Curriculum Improvement Cycle (CIC)

Background and a Case for Change

Findings from the Pilot Curriculum Reviews 2023/24: A Discussion Paper

November 2024

Contents

Purpose

In its 2021 report, Scotland's Curriculum for Excellence: Into the Future, the OECD stated, "CfE (Curriculum for Excellence) continues to offer a vision and philosophy of education widely supported and worth pursuing" and that the recommendations made within the report were "aimed to support Scotland as it further enhances CfE to achieve its potential for learners".

This is the first of three discussion papers which will convey and discuss the findings, key messages and learning from a number of pilot curriculum reviews established by Education Scotland (ES) in response to the OECD's report. This work has both informed and laid strong foundations in the development of plans for the systematic review of the Scottish Curriculum (the Curriculum Improvement Cycle) to support the evolution of CfE.

The paper seeks to:

- Set out the background for undertaking pilot curriculum reviews in session 2023/24
- Outline how the pilot curriculum reviews were carried out and how the approaches used will inform the Curriculum Improvement Cycle (CIC)
- Share the key findings and learning identified through the pilot reviews
- Make a case for evolution of the current technical framework
- Stimulate thinking by exploring how the position of knowledge can be strengthened within CfE

The second discussion paper will be published in December 2024 and the third in early 2025. The second paper will discuss how we might evolve the technical framework for CfE and the third will discuss proposals for how curriculum change will happen.

Language matters: definitions

Co-design is a collaborative approach to designing and creating services (in this case the curriculum). Service users (e.g. educators) and other stakeholders work together through a facilitated design process. Co-design methodology values the expertise and perspectives of all involved, ensuring solutions are tailored to meet real needs. Aligned with the Scottish approach to service design, co-design emphasises inclusivity, empathy, and a shared understanding, aiming to create services that are effective, accessible, practical and sustainable for everyone involved.

The term '**pilot study'** or **'pilot review'** refers to a mini version of a full-scale study (Teijlingen & Hundley, 2001). Pilot studies are useful to refine research instruments such as questionnaires and interview schedules, as well as highlighting research gaps and identifying issues such as research validity (Sampson, 2004; Teijlingen & Hundley, 2001). It is important to emphasise that the pilots carried out by Education Scotland (ES) and described in this document were not and were never intended to be full reviews of any of the curriculum areas.

The **technical framework** within a curriculum is used by educators to plan what children and young people will learn. In Scotland this would include guidance such as the Experiences and Outcomes (Es&Os), benchmarks, and progression frameworks, as well as approaches to moderation. This framework is designed to support educators in developing and implementing a curriculum which fully captures the skills, knowledge and learning which every learner should experience and attain. The technical framework sits alongside the statutory framework, policy framework and qualifications framework. Further detail on what is meant by these frameworks is provided in section 4 of this paper.

1. Background for undertaking the pilot reviews

The catalyst for implementing the Curriculum Improvement Cycle - and therefore for conducting the initial pilot curriculum area reviews - can be found in the OECD Report "Into the Future: Scotland's Curriculum for Excellence" (2021).

The report endorsed the Curriculum for Excellence (CfE) but advised that a focus be placed on its continued development. *"The two decades since the formulation of CfE's vision have been marked by accelerated changes, including in educational research, giving rise to new insights into student learning, pedagogy and the kind of knowledge, skills and attitudes students need to progress as learners. CfE has stood the test of time, but will only remain relevant if Scotland uses these insights to continue its development"* (OECD, 2021: p13). This led to recommendation 3.4: Develop a systematic approach to curriculum review.

The report looked closely at the coherence of the learning experience from ages 3 to 18 and advised[1] that, *"clarifying the role of knowledge in the vision of CfE is the first step to strengthen the coherence of CfE"*(OECD, 2021: p118). In addition it identified the need to:

1. Address *"ambiguity about the role of knowledge"* in the CfE framework, going on to suggest that adjustments are required in both the Broad General Education (BGE) as well as the Senior Phase;
2. Update *"the role of knowledge in CfE*" and to define indicators to *"help understand student progress across all four capacities"* and that *"the role of knowledge should be made more explicit as part of the vision and the tools to operationalise it";*
3. Develop a better shared understanding of terms such as knowledge, skills attributes and competencies, addressing *"specific, somewhat unnecessary jargon";* provide greater clarity and address complexity and overload due to numerous elements including *"experiences and outcomes; benchmarks; moderations; progression levels and more"* leading to a *"cluttered"*, *"over-accessorised curriculum"*, and;
4. Consider how the *"design of CfE can better help learners consolidate a common base of knowledge, skills and attitudes by the end of the BGE"* and how this can help address longer standing issues related to progression from the BGE into the Senior Phase.

The report also offered practical suggestions, for example, the alignment of knowledge with the four capacities, as well as advice on how the recommendations of the review could be actioned and new guidance could be co-constructed. *"Guidance should be designed by teams of practitioners, in close co-operation with researchers and other stakeholders, with system leaders and curriculum experts facilitating the work. Teams of teachers from schools or school clusters could contribute and discuss their own knowledge priorities and how they are integrated across the four capacities and explain how they choose suitable pedagogical approaches. These contributions from practitioners should form the basis of CfE guidance on knowledge selection, prioritisation and update, rather than prescriptions 'from above'"* (OECD, 2021: p120).

While ES did adopt co-design approaches, working with educators and the wider system in the development of the refresh of Scotland's Curriculum narrative (September 2019), the pilot reviews – and work undertaken in relation to the reform of ES – represent a significant evolution in ES's practices and engagement. The pilot reviews presented an opportunity for educators to be actively involved in discussions and make contributions which shaped ES's work, rather than being subjected to a 'top down' approach as described by the OECD.

[1] ***Recommendation 1: Balance Curriculum for Excellence so students can fully benefit from a coherent learning experience from ages 3 to 18 years.*** *(OECD, 2021)*

On the position of knowledge in the curriculum specifically, the OECD suggested consideration of a “Big Ideas” model to support curriculum coherence and to help determine the criteria for the selection of content. Such a model exists in systems such as British Columbia (Canada), South Korea, Norway and Singapore (OECD, 2021). Throughout the pilot curriculum reviews ES has engaged with education officials across a number of education systems.

The issues identified by the OECD, along with advice on how to respond, have shaped the approaches taken when conducting the pilot reviews.

The pilot curriculum reviews themselves took place between February 2023 and April 2024 and explored aspects of five of the eight curriculum areas: English, expressive arts, health & wellbeing, modern languages, maths and social subjects. The pilots provided opportunities to trial and evaluate different approaches and methodologies that could be used in a full curriculum review cycle, including methods of engagement and recruitment. The pilots also offered an opportunity for ES to explore, with educators and stakeholders, views on the position of knowledge and the wider tensions experienced with the current curriculum (such as the technical framework), as well as a consideration of the key features of a curriculum which works for educators, meets the needs of young people and is equipped to meet the needs of further education, employers, and wider society both today and into the future (a future orientated curriculum).

2. Pilot curriculum reviews: February 2023 – April 2024

The pilot reviews led by ES engaged with educators and stakeholders to explore the method and approach that could then be used for the substantive Curriculum Improvement Cycle (CIC) ,as well as identifying key messages and learning to inform that Cycle. This included, for example, looking at methods of engagement and recruitment, identifying challenges experienced in the current technical framework, developing approaches to reviewing and strengthening the position of knowledge within curriculum areas, and gathering feedback from activities and evaluations which focused on what a future-orientated curriculum might look like.

2.1 Developing a national model for curriculum review

Prior to the Education Scotland led curricular area pilot reviews, the Scottish Government's Education Reform Directorate and ES worked with a co-design group of educators and stakeholders, between December 2022 and May 2023, to explore what a cycle of curriculum review may look like for Scotland. Additionally, discussions were held with international educators and a comparative study, considering approaches taken in other countries to review curriculum, was also undertaken to inform this work.

A number of common features were identified from the analysis of how other systems across the world reviewed and updated their curriculum and these are set out in the table below:

Analysis	Re(design)	Implementation or "realisation"	Evaluation
Ongoing monitoring at all levels (schools, regional, national) Large surveys and other (large scale) public consultations In-depth curriculum analysis Exploration of student needs and curriculum gaps (informed by labour market developments etc.) Analysis of international trends and examples	Mixed development groups of (disciplinary or curriculum) experts and school practitioners Expert consultation and appraisal on drafts Co-creation workshops Feedback opportunities (online submissions and in-person forums) Pilots/trials	Teaching professional learning workshops Continuous capacity building collaboratives (networks) between schools, teacher educators and researchers Collective reflective workshops Development of support material for teachers and school leaders Monitoring of experiences of teachers and students Q&A opportunities	Evaluation by external researchers Inspectorate reports School self-reports Analysis of national and international assessments Collection of feedback (surveys, open submissions, forums

Fig:1.0: Common Features often associated with Curriculum Review (Source: *Education Scotland 2024)*

In response a model for curriculum review, consisting of four distinct but interlinked stages, was developed and shared with the Curriculum and Assessment Board (CAB[2]) in June 2023. The stages are:

[2] **Membership of the Curriculum and Assessment Board (CAB) includes:** Association of Directors of Education, Association of Headteachers and Deputes in Scotland, College Development Network, Colleges Scotland, Community Learning and Development Manager Group, Convention of Scottish Local Authorities, Early Years Scotland, The Educational Institute of Scotland, Education Scotland, Professor Mark Priestley, University of Stirling, Professor Louise Hayward, University of Glasgow, National Association of Schoolmasters Union of Women Teachers, School Leaders Scotland, Scottish Council of Independent Schools, Scottish Funding Council, Scottish Government, Scottish Secondary Teachers Association, Scottish Qualifications Authority, Skills Development Scotland and Universities Scotland.

1 **Analysis** – analysis of evidence and feedback from practice on how the curriculum is working at all levels (Early Learning and Childcare, schools, colleges, regional, national), studies on future trends including international evidence[3] and research on specific issues. This will help identify areas for closer focus.

2 **Engagement and co-creation** – planning, engagement, collaboration and processing of feedback to test draft workstreams. Importantly in the Scottish model in this stage the implementation strategy is also co-designed.

3 **Share, Learn and Adopt** – local capacity building[4] and professional development; development of support material; monitoring of experiences of educators and learners.

4 **Mobilise, monitor and evaluate** – mobilising the system around the approach and implementation. Once the new approach is mainstream, the cycle begins again in terms of monitoring and evaluation through inspectorate reports, research and feedback. This last stage (evaluation) is interlinked with stage 1 (analysis) thereby closing the review cycle.

It is envisaged that the Scottish Model for Curriculum Review (the Curriculum Improvement Cycle) will take around ten years to complete the first full review cycle, with each review cycle starting and ending with an exercise similar to the National Discussion on Scottish Education that took place in 2022/23. This means that the first year of the cycle was 2023/2024 and an exercise similar to the National Discussion should follow in 2032/2033.

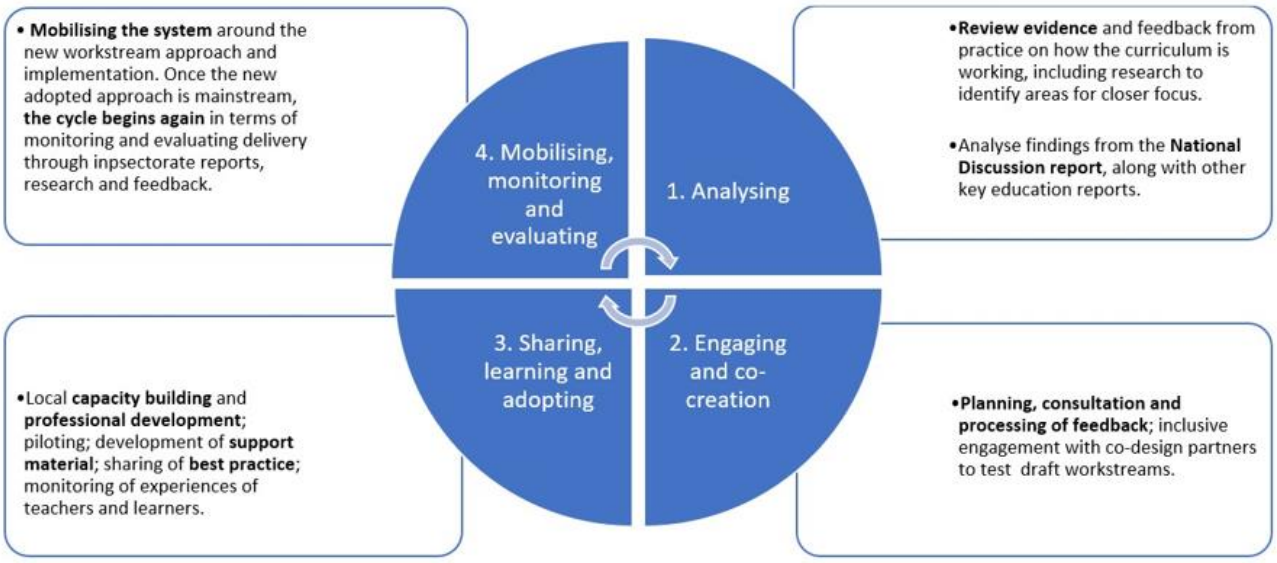

Fig 2.0: Draft Curriculum Review Cycle (Source: Scottish Government 2023)

[3] **International evidence could include:** PIRLS - Progress in International Reading; PISA - Programme for International Student Assessment; and TIMSS - Trends in International Mathematics and Science Study

[4] **Capacity-building** is defined by the United Nations as the process of developing and strengthening the skills, instincts, abilities, processes and resources that organisations and communities need to survive, adapt, and thrive in a fast-changing world.

2.2 Developing the pilot curriculum area reviews

The first phase of pilot curriculum review events for selected curricular areas commenced in February 2023. These initial pilots concentrated on maths, social studies and health & wellbeing. A second phase of pilots was launched in late 2023 and early 2024. This second phase focused on modern languages, expressive arts, and literacy & English.

The curriculum areas in the first phase were chosen to enable consideration of knowledge in both 'hierarchical subjects', where knowledge is built in a cumulative way (for example maths), and 'horizontal subjects', such as social studies, where knowledge, for instance, may be built by the introduction of new sets of concepts. Health & wellbeing also afforded opportunities to consider the position of knowledge in more practical based subjects.

For practical reasons, the first phase of the pilots was limited to Broad General Education (BGE). Despite this, the need for a coherent approach from 3-18 was frequently identified by participants. The focus on BGE stimulated discussion about what could constitute a coherent framework that bridges the BGE and Senior Phase. This in turn expanded the scope and planning for the second phase of pilots to include consideration of Senior Phase issues.

In response to early messages on the significance of cross-curricular knowledge and skills from the first phase of pilots, ES analysed the service design approaches taken to develop social justice, rights and equalities across the curriculum. ES also initiated exploratory work on political literacy in December 2023, as well as developing plans for other cross-curricular areas such as financial literacy and sustainability.

The 'pilot' nature of the reviews was central to their design, and this was emphasised to the CAB throughout 2023. Purposefully differing approaches were taken for the recruitment and selection of participants as well as to the activities, tools and methodologies used for each of the pilots , so that one "optimal" approach could be determined for the purposes of the CIC. The purpose of the pilots were communicated explicitly to participants. It was made clear that these were not the substantive Curriculum Improvement Cycles themselves, that the purpose was to evaluate and examine approaches to carrying out a systemic improvement cycle, exploring impacts on outcomes as well as analysing any outcomes themselves.

Participants were also informed about how these pilots would contribute to OECD recommendations 1.2 (find a better balance between breadth and depth of learning throughout CfE[5]) and 3.4 (develop a systematic approach to curriculum review[6]). The format and organisation of the pilots were developed and led by Senior Education Officers (SEOs) from the Curriculum, Learning, Teaching and Assessment (CLTA) team within ES, with appropriate curricular expertise. They were also supported by Education Officers (EOs) where possible.

Across the pilots, a national and core group model was developed, with a core group of people taking forward more intensive work which reflected issues identified in the initial national review events. This approach was considered most appropriate and was also recommended by educators from British Columbia. The table below illustrates the nature, scope and scale of the work undertaken as part of the pilot review process.

[5] **Recommendation 1.2 - Find a better balance between breadth and depth of learning throughout CfE to deliver Scotland's commitment to providing all learners with a rich learning experience throughout school education:** Scotland could consider how the design of CfE can better help learners consolidate a common base of knowledge, skills and attitudes by the end of BGE, and nurture and hone this base for them to progress seamlessly through Senior Phase and the choices its offers. (OECD, 2021)

[6] **Recommendation 3.4 - Develop a systematic approach to curriculum review:** Scotland could consider establishing a systematic curriculum review cycle with a planned timeframe and specific review agenda, led by the specialist stand-alone agency. (OECD, 2021)

Curriculum Area/ Cross Curricular Area	National Engagement Events	Composition Of National Engagement Events	Core Group Meetings	Core Group Size
Maths	Feb 2023 Oct 2023	Attendees 60 Educators 60% Stakeholders 40%	May 2023 June 2023 August 2023 Jan 2024 Feb 2024	20
Health & Wellbeing	Feb 2023 May 2024	Attendees 80 Educators 95% Stakeholders 5%	May 2023 Sept 2023 Feb 2024	16
Social Studies	Jan- March 2023*	Attendees 20-30 *online only	N/A	N/A
Modern Languages	Oct 2023	Attendees 60 Educators 100%	March 2024	30
Expressive Arts	Jan 2024	Attendees 90 Educators 75% Stakeholders 25%	August 2024	20
English	March 2023	Attendees 80 Educators 68% Stakeholders 32%	TBA	TBA
Political Literacy	Dec 2023	Attendees 40 Educators 68% Stakeholders 32%	Mar 2024 Mar 2024	20

Fig 3.0 – High level details of pilot curriculum area review groups (Source: ES 2024)

The design of the first phase of reviews deliberately adopted a variety of approaches, which could then be trialled, explored and evaluated. These approaches included:

- **Who should be involved**: this included consideration of the roles for educators, professional associations, local authority officers, subject associations, Initial Teacher Education (ITE) providers, key stakeholder organisations, Scottish Qualifications Authority (SQA), academics, and employers
- **How participants should be recruited**: this included the use of existing networks and national groups, invitation, open sign up and self-selection, and responses to communication via social media. This also took into account issues such as representation
- **The ways participants should be engaged**: for example, face to face physical meetings, online engagement or hybrid approaches and the location of venues
- **What activities participants would take part in**: this included the uses of structured tasks, open ended tasks, levels of prior knowledge and expertise, level of engagement, pre-reading and the extent of collaboration

Participants were drawn from across the education system and beyond. The reviews involved participation from newly convened groups, as well as existing groups and structures. Further information on the approaches taken across the individual areas is summarised in **Annex A.**

As well as specific curricular areas, there were cross-curricular reviews. Working in partnership with Edinburgh University, ES undertook a pilot review of political literacy with academics, primary, secondary, early learning and childcare colleagues, and other interested parties. Participants considered the current landscape, recent academic research and the existing challenges in schools and other

settings. Prior to the start of the pilot curriculum reviews, and as referenced above, work had also started on social justice, rights and equality and continued in tandem with newer cross curricular work.

Pilots were a mix of online and in-person events. The efficacy of these methods was also considered and the learning – both about how the curriculum is realised in schools and the methodologies used in the pilots – are considered in the next section.

ES collated and analysed feedback and evaluations, and working with colleagues from the Scottish Government Education Reform Directorate, used the significant learning from the pilots to inform the emerging proposals for systemic curriculum review through the Curriculum Improvement Cycle (CIC).

2.2 Reflections on the process

A consistent feature of the pilot curriculum reviews was the high level of **engagement** and **enthusiasm** from the 450+ participants. Educators welcomed the opportunity to consider the relevance of the curriculum nationally, while also considering the implications of the curriculum in the classroom and at the individual learner level. They valued the opportunities to share views and discuss how their curricular area could be updated. Some examples of the feedback from participants are noted below:

- "It was great to interact with practitioners from both primary and secondary. I really enjoyed the discussion and the idea that we were being listened to and that there was a purpose behind the day. It was good to see that schools are having similar issues and how they are dealing with them" (HWB participant)
- "The discussion around a national framework was incredibly interesting to discuss with colleagues from a variety of sectors. It was also really helpful to link numeracy back to the 4 capacities as I think this has been lost recently and certainly was a useful task and reminder" (Maths participant)
- "Very productive, need more collaboration like this between academics and teachers" (Political Literacy participant)

Overall, practitioners valued the opportunity to network. Cross sectoral collaboration and opportunities to engage with stakeholders, particularly academics, was also seen as valuable. There was a clear preference for in-person sessions. However, there remains a place for virtual or online sessions, partly to ensure wider participation nationally, but also as a reflection of the difficulties that can arise when participation requires educators to be free from classroom duties.

On the theme of practicalities around holding such events, there was – as anticipated – some challenge when educators were required to be released to support this work. Owing to the fluid nature of educator availability, occasionally participants were unable to attend events or discussions to cover an absence at their school. Similar challenges have also been identified by other countries when they undertook their curriculum review.

To remedy or minimise this issue for the more substantive Curriculum Improvement Cycle, it may be constructive to seek the release of educators for more focused or longer discussions and events (blocks of days, rather than numerous days across the year) during less intensive times of the year. Participants suggested a model similar to that used by the Scottish Qualifications Agency (SQA) to secure markers for central marking events. This may include paid weekend or holiday working as a means to reduce in-school pressures.

It is also considered helpful to learn from British Columbia's experience where they used specific structures to promote engagement, openness and transparency. This included the creation of public-

facing websites and a clear communications strategy ensuring information is made available to the public (this was, indeed, part of the rationale behind this paper and the series which will follow). Such activity allows for a wider appreciation of, and involvement in, the curriculum improvement process.

The **recruitment** of participants, too, is worthy of reflection. The open nature of the recruitment (for example, individuals signing up in response to social media) had its strengths, but indicated risks of an insufficiently diverse range of participants which limits the range of voices and perspectives. There were, also, acute challenges in recruiting participants from Additional Support Needs (ASN) or Early Learning and Childcare (ELC) backgrounds.

More generally, it appeared easier for secondary educators to be released than for primary school educators and early years practitioners, perhaps owing to the use of national subject networks and differing school structures between ELC settings, primary and secondary schools.

These issues will be further considered and inform the ongoing development of the Curriculum Improvement Cycle, as well as being explored further in a future discussion paper that will focus on the how of curriculum change. That paper will be published in early 2025.

The pilot reviews also helped to identify and clarify issues and approaches needed to **improve and update** the curriculum. For some participants, it was initially difficult to establish how their particular curricular area contributed to the wider curriculum or how it intersected with other curricular areas (e.g. the relationship between expressive arts and mathematics). While not universal, this appears to speak to a need for future curriculum updates to begin with an overarching picture of the curriculum in total, with a focus on the four capacities at the centre. This could then be used to move on to specific curricular areas and subjects.

Participants were challenged to consider wider developments that may impact on a future-orientated curriculum. These included, as examples, the pace of change and innovation in technology (including the effects of AI), global political polarisation, and climate change. While participants were readily able to identify a range of knowledge and skills for consideration in an updated curriculum framework (such as data analysis and financial literacy during the maths review), participants in some pilot reviews found difficulty in identifying aspects of the curriculum that ought to be deprioritised to allow more time for greater depth. This will be a challenge that needs addressing if we accept the issue of a "*mile-wide, inch-deep curriculum in S1-S3"* as identified by the OECD (2021, pg. 56). The challenge of identifying aspects which may be deprioritised was more present in what may be considered 'hierarchical subjects' (where learning builds in a progressive and structured fashion) such as maths.

3. Findings: Key Outputs and Messages

3.1 Declutter the curriculum

Across the pilot reviews, participants noted a desire to declutter the curriculum. It was suggested by participants on several occasions that, currently, too much content is being covered, resulting in a rush through the curriculum to cover content at the expense of sound conceptual understanding and deeper learning (two features often associated with high performing systems).

It appears reasonable, based on the views of participants, to conclude that the absence of a process for ongoing curriculum review has, in part, exacerbated the issue described above. As a result of changes (social, technological, and environmental) since the introduction of CfE, numerous additional layers have been added to the curriculum without consideration being given to what should be removed or reduced.

3.2 Clarify knowledge

Participants strongly supported the principle of clarifying what knowledge learners need in order to make progress, realise the four capacities and prepare for adult life. The current technical framework was viewed, by many participants, as a barrier to achieving these goals. They reflected on the variability of how Es&Os can be interpreted and some stated that they use the benchmarks to provide clarity. However, the use of benchmarks was also challenged by participants indicating that those at different levels are either too similar or too vague to promote clarity on progression.

This led to discussions and debate between prescription and autonomy (i.e. how or should a curriculum set out exact standards and expectations (prescription) or provide a wide range from which educators/ practitioners could choose what worked best for their learners (autonomy)). For example, in the expressive arts pilot review, educators were clear in their expectation that they should have autonomy to plan a curriculum that fits their context and school community. Conversely, in the maths pilot, participants generally indicated that more prescription may be useful to aid the planning of learning. This may support the notion that 'hierarchical' and 'horizontal' subjects may benefit from some distinction in any new technical framework.

Regarding clarity of knowledge, participants often referred to the significance of high-level concepts or understandings. For instance, discussion in the modern languages core group indicated opposition to a highly prescribed framework. This was described by some practitioners as reducing language learning to "the memorisation of 1,700 words".

The tension between autonomy and prescription is discussed in the OECD report (2021, pg. 58) which stated that, *"some education systems report that curriculum overload tends to be heavier at the local level, with schools overburdened by the responsibilities such autonomy entails".* This is attributed to, *"one or two extremes: either a lack of guidance on what to remove and what to prioritise in curriculum content or guidelines that are too prescriptive"*.

The current technical framework for CfE offers a very high degree of autonomy. Participants in the pilot reviews were clear that autonomy was important (particularly to support place-based approaches to learning) and over-prescription was not welcome. However, based on the pilot reviews and supported by other evidence, there is also an appetite for greater clarity on what learners should know at key points in their learning and a recognition that the current technical framework for the curriculum does not sufficiently provide that clarity.

3.3 Recognise differences between curriculum areas

There was significant support from participants for greater clarity on knowledge and the tensions between a prescribed curriculum or a curriculum with a high degree of autonomy. It should be noted however that there were varying perspectives between 'hierarchical' subjects where knowledge is built in a cumulative way (for example maths), and 'horizontal' subjects, such as expressive arts where knowledge may be built by the introduction of new sets of concepts.

Indeed, a number of participants in the maths pilot review supported greater prescription and specification as to what learning it was expected children and young people would undertake throughout the curriculum. This was in contrast to participants in the expressive arts pilot curriculum review. Other participants conveyed their sense that the current technical framework was better suited to English or art than STEM[7] subjects.

Accordingly, any refreshed or updated technical framework will have to consider whether more-or-less prescription is appropriate. This may be a more complex framework to develop, but it may prove to be appropriate to have a framework sufficiently nuanced to best fit each curricular area.

This was discussed with educators from British Columbia, as part of the work started following the initial maths pilot curriculum review event, who offered that the flexibility envisioned above can be accommodated within the higher levels of the Big Ideas (Know/Do/Understand) model. This nuance can also be found in Estonia's curriculum framework (Estonia also being a high performing state according to PISA data) as described by Eisenschmidt, et al (2023, pg. 50). *"The syllabi of subject fields define the academic objectives or learning outcomes for each school stage (grade band) in the national curriculum. These are compiled in cooperation with active teachers, experts, and university researchers. This has led to a dissimilarity of syllabi, with the details and style of describing the learning content, learning outcomes, and assessment criteria differing from one subject field to another. Although a student-centred approach has been followed in all curriculum development, strong subject-orientation is still rooted in the Estonian national curriculum".*

An interesting perspective from participants in the modern languages pilot review identified the challenges faced, in their experience, by primary educators who may not specialise in languages. It was argued that at the early stages of CfE (levels 1 and 2) there was a case for greater prescription to support primary educators.

It may be, therefore, reasonable to conclude that a future technical framework is one that supports curricular areas, sectors and levels by offering more-or-less prescription or autonomy as best befits each one.

3.4 Reposition cross-curricular knowledge and skills

Participants in the pilot curriculum reviews highlighted how cross-curricular learning can play a role in developing the four capacities. This could deepen learning by providing opportunities for the application of curricular knowledge (and skills) in relevant real-world contexts for learning. For example, the significance of the collation, representation and interpretation of data (data literacy) need not be confined to maths alone; there will be cross-application in the sciences, technologies and other areas. The pilot review of political literacy and, planned further work across a range of cross curricular areas, as well as the ongoing work on social justice, will provide further insight as to the potential relationships between curricular areas and cross-curricular knowledge and skills.

Participants in some pilot reviews identified the current complex position of cross-curricular knowledge and skills, particularly in relation to the responsibilities of all. Alongside wider messages of the need to simplify and provide greater clarity, there were also messages that the position of cross-curricular knowledge in the current framework needed to be simplified and clarified. There were some

[7] **STEM –** Science, Technology, Engineering and Maths.

tensions and practical challenges highlighted in discussions between practitioners regarding the risk of re-cluttering the curriculum if greater clarity was not provided. This included not only what cross-curricular knowledge was important, but also how this could be incorporated within current structures, particularly in the secondary sector. The position of cross curricular knowledge in the senior phase was also explicitly identified as a challenge, with some specific implications for qualifications and assessment. Within early learning and childcare and primary, it was suggested that there are existing strengths in developing cross-curricular knowledge which could be shared to support teachers in secondary schools.

3.5 Provide clarity and simplify guidance

The need for clarity and simplification (or perhaps coherence) was made clear. Participants largely viewed the proposed Curriculum Improvement Cycle process as a means to address the issues of curriculum clutter and to enable a renewed focus on the four capacities.

Teachers reported that they did not seek additional layers of guidance, but for new guidance to replace and combine existing guidance. Presently, as well as the five Building the Curriculum Guidance documents, there are 1,850 statements of learning within the Es&Os, 1000 benchmarks, a series of cross-curricular themes and initiatives, four capacities, four contexts for learning, sixteen principles and practice papers and eight curricular areas.

In some of the pilot curriculum reviews, practitioners explored how to best simplify and clarify the technical framework. These options included pulling together, into one single source, the Es&Os, benchmarks, and progression frameworks. Supplementing the current framework with an additional knowledge framework was also suggested. However, participants were largely unsure that these approaches alone would sufficiently address the issues. While this was so, participants agreed that evolving the technical framework for the curriculum was appropriate. The technical framework will be further discussed in the next section.

4. The technical framework and structural challenges

As already detailed at the start of this document, the technical framework within a curriculum is used by educators and practitioners to plan what children and young people will learn. In Scotland this would include guidance such as the Es&Os, benchmarks, and progression frameworks, as well as approaches to moderation. This framework, in principle, is designed to support educators and practitioners in developing and implementing a curriculum which fully captures the skills, knowledge and learning which every learner should experience and achieve. The technical framework sits alongside the statutory framework, policy framework and qualifications framework as set out in the table below.

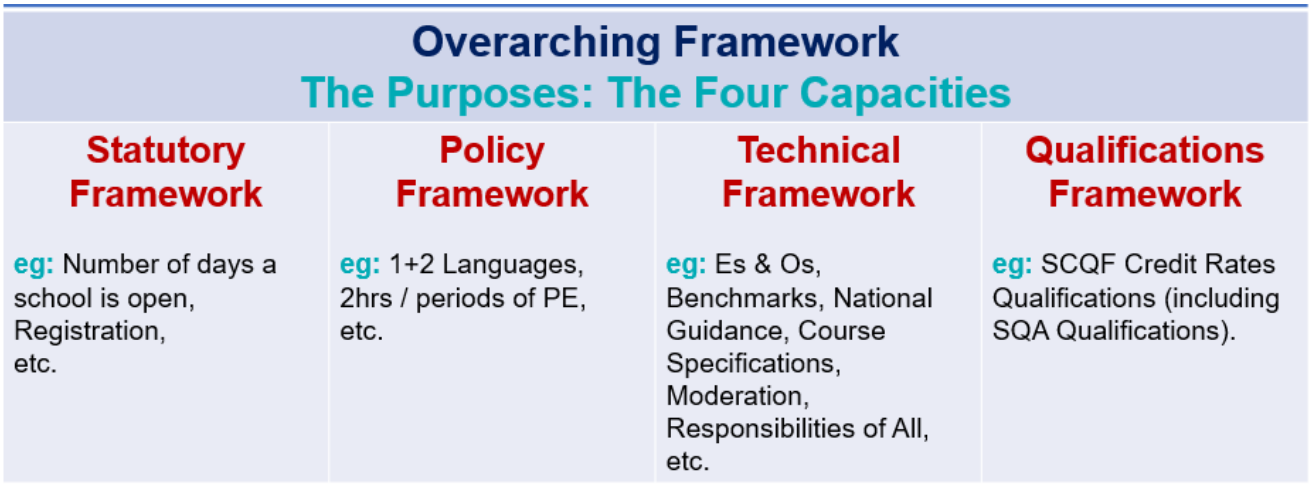

Fig: 4.0 – Understanding Curriculum Frameworks (Source: Education Scotland, 2024)

Participants in the pilot curriculum reviews discussed what they considered the structural challenges of the current technical framework. However, while there were some common themes such as the position of knowledge, how these challenges were viewed varied across curricular areas.

Es&Os and their framing as 'I can' statements featured heavily in these discussions. A perceived absence of clarity on progression, variable confidence and understanding of benchmarks, and an observation that processes for moderation and the tracking of progress were onerous, were also highlighted as detracting from the original ambition of CfE.

The pilot curriculum review of social studies involved an examination of Es&Os, to identify knowledge as it was referred to in the Es&Os (implicitly or explicitly). It was found by participants that there was a lack of clarity around the knowledge that learners were expected to have. This accords with research undertaken by Priestley & Sinemma (2014, pg. 24) where they noted in an analysis of the Es&Os, *"[i]n one, knowledge is the first in a list of aspirations that are described as being summed up by the experiences and outcomes. In the other, knowledge is absent in a description of what learning experiences should develop".* It also accords with the OECD reports (2015; 2021) with regard to ambiguities and gaps in knowledge.

Indeed, the OECD (2021) spoke to issues of coherence and progression which was in line with the views of participants in the pilot curriculum reviews. Educators highlighted the complexity of the technical framework alongside concerns as to the volume and frequency of additional layers of guidance which, despite good intention, was considered to have exacerbated issues. The curriculum improvement cycle was seen as an opportunity to address these issues.

As well as aligning with the recommendations from the OECD (2021), the conclusions of participants are also consistent with All Learners in Scotland Matter: Our National Discussion on Education (Campbell & Harris, 2023, pg. 65): *"As part of the review of the curriculum the technical framework of*

the BGE (including the Experiences and Outcomes) needs to be re-visited to ensure it is still fit for purpose".

4.1 Progression

Various options were discussed in terms of trying to address the issues with the current technical framework. Participants in the pilot curriculum reviews explored the merits of a single document which outlines how benchmarks link to Es&Os and the progression frameworks. While this may reduce the volume of materials educators must access, participants took the view that this alone would not address questions around the roles of knowledge and may risk further complexity.

Another suggestion discussed was the creation of a series of national progression frameworks which would replace those produced locally. Participants, however, generally felt that this, too, would be insufficient to address questions around the role of knowledge.

Participants were, however, largely in favour of an evolved technical framework. In particular, in the pilot curriculum review of maths, there was interest in the Know/Do/Understand model as a basis for an evolved technical framework to better support CfE.

4.2 Primary / secondary transitions

The absence of clarity on the role of knowledge was considered by participants to create challenges for learners transitioning from primary to secondary education. In short, some participants took the view that due to the autonomy afforded at a school level, there were inconsistencies in the knowledge base of educators across primary schools, which were only apparent when learners entered into secondary education. Some primary practitioners took the view that this variability across cluster primary schools was linked directly to the degree to which the Es&Os are open to interpretation and the lack of an explicit link between these and knowledge.

Ultimately, some participants considered the current technical framework created structural barriers to progression and attainment as some learners, on entering secondary education, would re-do work covered during their primary education, while their peers may be covering these topics for the first time. Participants largely agreed that greater clarity on the expectations of educators and learners (particularly what learners are expected to know before leaving primary education) would address this issue.

A cluster approach to curriculum planning may reduce the apparent inconsistencies of approach as well. It was acknowledged that a cluster approach may be prohibited by practical matters across schools (e.g. timing of the school day). It was also acknowledged that some of the learning from the pandemic (e.g. use of digital technology for planning, collaboration and conversation across schools) could reduce some of these perceived barriers.

Others expressed concern that a lack of clarity identifying what learners should know may also contribute to a narrowing of the curriculum in the primary sector. Some participants indicated that such narrowing may occur due to pressures for improvements in literacy and numeracy data. This pressure may be alleviated by providing clarity of the types of knowledge that learners should be expected to have at specific points in their learning.

4.3 Disconnect between the BGE and Senior Phase

The issue of transition between primary and secondary education is similar to the challenges many participants described in the transition from BGE to Senior Phase. This was also reported by the OECD (2021, pg. 47); *"[s]tudents interviewed spoke about the challenges they faced in making the transition from BGE into Senior Phase when they had not consolidated the basic knowledge required for the deeper learning underpinning the Senior Phase".*

Participants in general reported that there was a lack of coherence between the BGE and the Senior Phase. Educators expressed a deep desire that any curriculum improvement explicitly prioritise and address this disconnect. In short, the Curriculum Improvement Cycle is viewed as an opportunity to develop and deliver a more coherent 3-18 framework.

This suggests that a more coherent framework that spans the BGE and Senior Phase, built around a common language and structure, may better support progression and planning between these two phases. Practitioners discussed what this might look like, the desirability of such a model and the practical challenges of creating a framework extending into the qualification phase.

A single framework presents practical challenges given the wide variety of options available to learners and the multiple pathways that the Senior Phase supports. This was seen as a key strength of CfE, offering a personalised qualification phase that aligns with a range of career pathways and varying aspirations of learners. One potential alternative suggested was to incorporate the structures and language of a common framework into future course specifications for exams.

4.4 Attainment challenges

The absence of clarity for the role of knowledge was also linked by some practitioners to challenges for attainment. In the maths pilot curriculum review, it was suggested by some participants that attainment in maths was negatively affected by how Es&Os were being used to plan learning. They gave an example of Es&Os being used in a linear manner, thereby encouraging what they describe as a "checklist approach" to learning. This did not promote a sound conceptual understanding of fractions where there was a need to group several Es&Os to support learning. There was also a sense that there may be an over-focus on the Es&Os in planning. In some cases, these were seen by practitioners as the effective purposes of the curriculum.

Participants suggested that greater clarity on the knowledge learners ought to have at key points in their learning would be useful to improve the tracking and monitoring of progress. Presently, some participants consider that tracking and monitoring of progress is reduced to indications of which Es&Os have been achieved or not.

4.5 Moderation, benchmarks and consistency of teacher professional judgement

The provision of clarity on the position of knowledge across CfE was also identified by some participants as a means to solve concerns around moderation. Those concerns included issues such as the practicality of moderation processes, particularly in a secondary setting, and the lack of a clear national standard to base moderation discussions around. Such a model could also support the collection of more reliable Achievement of CfE Levels (ACEL) data.

The points made by practitioners align with some wider issues identified by the OECD (2021) regarding understandings of Es&Os, Benchmarks and the uses of progression frameworks[8]. Furthermore, the reviews identified the need for a coherent approach across the BGE and senior phase, including the consistent use and shared understanding of terminology. This was felt to be particularly significant given recommendations from the Independent Review of Assessment and Qualifications to redress the balance between internal and external assessment in the senior phase.

[8] **For example:** According to practitioners interviewed by the OECD team, the Es and Os were somewhat useful in defining broad steps in learners' progression but not connected enough to learning tasks and outcomes to be useful in curriculum planning. **Source:** OECD, 2021 p46.

5. The role and position of knowledge

The role and position of knowledge in the different curriculum areas and across the curriculum featured heavily in discussions during the pilot curriculum reviews. The discussions highlighted varying interpretations and confusion on what constitutes progression within the BGE, the coherence of the Es&Os, the role of educator professional judgement and the implications of this for pace, challenge and attainment.

There was broad agreement that a lack of clarity led to decisions on knowledge being taken for instrumental reasons, such as alignment with National Qualifications (that is, what learners will need to know for exams) or for maximising performance for ACEL data. In a secondary environment in particular it is likely that this is also a barrier to both Interdisciplinary Learning (IDL) or the development of cross-curricular knowledge and skills.

5.1 Conceptualising knowledge

The question of "what do we mean by knowledge" arose early in nearly all of the pilot curriculum reviews. Defining what is meant by knowledge poses a number of challenges. There are alternative typologies, with different definitions and categorisations of knowledge. For example, Kelly et al (2008) pose questions such as, is knowledge itself *"in transition*", or the extent to which there is a "*corpus of canonical disciplinary and cultural knowledge … that is beyond criticism and are essential",* which are then translated into educational outcomes.

Whitty (2010) on the other hand states that *"knowledge is not the same as school subjects and school subjects are not the same thing as academic disciplines".*

Defining knowledge was one of the areas identified for further exploration by the maths pilot curriculum review group. In doing so it considered the following definitions in a draft paper aimed at a working definition of knowledge in maths. This was influenced by the definitions used by the UK Department for Education (2021) Research review series: mathematics.

Declarative (I know that)	Facts and Formulae	Relationships between facts (Conceptual understandings)
Procedural (I know how)	Methods, algorithms and procedures	Relationships between facts, procedures and missing facts (principles/mechanisms)
Conditional (I know when)	Strategies, the ability to reason and solve problems	Relationships between information, strategies and missing information (reasoning)

Fig: 5.0 – Classifying Maths Curriculum Content (Source: Department for Education, 2021)

The health and wellbeing pilot curriculum review group also considered this issue and the challenges arising from it. Feedback from ES staff facilitating the group indicated that, *"when starting [this] activity, it was evident that the core group were struggling to define knowledge, understanding and attributes. They felt that they were interdependent and too difficult to split. The core group felt the nature of HWB meant it might be different to other curriculum areas and that needs to be taken into consideration".*

In attempting to articulate the differences the group settled on the following:

Knowledge – what you know

Skills – what you do

Attributes – who you become

From this, participants then developed some "big ideas" for the health and wellbeing curriculum which then helped identify knowledge skills and attributes as set out below:

Physical		
Knowledge	**Skills**	**Attributes**
• Benefits of being active – how to be active • Recreational v competitive • Roles and responsibilities/ cooperation • Resilience – what is it? Coping strategies • Who/ where/ when to access support for health	• Being active • Cooperation • Resilience • Accessing support if needed	• Living an active life • Becoming cooperative individual when required • Being resilient/ determination • Self-awareness

Fig: 6.0 – Linking a "big idea" (physical) to knowledge, skills and attributes in HWB
(Source: Education Scotland, 2023)

These contrast with more formal definitions of knowledge used by the OECD (2018) in its Future for Education and Skills 2030 Conceptual Learning Framework:

- **Disciplinary knowledge**, or subject specific knowledge, continues to be an essential foundation for understanding, and a structure through which students can develop other types of knowledge. The opportunity to acquire disciplinary knowledge is also fundamental to equity
- **Interdisciplinary knowledge** can be integrated into curricula by transferring key concepts, identifying connectedness, through thematic learning; by combining related subjects or creating a new subject; and by supporting project-based learning
- **Epistemic knowledge** involves knowing how to think and act like a practitioner. It shows the relevance and purpose in student learning and helps deepen their understanding
- **Procedural knowledge** is the understanding of how a task is performed, and how to work and learn through structured processes. It is particularly useful for solving complex problems

Alternatively, there are the definitions and concepts presented by Priestley, Smith & Rushton (2024):

- **Knowing that** – propositional knowledge, including general and discipline-specific substantive concepts, set out in progression frameworks
- **Knowing how** – this includes procedural knowledge, related to skills; essentially the ability to apply knowledge to practical and theoretical situations
- **Knowing how to know** – epistemic knowledge of the structures and processes of disciplines that allows us to engage in enquiry in particular domains (e.g. scientific method)

What is clear from the above is that agreeing on a core language is a key building block to curriculum improvement. When we confuse definitions of knowledge (and other terms such as curriculum, skills, etc.) we risk using the same words but with very different meanings. This not only causes confusion but can be very counterproductive to the overall improvement process.

5.2 Knowledge, purposes, and the four capacities

The OECD (2021, pg. 46) identified a disconnect between the position of knowledge and the capacities; *"although knowledge elements are mentioned in the listing of curriculum areas, they are not explicitly referred in the four capacities… knowledge is only referred to indirectly in the successful learner capacity's attributes (as literacy and numeracy skills) and in the responsible citizen capacity, but without further detail in the experiences and outcomes about what 'knowledge' is referring to".*

Practitioners, especially those from secondary schools, spoke to the absence of the four capacities in curriculum development and planning at school level, with little acknowledgement of the original CfE Principles and Practices documents. They identified the significance of learning in relation to how curriculum areas can and should develop the four capacities. This would appear to be worthy of further consideration during the curriculum improvement cycle.

An evolved technical framework for the curriculum could help foster greater and more natural links between the four capacities, secure the role for knowledge within the curriculum, and re-centre the four capacities in curriculum design and planning, and address another issue identified by the OECD (2021, pg. 118); "*the often-criticised lack of harmony between CfE's vision and the programme for the Senior Phase is partly due to the unclear position of knowledge in the four capacities".*

5.3 Clarifying the purposes of knowledge

During the curriculum pilots, some participants considered how the BGE, in secondary settings, may be remodeled. One option discussed by participants offered a significantly different model for secondary BGE which focused on the purposes of this stage of learning. The BGE in secondary could be restructured and organised into broader learning areas, possibly based on the 'big ideas' or cross curricular knowledge and skills. This would then allow learners to consolidate their learning and address the concerns participants had previously expressed around the lack of depth in learning with current structures, where learners can be potentially engaging with 18 different subjects.

Cross curricular knowledge and skills could be developed and used to ensure learners had developed a common base of knowledge and skills before moving onto the senior phase. This would align with a suggestion from the OECD (2021: pg. 120) that, *"[a]t the central level, Scotland might consider refreshing the design of learning areas in BGE to better articulate the knowledge necessary at each stage and by the end of BGE, for all learners to develop broader competencies to prepare for deeper learning and specialisation in the Senior Phase and beyond".*

However, tensions became apparent between such an alternative purpose for knowledge within the BGE and a desire to promote progression and prepare learners to access the Senior Phase. This tension was highlighted during discussions in the maths pilot and appeared to be particularly relevant for hierarchical subjects. It would appear that a 'big ideas' or know/do/understand model may address the issues with the later stages of BGE, but such a restructure and reorganisation of BGE in secondary settings must also take account of the skills and knowledge required for the full array of qualifications learners may seek to undertake.

5.4 Cross-curricular knowledge and skills

The significance of cross curricular knowledge was raised during activities used to specifically focus on future-orienting the curriculum.

As an example, in response to the activities used in the first maths pilot curriculum review event, the significance of financial literacy was identified repeatedly by participants as a means by which maths can contribute to the development of the four capacities. Financial literacy, too, could offer an insight into the knowledge required of learners and how maths can contribute to other cross-curricular themes such as citizenship and sustainability.

The position of cross-curricular expectations poses a number of practical challenges within the current technical framework, especially in secondary settings which are often organised predominantly around subjects or curriculum areas. As a result, approaches to developing cross-curricular knowledge and skills can often be fragmented and are sometimes only experienced though a single subject lens. Financial literacy, for example, is often seen exclusively through the lens of maths.

Some participants expressed the view that, presently, the position on cross-curricular knowledge and skills is confused and complex. Challenges identified by some practitioners included the view that cross-curricular learning was an add-on to the substantive curriculum offer, as opposed to a central part of the curriculum.

The significance of cross-curricular knowledge and skills has been reflected internationally with a range of education systems identifying the development of cross-curricular knowledge and skills as key priorities for their education systems (see below). The pilot curriculum reviews have reinforced their significance in a future orientated curriculum that prepares learners for the transition into society and the workplace.

The Curriculum Improvement Cycle presents an opportunity to simplify an overly complex position, clarify the position of this knowledge and develop a more consistent approach within a revised technical framework. This could provide the clarity that the current framework lacks, identifying where cross-curricular knowledge and skills naturally align with curricular areas. A number of areas are already identified in the current technical framework, such as those known as the 'responsibility of all' and learning for sustainability. A number of other cross-curricular expectations have been added to CfE over time but often in a reactive way, contributing to further curriculum incoherence. Examples include:

Literacy	CfE: Responsibility of all
Numeracy	CfE: Responsibility of all
HWB	CfE: Responsibility of all
Learning for Sustainability (LfS)	CfE Entitlement; LfS Action Plan;
Creativity	Refreshed Creative Learning Plan (2022), Culture Strategy (2023)
Social Justice	Equalities, UNCRC
Careers Education	DYW (Inc: Careers Education Standard), Careers Review
Entrepreneurship	NSET (2022); Pathways Review (2023)
Financial Education	Scotland's Financial Schools
Political Literacy	CfE Briefing 14; SCDI Report (2023); World in 2050
Digital Literacy	Scotland's Digital Future, Digital Skills Action Plan (Scotland), Scotland AI Strategy

Fig: 7.0 – Examples of cross-curricular expectations (Source: Education Scotland, 2024)

Work related to the pilot curriculum reviews included wider discussions with international educators to further understand and examine how cross-curricular knowledge and skills could be developed and implemented throughout a curriculum. One example is the Estonian curriculum framework, which gives cross-curricular competencies a high profile and offers a multifaceted approach to embedding these in the school curriculum. These approaches include integration into subjects (where one topic leads to another and complements the whole); joint planning between teachers in different curriculum areas; trans-disciplinary learning opportunities (collaborative interactions across disciplines); extraction activities (themed events and external specialist input designed to connect learning outcomes to real life); competitions and collaborative activities between classes; and outdoor learning camps (Eisenschmidt, 2024). It is also worth noting that the Estonian competencies are very similar to those listed in fig 8.0, above.

The Estonian approach provides one solution to how cross-curricular expectations could be embedded in an evolved technical framework. For example, there may be opportunities to embed learning for sustainability with natural links to Science, Social Studies and Technologies, as well as across the other contexts for learning (fig 9.0). By providing clearer guidance on where these links exist there are also opportunities to address a number of tensions within the current technical framework. This includes providing clarity and consistency of approach on how to incorporate cross-curricular expectations. As well as using cross curricular expectations to provide parameters for the selection and deselection of content, or as contexts for learning within curriculum areas.

	'the totality of all that is planned for children and young people throughout their education' [The Curriculum]										
	Life and Ethos of the School	Opportunities for Personal Achievement	Interdisciplinary Learning	Curriculum Areas and Subjects							
				ExpArt	HWB	Lang	Maths	RMPS	Science	SocStu	Tech
Careers -											
Creativity -											
Digital Literacy -											
Entrepreneurship -											
Financial Education -											
HWB -											
LfS -											
Literacy -											
Numeracy -											
Political Literacy -											
Social Justice -											

Fig 8.0 – Alligning cross-curricular expectation with the four contexts for learning (Source: Education Scotland 2024)

While the above approach may appear at first glance to impinge upon subjects and curriculum areas, or reduce the space for disciplinary content, it may also be viewed as identifying the connections between what is intrinsically disciplinary content. As Deng (2021) argues, "the fundamental task is not that of helping students acquire disciplinary knowledge, but of using that disciplinary knowledge as a tool or resource to create powerful, transformative experiences in the classroom that can lead to the cultivation of human powers."

5.5 Political literacy: a cross curricular example

The work of the pilot review group on political literacy also explored some of the issues identified in 5.1 to 5.4. The group first focused on the 'what' of political literacy, leading to a draft political literacy

framework built on the big ideas model. Thereafter, participants considered the 'why' and 'how' of political literacy and where political literacy arises in different disciplines.

The activities the group engaged in replicated the stages of the proposed systematic cycle of improvement (Analysing; Engaging and Co-Creation; Sharing, Learning & Adopting; and Mobilising, Monitoring and Evaluation). For example, in the analysing of evidence stage, the group identified challenges such as manipulation and disinformation, the roles played by extremist organisations, and the potential challenges to democratic norms from advances in technology. It was felt by the participants to clearly align with the core purposes of CfE, with particular regard to what it means to be a responsible citizen and an effective contributor.

Participants considered the rationale for the relationship this cross curricular expectation should have with curriculum areas. Why should a maths teacher, for example, support the development of political literacy? They considered how political literacy could be delivered across the curriculum and the risks this might face. Two risks in particular were highlighted by participants; the potential to either further clutter the curriculum or, mirroring issues with the responsibilities of all, being seen effectively as a "responsibility of no-one".

The participants explored varying options. One was whether there should in effect be specified 'content' embedded in the curriculum. If it is not, does this mean it will risk suffering the fate of being relegated behind more traditional forms of disciplinary knowledge? The group also considered how to ensure that all learners have access to this knowledge, and not, as it appears to be at the moment, only those who can access modern studies. These discussions raised a further issue, the position of cross-curricular knowledge and skills and their relationship to the Senior Phase, where it was thought that the opportunities to deliver these through core subjects (e.g. PSE) was limited.

5.6 Practical suggestions

Practitioners made the following suggestions to address how cross-curricular knowledge and skills could be embedded across different parts of the curriculum:

1. Teacher 'hearts and minds' need to be won over. There should be a clear rationale linked to wider purposes. This would require time for 'sense-making' and for considering how this may be supported by different curricular areas. This was deemed essential, with consequent implications for support resources and professional learning.

2. There may be natural alignments with particular curriculum areas. It was felt that natural alignment was important, avoiding promoting or advocating for contrived approaches. For instance, there are opportunities to promote political literacy through Maths (mathematical reasoning), Science (addressing climate denialism and vaccine disinformation) and English (critical literacy).

3. Cross curricular expectations, such as learning for sustainability, could offer new and unfamiliar contexts to strengthen practice in interdisciplinary learning, apply disciplinary learning, and offer opportunities for deeper learning. Quality resources and support were seen as essential to encourage subject teachers to consider this option.

4. Qualification reform - which is planned to be taken forward as a coherent package of work alongside the curriculum improvement cycle - may provide opportunities and models to embed relevant cross curricular knowledge and skills. Finland, for example, has arrangements in place that support the development of learning for sustainability as part of language qualifications.

Conclusion

The pilot curriculum reviews have identified some significant learning about the processes which can support the national Curriculum Improvement Cycle and what may be required to support this. The main points of consensus that emerged from the pilot review process are as follows:

1. Participants should be recruited in an open fashion, seeking to ensure a diversity of perspectives and representation from educators at all levels

2. ES and SG should be cognisant of the practical challenges, such as the availability of practitioners and difficulties local authorities may have in releasing educators and practitioners to fully participate

3. Future guidance must provide clarity and simplify processes, with guidance replacing previous texts as opposed to adding to the volume of documents associated with the curriculum

4. There was strong consensus from those who participated in the pilots that CfE should be evolved and not replaced and that there is continued support for the central purposes of the curriculum, in particular the four capacities - a point which chimes with the earlier OECD review

5. The vagueness of Es&Os must be addressed as should the disconnect between BGE and the Senior Phase

6. There appears to be a strong desire amongst educators on the need to de-clutter the curriculum, and clarify the position of knowledge in that curriculum (while mindful of the nuanced needs of differing curricular areas)

7. The establishment of cross-curricular knowledge and skills, perhaps as part of an evolved curriculum framework, could provide the means to streamline curriculum development (by replacing extant guidance for example) and better support the core ambitions of CfE

8. On the role of knowledge specifically, teachers and practitioners should have greater clarity through the technical framework on what knowledge learners should have, at each stage, and benefit from an understanding of what is meant by knowledge and its purpose in the context of CfE

9. Any evolved technical framework for the curriculum must address the tensions between autonomy and prescription, with sufficient nuance to appreciate the differences between particular subjects

10. Difficulties in tracking and monitoring progress, as well as onerous moderation processes, particularly in the early phases of secondary, must be addressed to offer a cohesive approach which does not overburden teachers

Participants were enthusiastic throughout the pilot curriculum reviews and helped to clarify what methods and approaches would work most effectively in a future Curriculum Improvement Cycle. The reviews enabled discussions and considerations of solutions to current challenges, such as the role and position of knowledge in the curriculum, the use of the current technical framework and issues related to overload and progression. Participants demonstrated a willingness for an evolved technical framework for the curriculum to be developed and implemented to address the apparent difficulties presently found in curriculum development and implementation. They generally took the view that an

evolved technical framework, if developed and implemented appropriately, could be a means to support the evolution of CfE and better realise the original ambitions of CfE for learners. This will be the subject of the second discussion paper in this series: **Towards an evolved Technical Framework.**

References

1. British Columbia, Ministry of Education (2013), *Defining Cross-Curricular Competencies: Transforming Curriculum and Assessment*. Available at: Defining Cross-Curricular Competencies - Transforming Curriculum and Assessment January 2013 (gov.bc.ca).

2. British Columbia, Ministry of Education date (2015), *Curriculum Redesign: Introduction to BC's curriculum redesign.* Available at: Curriculum Redesign | Building Student Success - B.C. Curriculum (gov.bc.ca)

3. Deng, Z. (2021). Powerful knowledge, transformations and Didaktik/curriculum thinking. British Educational Research Journal, 47(6), 1652-1674. Link?

4. Education Scotland (2017a), *Experiences and Outcomes*. Available at: Experiences and Outcomes | Curriculum for Excellence documents | Curriculum for Excellence | Education Scotland.

5. Education Scotland (2017b), *Benchmarks*. Available at: Benchmarks | Curriculum for Excellence documents | Curriculum for Excellence | Education Scotland.

6. Education Scotland (2017c), *Curriculum for excellence*. Available at: Curriculum for Excellence: Experiences and outcomes (education.gov.scot).

7. Education Scotland (2017d), *Curriculum for excellence: responsibility of all practitioners*. Available at: Curriculum for Excellence: Experiences and outcomes (education.gov.scot).

8. Eisenschmidt, E., Kumpas-Lenk, K., Vanari, K., Arus, H., & Ivanova, K. (2024). Fostering Collaborative School Improvement in Estonian Schools. Journal of School Leadership. Link?

9. Greatbatch, D and Tate, S (2019), *School improving systems in high performing countries*. UK Government, Department for Education. Available at: School improvement systems in high performing countries (publishing.service.gov.uk).

10. Kelly, G. J., Luke, A., & Green, J. (2008). What counts as knowledge in educational settings: Disciplinary knowledge, assessment, and curriculum. Review of Research in Education, 32(1). Link?

11. OECD (2018), *OECD Learning Framework 2030*. Available at: PositionPaper.pdf (oecd.org).

12. OECD (2021), *Scotland's Curriculum for Excellence: Into the Future*. Available at: Scotland's Curriculum for Excellence | OECD.

13. Ofsted (2021), *Research review series: mathematics*. Available at: Research review series: mathematics - GOV.UK (www.gov.uk).

14. Priestley, M., & Sinnema, C. (2014). Downgraded curriculum? An analysis of knowledge in new curricula in Scotland and New Zealand. The Curriculum Journal, 25(1), 50-75. Available at: https://core.ac.uk/download/pdf/18621258.pdf

15. Priestley, M., Smith, J., & Rushton, L. The position of knowledge in Curriculum for Excellence– a response to the paper tabled at CAB, 30/01/2024.

16. Sampson, H. (2004). Navigating the waves: the usefulness of a pilot in qualitative research. Journal of Qualitative Research, Vol. 4. pp. 383-402.

17. Scottish Government (2022), *Putting Learners at the Centre: Towards a Future Vision for Scottish Education*. Available at: Supporting documents - Putting Learners at the Centre: Towards a Future Vision for Scottish Education - gov.scot (www.gov.scot).

18. Scottish Government (2023a), *It's Our Future – Independent Review of Qualifications and Assessment*. Available at: It's Our Future - Independent Review of Qualifications and Assessment: report - gov.scot (www.gov.scot).

19. Scottish Government (2023b), *All Learners in Scotland Matter – national discussion on education: final report*. Available at: All Learners in Scotland Matter - national discussion on education: final report - gov.scot (www.gov.scot).

20. Smith, J. (2019). Curriculum coherence and teachers' decision-making in Scottish high school history syllabi. The Curriculum Journal, 30(4), 441-463. Link?

21. Teijlingen van, E & Hundley, V (2001) The importance of pilot studies, Social Research UPDATE (Issue 35), University of Surrey: Surrey.

22. Whitty, G. (2010). Revisiting school knowledge: Some sociological perspectives on new school curricula. European Journal of Education, 45(1), 28-45.

Annex A: Further information on the approaches taken across the individual pilot curriculum area reviews.

Curriculum Area	Examples of activities
Maths	An initial full day national meeting was held in Glasgow in February 2023. Participants were recruited initially through the existing National Response to Improving Mathematics (NRIM) Partnership Board and Short Life working groups. Additional practitioners were identified and invited to improve representation. This event was attended by approximately 70 participants. Tasks were pre-planned and structured, for example requiring the participants to explore how maths contributes to the development of the four capacities and to consider the key knowledge required. Tasks were designed for mixed groups of practitioners and stakeholders to promote discussion. An online option was provided for those unable/unwilling to attend a physical meeting. The maths core group, recruited from the initial national meeting then met on four further occasions prior to a second national maths event in October 2023. Following the initial review of the outputs generated from the activities, the maths group engaged with member so the Ministry of Education and Childcare in British Columbia to explore their experiences of curriculum review. The subgroup also considered recommendations from the OECD (2021) to evaluate the relevance of the British Columbia 'Big Ideas' framework, which appears to highlight areas of alignment with some of the key findings from the initial maths event.
Social Studies	Engagement took place online between February and April 2023. Exploration activity included unpacking of Es&Os by the SEO Social Studies to identify the range of knowledge implicit within the Es&Os across the core social subjects. Reviewing of knowledge by participants invited to attend from existing national networks and subject associations (for instance Modern Studies Association). Meetings were held online, and these series of meetings have been attended by up to 20 participants. The relevance and coherence of this knowledge identified across the four CfE levels was also explored. The evaluation of the approaches taken by the Social Studies pilot highlighted some significant messages about the position of knowledge within the current technical framework (see section 5 above). The approaches taken to engagement and recruitment of participants identified a number of disadvantages of solely online engagement.
Health and Wellbeing	An initial full day, in-person national meeting was held in Dundee in February 2023. Participants self-selected following communications via social media and national subject networks. Only practicing teachers were recruited. This event was attended by approximately 90 participants. Tasks were open ended and adopted a 'blank slate' approach. Groups were mixed across the key subject areas (PE, HE, and PSHE). Participation was face to face only. The health & wellbeing core group (again recruited from the first national event) have met on three further occasions to consider their outputs from the initial national event. They have since focused on a draft framework which they intend to present to the wider health & wellbeing group in due course.
Expressive Arts	An initial full day, in-person national meeting was held in Stirling in January 2024. Recruitment was carried out through both the National Expressive Arts Network and ES social media channels. As a result, 150 participants

	drawn from ELC, primary, secondary, local authority representatives, Initial Teacher Education, SQA and industry specialists signed up. Two tasks were designed to gather stakeholder feedback on the ways that Expressive Arts contributed to each of the four capacities of Curriculum for Excellence as well reflections on the Principles and Practice paper. This task was undertaken in both cross sector and subject groups in order to promote wide discussion around Expressive Arts and the four capacities as a whole. The second task examined the technical framework (Es and Os and Benchmarks) of each of the four subject disciplines that make up the Expressive Arts. This was undertaken in subject-specific groups but had cross-sector representation in all four groups. A core group has been recruited from the national group to take forward the feedback and evaluations from the first national meeting.
Modern Languages	An initial full day, in-person national meeting was held in Dundee in October 2023. Recruitment was via social media, the ES language team's online networks and the LA languages network (LANGs). This was for secondary languages teachers only. The tasks on the day comprised reviewing the Experiences and Outcomes documentation, coming to a general consensus of aspects deemed unworkable or outdated, and aspects missing from the framework (e.g. grammar); an examination of the 'big ideas' in language learning and a general agreement on the core principles of successful pedagogies for language acquisition. The second meeting, held in March 2024, was by invitation only to one Principal Teacher (PT) of languages from each Local Authority (for the most part, targeted recruitment of PTs from departments with high uptake and high attainment in languages) and focused on taking forward the next steps to clarify statements in the Es&Os and benchmarks frameworks, with further discussion and agreement around the 'big ideas' in language learning.
Literacy and English	A full day national meeting was held in Glasgow in March 2024. Recruitment was carried out through a combination of direct invitations to members of three national networks and through advertisement of the event on social media. Three tasks were designed for cross-sector groups, which included practitioners and other stakeholders to promote discussion and shared reflections on literacy and English across the 3-18 learner journey. Tasks included reflections on the Principles and Practice papers; literacy in relation to the four capacities and of the curriculum in its totality.

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