schools in the *non-State* sector are also in the process of changing their mathematics textbooks, many adopting one of the afore-mentioned schemes. In the non-State sector, decisions about which Grades will use textbooks, and whether a scheme is phased in or adopted immediately for all Grades, can be

taken automously. As stated earlier in this paper, a number of non-State schools have chosen to continue to use textbooks even in the Early Years grades.

Curriculum reform

According to the OECD, countries consider curriculum reform as an important and necessary measure to make schools enter the 21st century and respond to a fast-changing world (Gouëdard et al., 2020). However, how to initiate change in the most suitable and effective way remains challenging due to the missing step between the intention and the realisation of the curriculum renewal ('the implementation gap'). Indeed, according to Gouëdard et al., (2020) a view of reform implementation has appeared recently, shifting towards a more bottom-up approach that emphasises the autonomy, discretion and agency of implementers. In a related vein, Tikkinen et al. (2020) recommend a *top-down-bottom-up* approach. This approach integrates the initiatives from the administrative level (determining general goals and offering support), school leadership and teachers' active participation (Fullan, 2016; Petko et al., 2015; Priestley et al., 2015; Ramberg, 2014). From their study in Finland, Tikkenin et al. (2020) noted that a top-down–bottom-up implementation of reform had an important function as a facilitator of collective, cumulative learning, while buffering potential stress.

Various researchers have written about the crucial role school leaders can play in a process of reform. For example, Adamson et al. (2010), Mavrogordato et al. (2022), Ylimaki (2011) and Abela Cascun (2020) write in the contexts of Hong Kong, Spain, the U.S. and Malta respectively. In particular, Nehez et al. (2021) conclude from their study in Swedish schools that middle leaders facilitated reform by engaging colleagues, developing a professional learning culture, giving structure to the work, and by 'translating' municipal models and tools for their own context. The notion of 'translation' refers to how ideas are transferred between contexts. In this regard, and by drawing on Czarniawska-Joerges's (2005) theory on the travel of ideas in the context of organisations, Røvik (2016) explains that a dissemination process should not be viewed in terms of diffusion of ideas from a central agent to passive receivers but, rather, as an interpretation of the idea by the actors. In line with this, a collaborative approach to reform was recently carried out in Malta by Grech (2022). The researcher, a member of a school leadership team, found that by holding focus groups and one-to-one discussions with her four kindergarten teachers, she was able to support their reflections on their practice, and to enable them to shift from a thematic approach to an emergent one. The teachers reported that they found the in-school sessions with a trusted school colleague more effective than the shorter, out-of-school training provided by the Ministry.

Curriculum reform consists of three main phases (Fullan, 2015). The first is the initiation. The Malta reform being discussed in this paper finds its origins in the publication of the NCF in 2012 (Ministry of Education and Employment, 2012). The second phase is the initial experiences of attempting to put the reform into practice. The third phase, according to Fullan (2015), constitutes the continuation of the change as it gets built into an ongoing system. In Malta, the reform has been initiated and I consider that we are in the second phase of the reform. In this paper, I report on four teachers' perspective of the change and I also suggest how continuation of the reform might be sustained and supported.

Research design

I chose to carry out an exploratory case study of a non-State school run by the Catholic Church. The research method planned was semi-structured interviews. I deemed a case-study appropriate since this approach lends itself well to the study of processes (Denscombe, 2010). Although the number of teachers was anticipated to be small, I considered that their views would serve as a good starting point for reflection on the reform.

The research was approved by the Faculty of Education Ethics Committee within the University of Malta (Reference: 4100_25012020_Marie Therese Farrugia). Following approval, I approached the Head of school with my request since I was aware that it was one of the local schools that planned to adopt a new mathematics textbook in the Early Years. The Head of school accepted my request and acted as an intermediary to invite the Early Years teachers to participate. The participating school had two classes at the Grade 1 and Grade 2 levels and all four teachers consented to participate. In this paper, I refer to them with pseudonyms: Maria and Karen (Grade 1) and Emma and Sarah (Grade 2). The Head of School also accepted to be interviewed. With the participants' consent, the 45 – 60 minute interviews were audio-recorded. Analysis of the resulting transcriptions involved identifying themes, and merging and redefining them as I became more familiar with the data.

I had originally planned to carry out the interviews in the first term of the scholastic year 2020-2021 (October/November); at this time Grade 1 teachers would be embarking on their first year of implementation of the learning outcomes approach/emergent curriculum and I would speak to the Grade 2 teachers about their expectations of the change that was to effect them the following scholastic year. However, due to the COVID-19 pandemic, the introduction of the new learning outcomes approach was postponed for all schools and, on the request of the Head of School, I brought the interviews forward to June/July 2020. Thus, at the time the interviews were carried out, both the Grade 1 and Grade 2 teachers could only talk about their *anticipation* of the change. I decided to proceed with the study, despite the change in the

original plan, because I believed that the data collected would offer a good starting point to understand teachers' views of the forthcoming situation, that is, the concurrent adoption of both the emergent curriculum and a new mathematics textbook scheme. Furthermore, I hoped that the data would also give me some insight into which concerns may need to be addressed as the curricular reform unfolds over time.

Results

Four main themes emerged from the interview data: *Educators' understanding of the emergent curriculum, concern for coverage and continuity, educators' dependence on textbooks* and *the need for training.* I will consider each in turn, presenting verbatim excerpts from the interviews. The excerpts are chosen on the basis that I deemed them to be representative illustrations of the point at hand. The transcriptions may, at times, be shortened (denoted by […]) or a word might be added in to improve clarity (denoted by [word]). Upper case lettering indicates emphasis.

Theme 1: Educators' understanding of learning outcomes and the emergent curriculum

The four teachers appeared to have appreciated the rationale behind the LOF document. The overviews given by Maria and Emma sum up their views.

> *The learning outcomes enable the student to learn and develop their skills at their own pace […] Boosting the children with the words 'I can do this' and 'I can do that' helps them to be more secure* [Maria].

> *Maths is being used as a tool here rather than a subject; it's a tool to enable you to acquire knowledge and skills in other areas as well* [Emma].

When asked about their understanding of an emergent curriculum, the teachers expressed opinions that aligned with theoretical explanations of the approach. As Emma and Sarah explained:

> *It's topic-based and that the topics are chosen by the students […] you plan the activities together. You use what they want to find out as the starting point* [Emma].

> *A theme is chosen [collectively, and] the children have to discuss what they would like to know more about that particular theme […] and then [the teacher] plans the activities based on children's interests. Within these activities, the teacher has to also target the skills necessary for that particular level* [Sarah].

On the other hand, when pressed to give examples of the implementation of an emergent curriculum, teachers' interpretation tended to slip to one of a thematic approach.

> *Let's say that the children would want to explore the topic 'animals' – so if I [am to teach] Subtraction, I could easily use toys [and] animal figures, to explain and experiment with subtraction; but [this approach] would be limited, because the emergent curriculum is the idea of integrating all subjects together. So it [method as I have just explained] would fall again under the same thing we used to do before: it's the thematic approach. […] So it won't be the proper emergent curriculum that is [being] requested to be implemented* [Maria].

The Head of School also expressed a view that was more in line with a thematic approach:

> *I'm still finding a bit of resistance [from my teachers]; I am not, myself, one hundred percent convinced that a full-blown emergent curriculum would be a good idea in Year 1 and Year 2. I agree with the fact that they should be working on the interests and topics of the children, but I think that the teacher can foresee what kind of topics the children would like* [Head of School].

The teachers expressed two further concerns. The first related to the fact that it had traditionally been a common practice for teachers of the same Grade level to implement their schemes of work and topic themes in tandem, and to share materials. The impact of an emergent approach on this type of collaboration was perceived as an issue.

> *It's going to be a bit difficult to work in partnership with the other [Grade 2] teacher, because obviously you have to follow children's interests […] you can't share resources and lesson plans or activities* [Sarah].

Similarly, Emma stated that an emergent curriculum approach "*really hinders a collaborative approach*"; she concluded that while she agrees with themes, she did not think these should be left entirely up to the students' inclinations.

A second concern was the perceived pressure from parents. Parents were reported to compare progress across classes of the same Grade level and to expect that, once they buy textbooks, the books should be used from cover to cover. According to Maria, "*Sometimes, the teacher gets criticized […] for not working out a couple of pages from a textbook*".

Theme 2: Concerns regarding content coverage and continuity

Another concern that emerged regarded content coverage. Sarah feared that she might not cover all the mathematics required for her age-group if a particular mathematical idea never 'cropped up' as part of ongoing projects. Similarly, Emma stated:

> *I think it will take some time to get used to it [the new approach] and for us to feel confident that we are delivering all the maths that needs to be delivered.*

A related concern was the potential lack of *continuity* of mathematical knowledge as children progressed to the subsequent Primary grades.

> *[The children will] not be so prepared, and maybe [by] not using [textbook] schemes THROUGHOUT the years would hinder the upper juniors from carrying on with all the work they have to do. So the [proposed] emergent curriculum worries me* [Maria].

On the other hand, Sarah was more positive, admitting that if the emergent approach was carried out well, and in anticipation of key concepts to be covered later, the children should transition smoothly to Grade 3.

Theme 3: Dependence on textbooks

The school was in the process of introducing a new mathematics textbook scheme. The Head of School reported that for the first term of the scholastic year that was coming to a close, a 'no textbook' approach had been trialled in Grade 1. This was followed by a two-term piloting of a textbook scheme based on the 'Singapore approach'. While the children were not required to buy the textbook, the teachers used the book to guide their teaching, keeping in mind the textbook's relevance to the learning outcomes that would be used the following scholastic year. Maria recalled the 'no textbook' experience as an experiment that was soon 'scrapped', while Karen recalled:

> *This year we started off without a book […] then we shifted onto the [NAME OF TEXTBOOK] because, basically, it worked out better.*

I was told that, following this piloting, a decision was taken to adopt the textbook scheme the following year in both Grades 1 and 2. For Grade 1 this would coincide with the change to the learning outcomes approach, with subject-related outcomes subsumed under more general ones, and the emergent curriculum. When asked to reflect on the concurrent adoption of a new textbook and an emergent curriculum, Maria said:

> *Having schemes makes it very hard for the emergent curriculum to be implemented in Year 1 … in the kindergarten classes it is much easier since they have no textbooks.*

Emma articulated the tension as follows:

> *Yeah, it's a challenge isn't it? I think the [NAME OF TEXTBOOK] is there to help us achieve the [learning] outcomes …. But, then, […] how does it [the textbook] tie in with the emergent curriculum? The [NAME OF TEXTBOOK] needs to be followed sequentially, whereas if you're doing an emergent curriculum then you have different areas fitting into different topics. So, yeah, that is a discussion that needs to be had, because they could contradict each other in a way. Um, yeah, I'm not sure actually how (pauses), how to tie them [emergent approach and textbook scheme] in.*

Theme 4: The need for training

All the teachers expressed a wish for more training with regard to the implementation of the learning outcomes in general, but also with regard to the emergent curriculum. At the time the data for this study was collected, Ministry-led training on the emergent curriculum had not yet started for Grade 1 and 2 teachers, due to the postponement of the introduction of the LOF. This could explain some of the uncertainty expressed by the teachers. On the other hand, Maria explained that the teachers had had in-house training sessions to understand better the learning outcomes document *in general* – the school had taken the initiative to invite a university academic in this regard. With specific reference to mathematics, Sarah expressed a hope that when their time arrived to follow the LOF, they would be given support by the mathematics education personnel from the Secretariat for Catholic Education, whose role was to support teachers in the Church schools, and from whose help the teachers had benefitted in the past.

While it was apparent that further support regarding the learning outcomes and emergent curriculum were still pending, on the other hand, the Head of School reported about the in-school training had been carried out with regard to the new textbook scheme. The training had been provided by local promotors of the scheme at the time the textbook was being piloted in the school, and more training was anticipated at the start of the subsequent scholastic year. The teachers recalled the sessions as helpful. Maria described the training as a "*three-full-day course; it was fruitful […] we were made to work in groups and solve problems*". The teachers expressed a wish to receive more training with regard to the new textbook scheme, with Sarah wishing to learn how to link the textbook not only with the learning outcomes, but also with an emergent curriculum.

Discussion

According to Gouëdard et al. (2020), policy design addresses the central considerations of *what* is to be learned, *how* it is to be learned, and *why* it is to be learned. In my view, these link with Fullan's (2015) four characteristics of change, namely, *need, clarity, complexity* and *quality/practicality*. Gouëdard et al. (2020)'s *why* refers to the need for the change, the *what* relates to the clarity of the goals and means of the reform, the *how* comprises the complexity of implementation and quality of the reform programme. In this discussion, I apply the *why, what,* and *how* questions to the process of our own curriculum reform.

With regard to *what* kind of curriculum was being proposed, it appeared that all four participating teachers had an understanding of the characteristics of an emergent curriculum. While this augers well for moving forward with the reform, I noted other issues that may hamper the transition from syllabi to an emergent curriculum.

The first potentially hampering element relates to the *why* of the emergent curriculum; although the teachers did explain the pedagogic approach appropriately, it was not expressed in terms of a personal conviction, nor were any theoretical justifications articulated. The teachers were still to meet with Ministry officials for training, and I might presume that the theoretical underpinning would be explained during such training. However, the teachers did have the LOF document (DQSE, 2015a) at hand, and appeared to be familiar with it. On examining the document, I noted that the LOF document does not dwell very long on its underpinning philosophy of a "child-centred philosophy of learning" (p. 30). In contrast, a detailed explanation of the desired pedagogy and assessment strategies is given and, to my mind, these latter aspects relate to the *what* and the *how* of the reform, rather than the *why*. Thus, I conjecture that the brief text regarding the philosophical rationale may not be enough to have an impact on educators and, therefore, more might need to be done with regard to the sharing of the philosophy underpinning Early Childhood pedagogy. This is particularly important if teachers themselves are not convinced of a need for a change from the former syllabus-directed curriculum.

The participating teachers explained an emergent curriculum appropriately, but the data indicates that a number of issues may, in practice, hinder the reform in my case-study school. My data points to three main issues that may be potential stumbling blocks. The first relates to collaboration with colleagues and parents; the second, concerns on coverage and continuity of the subject; and the third, the tension between an emergent curriculum and the adoption of a textbook. I will comment on each in turn.

First, teachers mentioned an anticipated reduction in collaboration with colleagues. My view is that this issue may not be too difficult to resolve, since while the previous type of collaboration might no longer be applicable, new opportunities may present themselves, *or be created*, so that teachers continue to enjoy the practical and professional benefits of sharing their experiences and work. Teachers also mentioned the pressures exerted by parents. I can consider this, too, to be an issue related to collaboration. Indeed, Wein (2011) suggests that a successful practice of an emergent curriculum implies a collaborative approach that includes parents and children. Ultimately, if parents are helped to understand a reform's rationale, they may come on board with the new approach and support teachers in their efforts. Furthermore, if parents perceive that all classes of the Grade level will be experiencing a similar approach to learning, and one which is not defined by a textbook scheme, the need to compare the number of textbook pages covered will not arise.

The teachers' concern regarding progression and continuity is very understandable given that their work had previously been governed by an explicitly spelt out syllabus, and that they still have the responsibility to work on the foundations necessary for Grade 3, when mathematics will be taught as a subject. Given that Early Childhood mathematics is broad in scope (Lee and Ginsburg, 2009), perhaps it is too much to expect a teacher to be immediately able to combine breadth and depth of mathematical knowledge with an informal curriculum. In fact, in order to help teachers in this regard, I am aware that both in the Church and State sectors, officials have prepared materials consisting of flexible activities and possible learning opportunities (for example, DLAP (2022). On the other hand, while I support the idea of a smooth transition and a sense of continunity in children's learning of mathematics, one might also problematize the notion of 'progression' as being necessarily linear and hierarchical. Wood and Bennet (1999, p. 14) state that, within the complexity of teaching and learning in the early years, progression and continuity are "elusive and problematic concepts" and their conceptualisation is dependent on educators' beliefs and skills and children's prior learning and individual characteristics. Thus, I suggest that, as part of the discussions and reflections on the reform, it could be beneficial for teachers to unpack the very notions of progression and continuity.

From the interviews, it became clear that there existed a tension between the emergent curriculum and the use of a textbook scheme, a tension that the teachers appeared to be aware of, or that they appeared to *became* aware of as they articulated their thoughts. From my personal and professional experience, I can confirm the traditionally prevalent use of textbooks in many Maltese schools, including with young children. However, if a truly emergent curriculum is to take place in the lower primary grades, then an important step would have to be the side-lining of textbook schemes for this age group. The participating school had, in fact, experimented with a 'no-textbook' approach

for a short while, but this experiment was soon shelved. Instead, a new scheme was chosen and training for its implementation was carried out. I did not discuss with the teachers the reasons for dropping the trial so quickly but, given the long standing use of structured schemes, it is not surprising that the adoption of a new scheme was perceived to be less challenging than a new approach that addresses mathematics through an emergent curriculum.

As recommended by Gouëdard et al., (2020), any attempt to introduce a new reform must start with the teachers themselves. In the case of my participating school, this might imply teachers engaging in reflection on why they feel so dependent on the textbook scheme and why the 'no-textbook' approach was shelved so quickly. Certainly, it would be important for teachers to discuss how the mathematics they wish to address can be targeted through an emergent curriculum. As Røvik (2016) notes, a dissemination process should be viewed as an *interpretation* of the idea by the actors. In the case of our own reform, this implies that schools may need to find their own way in which to adopt and implement an emergent curriculum. Indeed, the LOF document (DQSE, 2015a) itself stresses a move away from a one-size-fits-all view of education, with a recommendation to schools for flexible pedagogies and methods of assessment.

I conjecture that school-based reflections are likely to require the involvement of a key person, who may be a teacher with a special interest in mathematics or a member of the school management team. The important role of a school principal as a manager, leader and innovator is noted by Ansori et al. (2021). I characterise this person as having fully embraced the underlying philosophy of the reform, while being open to address their colleagues' concerns about "the meaning of new goals, beliefs, practices and means of implementation" (Fullan, 2015, p. 36). The involvement of such a key person would certainly ease the burden on education officials who, due to their very small number in Malta, face a big challenge to reach out to all teachers, in both the State and non-State sectors.

It may be the case that some compromising may need to be done, at least until teachers come to feel more convinced and confident. The move to a new curricular approach was planned in Malta to be phased in, Grade by Grade, so as to allow a school *as a whole* to familiarise itself with the approach. However, each year of implementation will signify a starting point for the teachers concerned. One idea could be for a school to apply phasing-in even at Grade level. For example, to begin with, a project of interest might be undertaken with the children for part of the week, with traditional timetabled subject slots still being included. This could allow the teacher to become accustomed to developing and documenting projects, and to appreciate the benefits of the approach, while maintaining an initial link to past familiar practices. Allowing for compromises (that can be modified over time) may help to take the reform

in the desired direction. As teachers and schools 'find their way', a reflective process could offer important opportunities for discussion and even action research by the practitioners themselves.

I would like to offer a cyclical model as a framework for school-based reflection, inspired by others' work on curriculum reform (e.g. Fullan, 2016; Røvik, 2016; Tikkinen et al., 2020). The cycle, shown in Figure 1, starts with engaging with the underlying philosophy and examining its relevance to the school context. Through discussion, the key educator and class teachers establish a shared understanding of the reform. Self-reflective questions that might be asked are: *What remains the same in our practice? What changes? What are we convinced of? What are our concerns?* And so on. Based on these discussions, a compromise working position may be found and the reform implemented for a period of time (e.g. a scholastic year). While the main participants will be the teachers and a key educator within the school, I also see a role for outside officials who can be involved in the discussions at various points. At the end of the cycle, the school re-examines the philosophy's relevance to their context, and the cycle starts once again.

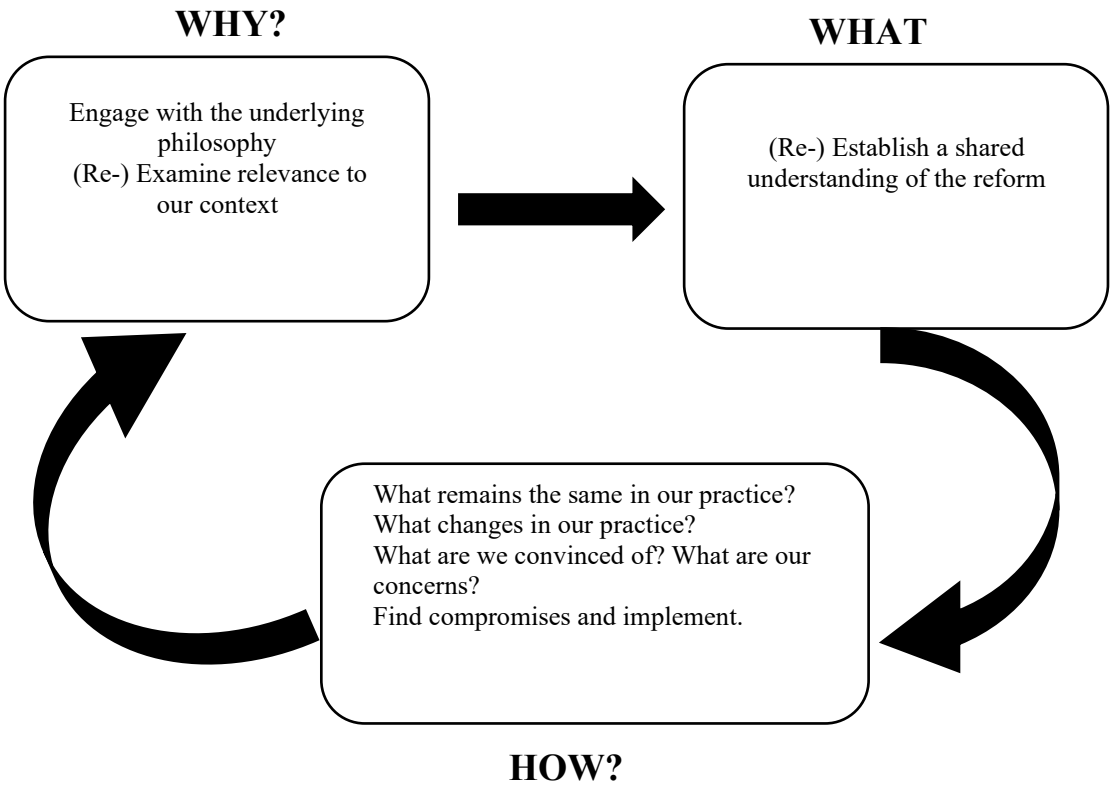

Figure 1. School based cycle of reflection

Conclusion

My research study began with a curiosity about one school's understanding of the newly formulated mathematics learning outcomes and the emergent curriculum for the first two grades of compulsory schooling. I also wondered about the teachers' views on marrying an emergent curriclum with a textbook scheme. While the data collected answered my questions specific to the teachers in this school, and at one particular moment in time, I can see the relevance of their concerns to other Maltese schools and other Early Years teachers who have long followed textbook schemes.

Further research on the topic is pertinent, since the reform is now under way in all schools. First, one might follow up with the same four teachers to revisit their concerns and to learn whether these still hold, if they have been addressed in some way, or if new concerns have arisen. Second, the reflections presented in this paper could form the basis for discussion with teachers in other schools that have also chosen to continue using mathematics textbook schemes with Early Years children. Do these teachers have similar concerns regarding addressing mathematics through an emergent curriculum? Have they found strategies to implement the new approach effectively? Third, it would be interesting to compare the views and experiences of Early Years teachers who have done away with textbooks with the experiences of teachers who are still using them.

The model I proposed for a cycle of self-reflection places the interpretation of the idea behind the reform in the hand of the actors (Røvik, 2016); the model can be utilised at any phase of an ongoing reform and it can be generalised to other contexts of educational reform, both locally and internationally.

Concerns are to be expected for any educational reform. Given the complexity of any educational reform, which inevitably concerns so many stakeholders, it is to be expected that an effective pedagogy reform can only unfold over a period of time. I agree with Fullan (2015)'s belief that "*change is a process, not an event*" (p. 58, original italics). I suggest that school-based cycles of reflection and action focusing on the *what*, *why* and *how* of the ongoing reform – facilitated by a key school-based educator/leader, and supported by outside officials – may help to achieve positive results.

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