



Dilyniant Dysgu i Gymru | Learning Progression for Wales

Learning about Progression: CAMAU Research Report April 2018

Health & Well-being



University
of Glasgow



Llywodraeth Cymru
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Learning about Progression – Informing thinking about a Curriculum for Wales

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Explanatory Foreword

Learning about Progression – A Research Resource Tailored to Meet your Needs

‘Learning about Progression’ is a suite of research-based resources designed to provide evidence to support the building of learning progression frameworks in Wales. ‘Learning about Progression’ seeks to deepen our understanding of current thinking about progression and to explore different purposes that progression frameworks can serve to improve children and young people’s learning. These resources include consideration of how this evidence relates to current developments in Wales and derives a series of principles to serve as touchstones to make sure that, as practices begin to develop, they stay true to the original aspirations of *A Curriculum for Wales – A Curriculum for Life*. It also derives, from the review of evidence, a number of fundamental questions for all those involved in the development of progression frameworks to engage.

Within this suite of resources you will find

- **Reviews of research into progression in children and young people’s learning**
 - research related to progression in learning generally and research on progression in learning specifically related to each of the six AoLEs
- **Reviews of policies on progression from other countries**
 - who have similar educational aspiration to Wales in each of the six AoLEs
- **A review and analysis of progression as it is emerging in Wales in *Successful Futures* and in *A Curriculum for Wales – A Curriculum for Life*.**

We hope that you will find ‘Learning about Progression’ a useful resource. We recognise that a range of audiences will want to make use of its contents for a range of purposes and thus present information from ‘Learning about Progression’ in different ways, leaving you to choose which form is most useful for your purpose.

1. Learning about Progression: a comprehensive review of research and policy to support the development of Learning Progression Frameworks in Wales

The whole report, ‘Learning about Progression’ offers a **comprehensive overview of research and policy related to progression in learning in general and to progression in learning in all six AoLEs**.

2. Diving into Research and Policy in an Area of Learning and Experience

For individuals or groups who are interested in finding out more about the **evidence as it relates to an individual Area of Learning and Experience (AoLE)**, a detailed report is provided for each AoLE derived from Section 2 of ‘Learning about Progression’. These six reports offer an overview of research on progression, an in-depth analysis of evidence exploring how different countries have tackled progression in an individual AoLE and evidence from research on progression within the discipline. These reports are entitled *Learning about Progression: Expressive Arts*, *Learning about Progression: Science and Technology* etc. You are currently using this mode.

3. Learning about Progression: From Ideas to Action

If you want to identify key messages from ‘Learning about Progression’ and your major concern is how to **use** the ideas as you develop progression in your AoLE, then read ‘**Learning about Progression: From Ideas to Action**’ as your first point of engagement. This provides

- **key messages** on progression relevant to all of the AoLEs
- **an analysis of how the evidence from international policy and research relates to policy advice on progression in Successful Futures and A Curriculum for Wales**
- principles that might act as a touchstone to promote a close alignment between ideas and action and
- information on the strategy used to **inform decision making** about the framework to be used to develop statements of progression.

‘**Learning about Progression: From Ideas to Action**’ is supported by

- **a series of PowerPoint slides to introduce key ideas to others**
- **Decision Tree Workshops**

The evidence emerging from ‘Learning about Progression’ indicated strongly that there were a number of decisions that AoLE groups had to take before embarking on the development of statements of progression. These related to the major questions derived from the research. Decision tree workshops were designed to support AoLE groups and others in that process.

Decision trees were used as the basis of workshop activities at AoLE meetings to support AoLE discussions. Each decision tree

- identified the decision to be taken
- offered evidence from the ‘Learning about Progression’ report (from research, policy and practice) to help inform discussions within each AoLE
- was consistent with the principle of subsidiarity and encouraged AoLE members to add to the evidence available
- provided a framework where each individual AoLE, having reflected on the evidence, agreed a decision proposal to be shared with the Coherence Group.

All proposals were reviewed to ensure that they were consistent with the vision *A Curriculum for Wales – A Curriculum for Life* and reflected what AoLE members believed would best serve young people in Wales.

Proposals from the six AoLEs were then submitted to the Coherence Group whose task was to reach agreement about which decisions had to be consistent across AoLEs to promote coherence across the system and where there could be flexibility for individual AoLEs. This would then inform the next stage of work of the AoLE groups.

Terminology within both the Welsh and English versions of this report reflects the range of current thinking about concepts of progression; this may lead to one term being employed with different but related senses and/or to one concept being referred to by different terms.

Introduction

The education system in Wales is in the process of transformation. Since the publication of *Successful Futures* (Donaldson, 2015) and the subsequent adoption of its recommendations in *A curriculum for Wales – a curriculum for life* (Welsh Government, 2015), a national strategy has been underway to build new curriculum, pedagogy and assessment arrangements to offer young people in Wales educational experiences that are fit for the 21st century. The creation of these new arrangements is the responsibility of all involved in education in Wales – communities, policy makers, practitioners and researchers – and is led by a network of Pioneer schools whose task it is to identify what matters in the curriculum and how progress might best be described and discerned. The Curriculum Pioneer schools are working in national groups related to each of the six Areas of Learning and Experience (AoLEs) – Expressive arts; Health and well-being; Humanities; Languages, literacy and communication; Mathematics and numeracy; and Science and technology. The CAMAU project, a collaboration between the University of Glasgow (UofG) and the University of Wales Trinity Saint David (UWTSD), funded by the Welsh Government and the UWTSD, seeks to support the Welsh education system in its task by providing evidence to address three main questions:

- How might curriculum, progression and assessment be described and developed in Wales to focus on learning and to promote better alignment between research, policy and practice?
- In what ways do models of curriculum progression relate to progression in learning emerging from evidence of learning and progression within schools and classrooms?
- To what extent is it possible to think of assessment as the use of evidence to enable future learning, as ‘progression steps’, rather than as a summary of past achievement? (And how might we avoid this focus leading to a narrowing of the curriculum?)

The focus of the CAMAU project is **progression**. It takes its starting point from *Successful Futures* (Donaldson, 2015) and *A Curriculum for Wales* (Welsh Government, 2015), builds on the work of the Progression and Assessment Group (Welsh Government, 2017) and on what the AoLE groups have identified as what matters. The project works with teachers, schools, researchers and policy makers (local, national and international) to bring different knowledge, skills and understandings together to explore how progression might best be described and developed in relation to the AoLEs and to investigate how progression steps might be most helpfully identified, described and used to support learning.

Progression matters. Since the seminal Black & Wiliam (1998) review highlighted the potential for formative assessment (or Assessment for Learning as it is sometimes called) to enhance learning, particularly amongst learners who found learning most challenging, countries internationally have sought to realise that potential in schools and classrooms. The way in which Assessment for Learning has spread has been compared to a ‘research epidemic’ that has ‘feverishly spread into every discipline and professional field’ (Steiner-Khamsi, 2004: 2). However, at best, the enactment of Assessment for Learning has been patchy (Hayward *et al*, 2006, Marshall & Drummond, 2006) and problems around the articulation of progression have been part of the problem. Wiliam & Thompson (2007) offer a framework to articulate the roles that key actors (teacher, peer and learner) play in the assessment process based on three key ideas: where the learning is going, where the learner is right now and how to get there. Implicit in this model is the centrality of progression. For example, for teachers to provide feedback that moves learners forward, they must have a conceptualisation of what matters next both for learning in the domain and for the learner. But self-evident as that might

seem, progression and its relationship to assessment and learning has proven to be a complex business. Indeed, in a recent article Baird *et al* (2017) argue that learning and assessment have been ‘fields apart’. Recognising the inexorable relationship between learning and progression, Heritage (2008) argues that

‘By its very nature, learning involves progression. To assist in its emergence, teachers need to understand the pathways along which students are expected to progress. These pathways or progressions ground both instruction and assessment. Yet, despite a plethora of standards and curricula, many teachers are unclear about how learning progresses in specific domains. This is an undesirable situation for teaching and learning, and one that particularly affects teachers’ ability to engage in formative assessment.’ (p.2)

Internationally, there are areas of the curriculum where work has been done to build understandings of progression. Pellegrino (2017) argues that research undertaken on cognition and learning has led to the emergence of highly developed descriptions of progression in particular curricular areas (science, reading and mathematics) and that these can form a sound basis for assessment design (e.g. Bransford, Brown, Cocking, Donovan, & Pellegrino, 2000; Duschl *et al*, 2007; Kilpatrick, Swafford, & Findell 2001; Snow, Burns & Griffin, 1998). There are, however, other areas where work related to progression is far less well developed.

Progression as a concept is built in to *Successful Futures* through the identification of reference points (Progression Steps). The term ‘reference point’ is important. It establishes learning as an expedition, with stops, detours and spurts, rather than as a linear process. The progression frameworks will be central to the work of teachers and learners as they seek to enhance the learning of every young person in Wales and thus it is crucial that these frameworks are dependable. To address this challenge, the CAMAU project seeks to work with policy makers and practitioners to build progression frameworks that are, as far as is possible, evidence informed and supportive of assessment practices that are consistent with the ‘spirit’ rather than the ‘letter’ of assessment for learning (Earl, Volante & Katz, 2011; Marshall & Drummond, 2006).

Theoretically, the design of the CAMAU project builds on the work of Senge & Scharmer (2001) and on the empirically derived Integrity model of change (Hayward & Spencer, 2010). This model argues that for change to be meaningful and sustainable, project design must pay attention to three main areas:

- Educational integrity (a clear focus on improving learning)
- Personal and professional integrity (participants have a significant role in the construction of the programme, rather than being passive recipients of policy directives)
- Systemic integrity (coherence in development at all levels of the education system)

The CAMAU Project is designed in three phases. This first phase is concerned with the co-construction of an evidence-based Progression Framework. The second phase is designed to develop, review and learn from feedback on the draft Progression Framework and the third phase will trial, evaluate and review the Progression Framework in action. In all phases of this project teachers, pupils, policy makers and researchers are co-investigators with the shared aspiration of developing high quality, well-informed curriculum, pedagogy and assessment arrangements for Wales.

This report provides evidence on three specific aspects of the first phase of the CAMAU project:

- the review of how progression is described and structured within frameworks in other countries
- the review of progression in learning (in policy and research) and of evidence related to progression contextualised in each area of learning experience and
- initial work undertaken to explore teacher perceptions of progression in learning. (Evidence on teachers' and pupils' perceptions of progress will be collected throughout the CAMAU project and will be published in the final research report.)

Following this introduction that includes a description of methodology, Section 1 of the report identifies ideas about progression as they emerge in *Successful Futures* and then analyses these ideas using evidence from research on progression.

Section 2 is divided into six sub-sections, each devoted to one of the six Areas of Learning and Experience (AoLEs) identified in *Successful Futures* (Donaldson, 2015): Expressive arts; Health and well-being; Humanities; Languages, literacy and communication; Mathematics and numeracy; Science and technology. The evidence offered to each AoLE is in two parts. The first part is a review of how different countries have conceptualised and interpreted progression in that area of learning. The second part provides insights into evidence available from research on progression relevant to the specific AoLE.

Section 3 provides evidence of teachers' understandings of progression.

Section 4 draws together themes emerging from the different sources of evidence analysed and identifies decisions which require to be taken to allow the development of statements of learning progression within the AoLE.

This research report is intended to provide a dependable evidence base to inform thinking in the AoLE groups as ideas of progression are developed. The CAMAU project team throughout the project will work with AoLEs to use evidence from international curriculum and assessment documentation of how progression has been conceptualised in the research literature and in policy contexts similar to Wales. When AoLEs have identified what matters in the curriculum and have built initial models of progression, the CAMAU team will obtain and analyse empirical evidence from wider teachers' and learners' experiences of progression in schools and classrooms: evidence from teachers' perceptions of what is central to enable effective progression in their pupils' learning; and pupils' reflections of their own progression in learning. This sense checking of existing and expert models of progression is intended to promote curriculum, pedagogy and assessment arrangements in Wales that are grounded in teachers' and young people's actual experiences in learning. This work will be reported in the final CAMAU project report.

Methodology

The central purpose of the reviews of international policy and of research on progression is to provide dependable information to AoLE groups to support their thinking. Thus both the policy review and the review of research are focused and purposeful. Discussion with AoLE groups made it clear that to be useful, the reviews must be clearly focused, succinct and directly related to the task which the groups are being asked to undertake. In addition, the CAMAU project sits within the demands of a development programme operating to tight policy deadlines: all activities must be undertaken within a limited time-frame and with limited resources. This is not a situation peculiar to this project.

Dependable Evidence Summaries

The methodology for the creation of dependable evidence summaries emerges from the recently developed EPPI (Evidence for Policy and Practice Information) protocol for a rapid review of existing evidence (O'Mara-Eves *et al.*, 2016). Rapid reviews have been commonly used in Health policy contexts to inform evidence-based practice. The Welsh Government has itself used the process in an educational context, e.g. in a review of the impact of poverty on attainment (Wilson, 2011). Rapid Reviews are contentious. They are seen by some as conforming to policy timelines at the cost of rigour in the literature or policy review. More recently, rapid evidence assessments have become more common in policy contexts and the method is referred to on a number of Government websites across the UK. The Department for International Development identifies three main uses for rapid evidence assessments:

'[They] provide a more structured and rigorous search and quality assessment of the evidence than a literature review but are not as exhaustive as a systematic review. They can be used to:

- *gain an overview of the density and quality of evidence on a particular issue*
- *support programming decisions by providing evidence on key topics*
- *support the commissioning of further research by identifying evidence gaps'*

(<https://www.gov.uk/government/collections/rapid-evidence-assessments> -- accessed 10/07/17)

These aims are consistent with the aspirations of the CAMAU project. The challenge is to provide evidence that is dependable within the constraints identified.

Grant *et al.* (2009) suggest that if Rapid Research Reviews (RRR) are to be dependable, they need to be rigorous and explicit about their methodology and acknowledge the concessions that have had to be made to breadth and depth. The need to synthesise evidence within a limited time frame with the specific intention of informing decision making processes lies at the heart of the increased use of RRRs. Khangura *et al* (2012) argue that, despite the rise in the popularity of this approach, very little has been published on appropriate methodologies. They rename RRRs as evidence summaries and propose a methodology to increase the means by which the validity, appropriateness and utility of the review might be discerned. The authors identify eight steps developed from their Knowledge to Action programme. These steps have been adapted in the CAMAU project as the framework for the

development of the Dependable Evidence Summaries, designed to inform the thinking of AoLE groups as they tackle the complex challenge of describing progression.

Table 1: Outline of eight steps informing Knowledge to Action evidence summary approach (Khangura et al, 2012)

Knowledge to Action step	Task
Step 1	Needs assessment
Step 2	Question development and refinement
Step 3	Proposal development and approval
Step 4	Systematic literature search
Step 5	Screening and selection of studies
Step 6	Narrative synthesis of included studies (including assignment of evidence level)
Step 7	Report production
Step 8	Ongoing follow-up and dialogue with knowledge users

The Evidence Summaries in the CAMAU project have been developed as part of a process of on-going discussion with the knowledge users – each of the AoLE groups.

Progression in International Policy and Practice

The countries involved in the international policy and practice review were identified in two ways. The first priority was to identify countries of particular interest to the individual AoLE group. Second, CAMAU team members sought to select countries with aspirations similar to those identified in *Successful Futures* where different approaches to descriptions of progression were illustrated. The analysis of policy in each country followed a three-stage process:

- eliciting information on curriculum design, ‘what matters’ in the curriculum and how progression is described
- making summary statements of the above
- analysing information from across countries

Table 2 on the next page provides the framework for responding to questions on progression. The complete protocol can be found as Appendix 1.

Recognising the difference between policy intention and policy enactment, the final stage of this policy review went beyond the analysis of policy documentation. As part of the work of the CAMAU project’s National and International Advisory Group, leading researchers in selected review countries were invited to discuss the enactment of policy in their respective countries in order to provide insights into how ideas have played out in practice. These reflections on the implementation of policy and on lessons learned add depth and texture to the information available in policy

documentation and enhance the knowledge of policy-in-action afforded to CAMAU researchers by research publications.

Table 2

Country Information
Name of Country: Year the curriculum was written/published/updated: Website(s) where materials were found:
How is the curriculum structured? e.g. Is there a curriculum document as well as achievement outcomes or are these combined? Are there supporting materials for teachers? Is there one curriculum across all ages or is it split into primary and secondary? How many stages/levels/benchmarks are included? Are they aligned with specific years?
What components/subjects/themes related to the AoLE are covered in this country's curriculum? What seems to be missing?
How does the documentation define 'what matters' in this AoLE? Does this include content knowledge, competencies, skills, etc? What is the balance between knowledge and understanding, skills, attributes, and capabilities?
How is progression defined? Is it defined explicitly or implicitly? You may need to look beyond the statements themselves at the supporting documentation and introductions to the curriculum. Give some specific quotes or examples.
Are key progression points identified as expected standards for specified ages? Or as descriptions of knowledge, skills, capabilities needed for further progression in learning? Or is it some combination?
What form do statements of progression take? Are they detailed or broad? Are they in pupil-first person language or written for the teacher? Provide some examples.
To what extent does the curriculum for this AoLE seem to align with what is written in Successful Futures? Does it seem to align with Donaldson's vision for progression? Give some examples.
Is there anything else worth noting? E.g., Is there anything particularly unique, innovative, or useful about this curriculum? Are there any aspects of the AoLE that are included in cross-curricular aims? Was there anything within this portion of the curriculum that seems to have connections with any other AoLE?

Progression in Research Literature in the Context of Policy in Wales

The review of research literature in the context of policy in Wales was undertaken in three strands

- a review of *Successful Futures* to identify what had been written about progression
- a review of seminal papers on the concept of learning progression
- six separate reviews, one undertaken for each of individual AoLE.

Whilst much has been written on curriculum progression, far less is available on learning progression. Papers for the review were identified using three approaches:

- expert knowledge (including recommendations from CAMAU Professorial Consultants - internationally recognised experts in individual Areas of Learning Experience)
- search strategies
- reference snowballing.

As reviews for individual AoLEs were undertaken by several members within each AoLE team, detailed guidance was provided. Reviewers conducted independent searches using keywords, employing Ebscohost or a similar academic database. Key terms were contextualised in each AoLE, e.g. 'progression in mathematics'; keywords specific to particular domains were identified, e.g. in Health and well-being keywords included 'child development' and 'developing'. Texts published before 2000 were excluded unless identified by Professorial Advisors as seminal texts. Wales is a bilingual country. Where possible, eg, in LLC, the review included evidence from bilingual countries. However, we recognise that most of the evidence used to inform this report has been drawn from material published only in English, that the research has to a large extent considered practice in English speaking countries and that, with few exceptions, progression frameworks examined have been drawn from countries and states in which English is the sole or a major language of schooling. This limitation has to be recognised.

When lists of possible texts had been generated, titles and abstracts were reviewed to identify potentially relevant sources. Expanded or snowball searches were also carried out where authors cited within the original sources were investigated, either by following up on articles cited or by undertaking author searches within Ebscohost. In addition to recommendations made by Professorial Advisors, CAMAU researchers sought advice from colleagues in the University of Glasgow and in the University of Wales Trinity Saint David with specific expertise in a particular area. From this range of sources, a list of all papers considered was generated by each group and the screening processes that led to the final selection of papers to be reviewed were documented.

The analysis of literature review is intended to address critical questions related to progression within a particular Area of Learning Experience. To illustrate this process *Table 3* on the next page offers an example from the review for the Health and well-being AoLE. The full protocol can be found in Appendix 2.

Table 3

Literature Review- Critical Questions
<ul style="list-style-type: none"> • What evidence exists that informs our understanding of progression in this domain?
<ul style="list-style-type: none"> • In what ways have researchers described how children develop their knowledge/ skills/ capacities in this area? In other words, how do they model progression? For example: <ul style="list-style-type: none"> – According to the literature, are the changes that children make qualitative jumps (with big steps at key moments) or more gradual sophistication (children seen to gradually add more of the same skills over time)? – Is progression linear or could children move backwards and forwards? – Do the researchers see children’s progression as something that can be impacted on by the environment and open to change, or is it fixed? – Is there one path that children seem to take in this area, or are there multiple paths? Do the researchers acknowledge that children may have different paths based on the context in which they grow up/learn? – Are there different models of progression for the same topic and to what extent do they overlap, complement, or conflict?
<ul style="list-style-type: none"> • To what extent does the literature focus on how children develop in terms of their knowledge/understandings vs. behaviours/skills?
<ul style="list-style-type: none"> • To what extent is the progression that is described at a micro-level (for one lesson/unit) or at a macro-level (across multiple years)?
<ul style="list-style-type: none"> • What ages are covered when describing how pupils learn in this area? Which ages seem to be missing or receive less adequate attention?
<ul style="list-style-type: none"> • What is the theoretical background of the relevant literature (e.g., education, public health, psychology, etc.)? We may get some insight by looking at the journal it is published in.
<ul style="list-style-type: none"> • Importantly, what seems to be missing in this area? What do we still not know? Is there little research on this topic?

Building Dependable Evidence: Synthesising Sources

The evidence emerging from across the six AoLEs was then compared with the review of *Successful Futures* and the more general research evidence on progression. From this synthesis key themes were identified. These themes were then used as the evidence base to inform for the final section of this report, Learning about Progression: from ideas to action.

This central purpose of this research report, *Learning about Progression – Informing thinking about a Curriculum for Wales*, is to provide a dependable evidence base to inform the work of each AoLE. To

maximise the use of the evidence to inform action in AoLEs, the research report is available in a number of forms.

The full research report is available to all interested parties. In addition, a domain specific report has been developed for each individual AoLE. Each individualised report contains key points from:

- the introduction
- the review of *Successful Futures* and research evidence on progression as a concept
- the policy review and research review specific to the area of learning experience
- ‘Decision Trees’ as an enabling artefact to stimulate use of an extensive evidence base in practice: ‘Decision Trees’ structure evidence from the research report succinctly around key questions for use within AoLE workshops. Their purpose to promote better informed decision making.

The decision trees identify crucial questions to be addressed by each AoLE as they design a progression framework for the Welsh curriculum. Using evidence from the research report, they offer insights into how issues have been tackled in different countries and suggest some initial possible advantages and disadvantages related to each decision. They also identify relevant insights from research. Examples of decision trees can be found in Appendix 3.

Using the decision tree approach as a stimulus for discussion and negotiation, each AoLE group was invited to respond to each question, to consider evidence available from research and policy and to add insights from their own professional experience. Once the group had considered the evidence, they were invited to develop proposal to be considered by the cross-AoLE Coherence Group. The role of the Coherence Group was to consider proposals from each AoLE and to take decisions to promote consistency and coherence across the six AoLEs.

Evidence from Teachers and Learners

A central feature of the CAMAU methodology is to promote approaches to progression that are empirically informed by evidence from practice.

In line with the principles of partnership, subsidiarity and collaboration which underpin the CAMAU research project, teachers are co-researchers. While teacher participation in the curriculum development process was an expectation arising from their employment in pioneer schools, participation in related research was voluntary. Consequently, all teachers in the AoLE groups were asked and agreed to participate in this research in accordance with the ethics procedures of the two universities.

Between April and July 2017, collaborative research focused on the articulation of teachers’ conceptualisation of learning progression. Evidence was generated through approaches which acted as prompts to support this articulation. The aim was to draw on teachers’ practical experience to contribute to developing learning progression frameworks.

Four research questions were developed by the CAMAU team. These were designed firstly to explore evidence of teachers’ understanding of progression in learning emerging from the data and secondly to consider the efficacy of different approaches to the collection of evidence of teachers’ understandings of progression:

- What evidence on progression emerges from teachers' articulations of progression in learning in their classrooms?
- What are the characteristics of learning identified?
- What types of activities led to teachers articulating their understanding of progression most effectively?
- What sorts of group structures and size supported such activities?

Evidence related to the first two questions would directly inform the drafting of progression statements; evidence related to the latter two would inform later research into teacher views to further develop these statements and to offer insights into processes of sustainable change.

The CAMAU team developed three principal approaches to gathering evidence relevant to the first two questions. It was agreed that the approach(es) used in each AoLE would recognise the views of teacher participants and would be reviewed in the light of evidence related to the latter two questions. The CAMAU team adapted tasks to take account of the broad direction of developing thinking within each AoLE about what matters.

Approach One – Time1-Time(n) (see Newby, 2010)

Teachers were supported to articulate typical learner progress across a period of time; the number of stages (i.e. T1-T2, T1-T3) used was determined by the perceived requirements of each AoLE. The fundamental questions posed took the form of:

- T1 - Can you describe what, in general terms, you expect a learner to know, understand and be able to do at a start time (e.g. the beginning of the year)?
- T2 - Can you describe what, in general terms, you expect a learner to know, understand, and be able to do at an end time (e.g. the end of the year)?

A variant of this approach explored progression made by three individual young people in a class as they moved through a phase: one who finds little challenge in relation to expectations; one who generally achieves expectations; one who finds expectations challenging.

Approach Two – Evaluation of progression in other countries' frameworks

Teachers were asked to examine critically aspects of frameworks from other countries. This afforded opportunities for teachers to review, from a relatively disinterested stand-point, policy and practice and to articulate views on models of progression, broad progression steps and appropriate language.

Approach Three – CoRe (Content Representation) (see Eames et al. 2011; Loughran et al. 2004)

This approach involves identifying areas of knowledge or skill that seem central to learning in an AoLE and for each of these areas responding to questions such as:

- What do you intend young people to learn about this idea or skill?
- Why is it important for them to know this?
- What prior or related knowledge do learners have of this idea or skill?

- What difficulties / limitations may be associated with progression in developing this idea or skill?
- How do you ascertain learners' progression or difficulties in developing this idea or skill?

Findings from this early stage of teacher research are reported in Section 3.

Section 1: Progression – Welsh Policy and Research Insights

Progression in learning is crucial to the realisation of the aspirations of *Successful Futures* and it is essential that progression as developed across the AoLEs is well informed. As indicated in the Introduction, the evidence to promote well informed ideas of progression in learning comes from different sources. This section of the report reflects on two sources of evidence: evidence from policy – what *Successful Futures* says about progression – and evidence from research – an analysis of research on progression.

Evidence from the Policy Context in Wales - Donaldson, Progression and Learning

The concept of progression is at the centre of the new curriculum in Wales. It structures, describes, and enables learning. Donaldson’s use of the term represents a shift in discourse that aims to restructure the learning experience for pupils, from discrete and generalised stages of attainment, to a **learning continuum** of individual achievement. Within this new structure, each learner moves forward fluidly through statutory education from age 3 to age 16, guided as appropriate by reference points, supported and challenged according to his/her needs, and assessed in relation to the four purposes of the curriculum.

The four purposes describe what all children and young people should become and achieve through statutory education as well as how they are perceived and positioned as they experience the curriculum.

Recommendation 2 (p.23) states:

‘The school curriculum should be designed to help all children and young people to develop in relation to clear and agreed purposes. The purposes should be constructed so that they can directly influence decisions about curriculum, pedagogy and assessment’.

This follows the argument that:

*‘statements of curriculum purpose need to be formulated carefully so that they have integrity, are clear and direct and become central to subsequent engagement and development; in that way they can shape the curriculum and suffuse practice. Common understanding of **why** we are doing what we are doing is a powerful starting point from which to determine **what** it is we need to do and **how** we are going to do it. (p.22, author’s emphases)*

The purposes tell us about how children should experience their curriculum day to day. Learners progress to become more ambitious, capable, enterprising, creative, ethical, informed, healthy, confident individuals. Progression is characterised in terms of depth, complexity, level of abstraction, accomplishment and skill, for disciplinary knowledge and wider competencies, and each child’s learning continuum functions as a journey through the curriculum. This journey will include diversion, repetition, and reflection, as appropriate for each individual to make progress in learning. There is greater responsibility for teachers to ensure child-centred learning to ensure effective learning takes place, since the pace of each journey is set according to the requirements of the learner.

Discerning the progress being made by each child is fundamental to establishing learning. While the concept of progression shifts control of the curriculum into the hands of the schools, it also shifts assessment from generalised phases and stages, to a greater focus on the evaluation of learning from the perspective of the child: a shift from 's/he should' to 'I can'. This means all children and young people can travel on the same continuum, regardless of any Additional Learning Needs. In the new curriculum, assessment is purposeful and designed to support the progression of each child's learning: what does each child need in order to move forward, what difficulties might s/he have, what are the next steps and how might these next steps best be supported?

Assessment is the means by which teachers seek to discern progress and to identify what is most important for future learning. Progression, and therefore achievement, in Donaldson's terms is positive, beginning from the child or young person's point of departure. Progression describes a forward movement for each learner which is not necessarily linear and which does not end at a given age or stage. Throughout the Donaldson Review, learning is conceptualised as growth. Learners build on previous knowledge/skills/competencies/dispositions in a continuous journey across and within the Areas of Learning and Experience.

Learning is defined through the concept of progression, which is represented as a coherent continuum without separation or interruption. The continuity that the new curriculum places at the centre of learning describes a holistic approach to the development of the individual, including experiential learning that is valuable in and of itself. Learning is the end goal of the education system. The learner is at the heart of the process and a fundamental element of the curriculum is choice. Learners are encouraged to take responsibility for their own learning, to become pro-active, and teachers are encouraged to ensure learning is meaningful and 'authentic', so that it has real world relevance.

What Successful Futures says about Progression

The term progression occurs 116 times in Successful Futures. Additional Document 1 provides a list of each occasion when the word progression is used and an analysis of the different contexts for the idea of progression. In *Successful Futures* (2015) the four purposes provide 'coherence, progression and flow' to learning intentions (p.21). Significant emphasis is placed on manageability:

'Having common Areas of Learning and Experience from 3 to 16 should promote and underpin continuity and progression and help to make the structure easier to understand' (p.39).

Successful Futures presents a clear vision for progression

1. Phases and key stages should be removed in order that progression can be continuous, increasing the potential for higher attainment by minimising transitions.
2. Progression in each Area of Learning and Experience should be based on a well-grounded, nationally described continuum of learning that flows from when a child enters education through to the end of statutory schooling at 16 and beyond.

3. Learning should be an expedition, with stops, detours and spurts rather than a straight line. Progression is a 'road map' for each and every child/young person's progress in learning though some children and young people will progress further than others.
4. Progression Steps will be described at five points in the learning continuum, relating broadly to expectations at ages 5, 8, 11, 14 and 16 (staging points for reference rather than universal expectations – but expectations should be high for all learners).
5. Progression Steps are made up of a number of achievement outcomes linked to what matters in the curriculum and linked to the four purposes ('I can' statements). Literacy, numeracy, digital competence and wider skills should be embedded as well as elements of the Cwricwlwm Cymreig.
6. Achievement Outcomes should not be a checklist of knowledge or skills and should incorporate effective pedagogy.
7. Achievement outcomes should inform next steps and be framed as broad expectations achievable over a period of time (approximately 3 years).
8. Achievement Outcomes should use 'I can', 'I have' (and 'I am ready to') statements to describe progression (not over specified or overly vague – this may vary across AoLEs).
9. Assessment (relevant and proportionate) should be focused on learning intentions and progression in relation to the four curriculum purposes and based upon the intentions set out in the Achievement Outcomes at each Progression Step within each Area of Learning and Experience. In each AoLE the Achievement Outcomes at each Progression Step will need to encapsulate the most important aspects of learning, take account of the ways in which children progress in different kinds of learning and recognise what they need to be able to know and do to move securely to the next stage.
10. Professional judgement is central to assessment (formative assessment with relevant summative information collected and used formatively within classrooms and schools).
11. Schools should use teacher assessment of progression systematically, together with other sources of evidence, to inform their self-evaluation for school improvement purposes.

The ideas presented in *Successful Futures* form the principles from which curriculum, progression and assessment in Wales should be developed and offer a touchstone against which emerging proposals can be evaluated.

Evidence from Research – an Analysis of Research on Progression

The inter-relationship of curriculum, assessment and pedagogy is recognised as being at the heart of learning. Yet, Wyse, Hayward & Pandya (2015), analysing the state of the field internationally, suggested that all too often research has focused on these as different fields leading to a lack of alignment in how curriculum, assessment and pedagogy are experienced in learning. This theme was developed by Wiliam (2017:1) who argued that theories of learning and theories of assessment lack connection because assessment and learning are trying to do different things and each field has been inward looking in identifying and addressing challenges. *Successful Futures* (2015) recognises the importance of promoting a strong relationship between curriculum, assessment and pedagogy. The policy states clearly that everything in education in Wales should be driven from the curriculum: the identification of what matters for a person to be considered educated. What matters in the curriculum in Wales is being identified by the Pioneer Schools in each AoLE. This research review

begins from that premise and explores how progression and assessment might emerge in relation to what matters.

Curriculum, Progression, Pedagogy and Assessment – a Coherent Whole

Built into every curriculum internationally is a notion of learning development but there are different ways in which this can be done. Some countries seek to describe outcomes in different areas of the curriculum through the specification of standards commonly related to ages and stages on development in schools. The aspiration is that by specifying standards, these will become teachers' expectations and student performance will improve. Yet concerns have been raised that many of the statements of standards do not provide the information necessary to achieve that aspiration and are not helpful in developing an understanding of where students are in relation to what might be regarded as desired goals (Heritage, 2008). This lack of clarity can lead to problems emerging between curriculum and learning, for example, teachers may find these statements of standards difficult to use for formative assessment purposes – where the learning is going, where the learner is right now and how to get there (William & Thompson, 2007). Learning progressions offer the potential to support learning more effectively as they offer teachers the opportunity to relate learning in their class to learning undertaken in previous and learning to be undertaken in future classes. They can make connections between prior and future learning and use information from formative assessment to discern where students' learning lies, allowing them to relate teaching more specifically to what matters and, crucially, to what matters next. Heritage (2008) suggests that *'Explicit learning progressions can provide the clarity that teachers need'*.

Heritage (2008:2) also suggests that greater attention should be paid to the different levels of specificity used to articulate the curriculum. Some curricula specify detailed objectives to be mastered at each grade in sequence. When the curriculum is described in this level of detail, its 'grain size', it may be difficult to see how these discrete objectives connect to bigger, organising concepts and learning can become little more than a checklist of things to be learned. Curricula organised around core concepts or 'big ideas' and sub-concepts offer better opportunities for a stronger relationship between assessment and learning goals: assessment for formative purposes. However, Heritage (ibid) argues that care also needs to be taken with this approach for too often 'big ideas' are not brought together as a coherent vision for the progressive acquisition of concepts and skills. Without a coherent vision the potential for teachers to have a broad overview of learning in a specific domain is restricted. Broadly speaking, learning progressions differ in the span of the progressions and the degree of granularity in their description. Some models present a learning progression as almost a unit of work, whilst others, such as spelling, span several years. Often, the shorter the span, the greater the detail and specificity.

The work of Black *et al.* (2011:74) develops the idea that having a coherent model of progression that is closely linked to assessment and pedagogy will effectively support learning. They conclude that progressions are essential to high quality learning and teaching.

'One essential ingredient for a teacher is to have in mind an underlying scheme of progression in the topic; such a scheme will guide the ways in which students' contributions are summarized and highlighted in the teacher's interventions and the orientation the teacher may provide by further suggestions, summaries, questions, and other activities.'

Pellegrino *et al.* (2012) offer further insights into what is important in the assessment process, a process he describes as reasoning from evidence, and how assessment might relate to curriculum and pedagogy. He identifies three interconnected elements that should underpin any assessment and conceptualises these as an assessment triangle whose three sides are:

- a model of student cognition and learning in the assessment domain
- a set of assumptions and principles about the kinds of observations that will provide evidence of competences
- an interpretation for making sense of the evidence

Whilst all three elements are essential, in a later article (2017:361), Pellegrino argues that often the critical cognition component is missing. The focus of learning should be determined as far as possible by models that describe *'how people represent knowledge and develop competence in the domain of interest'*. This, he suggests, is a distinguishing feature of an evidence-based approach to assessment design, where the most important aspects of student achievement are identified, aspects which then become the focus for *'inferences'* and which should *'provides clues about the types of assessment tasks or situations that will elicit evidence to support those inferences'*.

Although most work on learning progressions has been carried out within domains, deeper understanding of what is important to improve learning may require work to be undertaken across domains. Some more recent studies have begun to explore learning progression across domains. An example of this is to be found in Wylie *et al* (2017 in press) where the researchers sought to build companion learning progressions in mathematics and language. They argue that analysing mathematics and language learning progressions together offers a more detailed and nuanced picture of progression to inform teaching and formative assessment. By focusing on both mathematical knowledge and the discursive skills required to share that understanding, the researchers moved thinking from right versus wrong to a deeper understanding of the ways in which pupils were developing competences in mathematics and language. The application of content and language progressions, they suggested, provided teachers with a deeper understanding of the interaction of mathematical knowledge and language proficiency.

What are Key Characteristics of Learning Progressions?

Mosher & Heritage (2017:1) define Learning Progressions as

'inferences or hypotheses describing the order of definable steps, stages, or levels that students' understanding and skill in a subject or discipline are likely to go through over time in response to instruction and experience as they reach the levels of understanding and skill that are the goals of instruction.... The inferences should be based on empirical evidence from student work, assessment performance, responses to clinical interviews, or other observations by teachers or researchers. They may describe likely steps or growth paths in the context of typical instruction, or they could describe what becomes possible with more effective instruction.'

Learning progressions are pathways along which students are expected to progress. These pathways or progressions are the basis of teaching and assessment. Learning progressions can be conceptualised in different ways but as part of a review of a range of different approaches to learning progressions, Heritage (2008) identified certain common features.

- All models conceptualise progression as a continuum of increasing sophistication of understanding and skills as young people move from ‘novice to expert’. (p.4)
- No definition contains references to grade or age level expectations, in contrast to many standards and curriculum models. Instead, learning is conceived as a sequence or continuum of increasing expertise.
- Learning progressions adopt a developmental view, inviting teachers to conceptualise learning as a process of increasing sophistication rather than as a body of content to be covered within specific grade levels.
- Progression also implies a sequence along which students move incrementally from novice to more expert performance. Implicit in *progression* is the notion of continuity and coherence. Learning is not seen as a series of discrete events, but rather as a trajectory of development that connects knowledge, concepts and skills within a domain.
- Learning progressions are accommodating. They recognise that students do not move forward at the same rate or with the same degree of depth and progression and see this as an expected part of learning.
- Learning progressions enable teachers to focus on important learning goals paying attention to what a student would learn rather than what a student would do (the learning activity). The learning goal is identified first and teaching, pedagogy and assessment are directed towards that goal. ‘Consequently, the all too common practice of learning being activity driven rather than driven by the learning goal is avoided.’ (p.5)
- Learning progressions are an important part of assessment to support learning. Clear connections between what comes before and after a point in the progression offers teachers a better opportunity to calibrate their teaching, to address misunderstandings or to develop skills as revealed by assessment, and to determine what important next steps would be to move the student forward from that point.

Further key features of learning progressions are identified in the work of Duschl *et al* (2007) and Pellegrino (2017). Duschl *et al.* (2007) suggest that a distinctive feature of learning progressions is the evidence base from which they are developed. They define learning progressions as evidence based hypotheses about how students’ understanding and ability to use core concepts and explanations become more sophisticated over time. These hypotheses represent the pathways that young people are likely to follow as they make progress. These pathways should be empirically tested to ensure that they relate closely to how most students experience progression and should be empirically evaluated to determine their efficacy to discern whether or not lead to better learning.

Pellegrino (2017) suggests that although learning progressions are not developmentally inevitable, they may be developmentally constrained. He suggests that numerous progression paths are possible and that progress rather than being linear may be more like ‘ecological succession’ (p.362). A learning progression offers one or more possible paths but ‘does not represent a complete list of all possible paths’. In addition, at any point in the process, an individual may demonstrate thinking and/or practices that could be considered to be at different points on the path. Mosher & Heritage (2017) support this view, adding an optimistic view of learning progressions which suggests that there is a small number of likely paths, that the steps along the way are clearly distinguishable and that they represent understanding and related skills which are stable for reasonable periods of time. They also re-emphasise the complex nature of the progression concept, its non-linear pathways, its confusions and regressions as learner thinking develops over time to new levels of sophistication.

The inter-relationship between the learner and progression is further complicated by regressions that can occur in particular circumstances, e.g. stress or challenges that feel to them to be too great. This approach may align more closely with Bruner's spiral curriculum than any model of linear learning, building on the hypothesis that '*any subject can be taught effectively in some intellectually honest form to any child at any stage of development*' (Bruner, 1960: 33). Pellegrino (2017) argues that there is a clear connection between progress in learning and the quality of teaching to which the young person is exposed. High quality curriculum and pedagogy are essential for optimal progression as is the teacher's confidence in dealing with the complexities of differentiated instruction.

Learning Progressions and Audience

There is a further characteristic of Learning Progressions worthy of consideration: the audience. Many learning progressions are written primarily for teachers and tensions can arise if a single learning progression attempts to serve too many purposes. For example, Heritage (2008) draws attention to the problems that can arise if it is assumed that the same degree of granularity will serve both planning and assessment. The degree of granularity in a learning progression designed to ensure that teachers have an overview of progress from novice to expert is very different from the degree of granularity necessary to enable teachers to support learning formatively: the latter would require a far more detailed analysis of progress in learning. She proposes that a possible way to deal with this issue would be to have different learning progressions serving different purposes. An overview learning progression to offer a multi-year picture of the journey from novice to expert. These could then be linked to learning progressions related to each of the key building blocks of what matters in the curriculum. These more detailed learning progressions would support teachers in formative assessment whilst their relationship to the multi-year learning progression would allow them to locate their own work in the bigger learning picture. This could also be helpful in offering support to teachers who are working with young people whose learning is outside the range of normal expectations for the group or year with whom they are working.

Learning progressions can also be written in ways which provide a framework for learners to understand the learning journey they are on. Heritage (2008) argues for the importance of learners being aware of longer term goals and the relationship between those and their day to day progress. It is unquestionably desirable for students to know what the longer-term goal is or what the final product of the learning will be. Increased involvement in learning occurs when teachers share with the students what their longer-term goals are and enable them to participate in evaluating the degree to which they have met the goals. The changing role of the learner within social constructivist and sociocultural theories of learning is highlighted by Baird *et al.* (2014, 2017). Within these overlapping theories, there are common learner characteristics. Learners are active in the learning process, involved in self and peer assessment, in social processes and interactions where there is a changed 'contract' around learning. If the aspirations for this new relationship, this new contract between the learner and society, as articulated in Baird *et al.* (ibid) are to be fulfilled, there are implications for the level of transparency in curriculum, progression, pedagogy and assessment. Learners need deeper and more meaningful understandings of what matters in learning and a voice in what matters. They would have the right to understand the longer-term journey in the domain being studied and the responsibility to work with teachers and others to engage in learning

processes and, crucially, in assessment as part of learning. Learning progressions are a crucial part of this process.

Progression and Assessment

There is strong research evidence that approaches to formative assessment can and do improve learners' attainments (Black & Wiliam, 1998; Wiliam *et al.*, 2004). Black *et al.* (2011) suggest that these approaches are based on principles of learning well informed by cognitive research. They define the principles as

- *'Start from a learner's existing understanding.*
- *Involve the learner actively in the learning process.*
- *Develop the learner's overview, i.e. metacognition – this requires that students have a view of purpose, have an understanding of the criteria of quality of achievement, and self-assess.*
- *Emphasise the social aspects of learning (i.e. learning through discussion) as these make a unique contribution.'*

There are strong areas of overlap between this definition and Heritage's (2008) conceptualisation of formative assessment:

- eliciting evidence about learning to close the gap between current and desired performance (Pellegrino (2001) would describe this as drawing inferences);
- providing feedback to students; and
- involving students in the assessment and learning process.

Both definitions privilege the role of the learner in learning and assessment.

Black *et al.* (2011) make a strong case for the centrality of teacher assessment. They suggest that teachers' in-classroom assessments offer opportunities to achieve far better standards of validity than national or state tests. The evidence they generate is richer and more meaningful. However, they caution that significant professional development (2001:106) is necessary, for teachers' professional judgements to be both valid and reliable. The authors present five steps essential to the design and implementation of any learning exercise. The exercise must have strategic aims that involve understanding concepts and methods of a subject or developing reasoning skills. Teaching has to be planned, involving what the authors describe as choosing the tactics for realising the strategy in order to *'help build a picture of learners' existing understanding, especially with respect to the learner's location on the learning progression, so that the next challenge can be framed to take that understanding further'* (2001:77). The plan then has to be implemented, reviewed and summed up. The researchers argue for the importance of a curriculum as an evidence-based model of the paths through which learning typically proceeds used to inform both pedagogy and assessment. These 'road maps' they describe as central for all five steps outlined above. And they offer an example of a road map for the scientific concept 'atomic-molecular theory of macro properties'. Through this example, the authors suggest that we can create roadmaps by synthesising several sources of evidence (2011: 85)

- research results about common pupil misconceptions
- internal logic of the concepts involved
- indications from learning theory about difficulty of the types of thinking involved

- results from assessment items that indicate problems/possibilities with the topic sequence

They argue that, although previous qualitative studies on this topic provide rich understandings of progression of learning, they are limited by the specific contexts in which they were developed. They propose larger scale and longitudinal studies to deepen understanding of trajectories of change of individuals.

Black *et al.* (2011) argue that progression is needed for formative assessment:

'(a) to formulate a task or test so that the responses can provide evidence of learning progression, (b) to formulate helpful comments, tailored to the individual needs of each student, and (c) to give clear guidance on how to improve, all require a clear road map, that is, a view of the learning aim and of the steps along the route, or routes, that the student needs to take to get closer to the aim in light of his or her position en route.' (p. 75)

Pellegrino (2014, 2017) supports this view. He suggests that learning progressions are helpful ways to think about the assessment of student learning. Like Black *et al.* (2011), he argues that learning progressions should contain multiple elements, including *Learning Performances*. These he describes as

'the kinds of tasks students at a particular level of achievement would be capable of performing. They provide specifications for the development of assessments by which students would demonstrate their knowledge and understanding. Such assessments allow one to observe and infer students' levels of competence for major constructs that are the target of instruction and assessment within and across grade levels. Thus, an adequately specified learning progression should include an approach to assessment, as assessments are integral to learning progression development, validation, and use' (2017:362).

He also concludes (Pellegrino, 2017:363) that when detailed maps of learning progression exist at grain sizes to support teaching and assessment, these will form a conceptual base that can be used as evidence of longer term growth and change, evidence currently collected through large-scale assessments. This will improve the validity of the assessment because there is a clearer idea of the construct being measured and the level at which student learning and performance is understood.

In conclusion

There is recognition in both policy in Wales and research of the importance of learning being articulated progressively. Although in *Successful Futures* (2015) this is described as a *learning continuum* and in research as a learning progression, these terms share many common characteristics. For example,

- Curriculum, assessment and pedagogy should be seen as an integrated whole
- Progression should be continuous
- Progression is not linear
- The journey from the point a young person transitions into the curriculum until the point where the young person transitions into life beyond school education should be sufficiently clear to allow both teachers and learners to make sense of how day to day activities relate to the learning journey over time.

- Assessment for learning has the potential to enhance young people’s learning but there are a number of areas to be considered as part of curriculum and assessment innovation if this potential is to be realised

The key messages emerging from the review of all the evidence sources examined in this research report and possible implications for how evidence from policy and research might influence emerging practice are considered in the next section of this report.

Health and well-being: Review of Frameworks

This report synthesises examples of how international and national curricular frameworks model progression in Health and well-being (H&WB). The following factors informed our country selection:

- inclusion of some form of progression
- recommendations from professorial consultants
- curricular materials provided in English
- when possible, bilingual contexts.

The countries/regions selected were: Australia, British Columbia, Ireland, New Zealand, Quebec and Scotland. This report is organised as follows:

- international curriculum structures
- what matters in relation to H&WB
- how progression is conceptualised
- the form and wording of progression statements
- alignment with *Successful Futures* and with Wales's vision for H&WB.

Weblinks to the curriculum documents are provided in Additional Document 2. Summaries for each country are available upon request from the CAMAU team.

Structure of the International Curriculum Frameworks

Differences in how the H&WB curriculum is structured across countries may have implications for progression. H&WB may be holistically combined into one learning area or split across subjects: e.g. in Ireland, physical education and social, personal and health education (SPHE) are separate areas. Other countries combine most elements of H&WB into one learning area: e.g. British Columbia's *Physical and Health Education* area and Scotland's *Health and Wellbeing* area include physical literacy and movement skills, healthy relationships, mental wellbeing, health and safety, and more.

Several countries include elements of H&WB as cross-curricular aims. For example, *managing self* and *relating to others* are 'key competencies' in New Zealand; *personal awareness and responsibility* is a 'core competency' in British Columbia; *constructing identity* and *cooperate with others* are 'cross-curricular competencies' in Quebec; and *personal and social capability* is a 'general capability' in Australia. Countries such as Australia provide guidance on how these cross-curricular aims can be applied to each learning area. When an aspect of H&WB is cross-curricular, the implied message is that this skill/capacity/understanding is sufficiently important or broad that it necessitates the responsibility of every teacher. However, if not assigned to a core learning area, then there is a potential risk of not having a designated teacher to take the lead on ensuring students are progressing in this area. Scotland's *Health and Wellbeing* is both a core curriculum area and the 'responsibility of all' staff, with separate but related curriculum documents of progression steps for H&WB as a core subject area and for H&WB across learning (the responsibility of all teachers).

Countries also differ in whether there are separate H&WB frameworks for different stages of schooling (e.g., primary and secondary) or one continuous curriculum. In Quebec and Ireland there are different curricula for primary and secondary levels. British Columbia has one curriculum for

kindergarten through grade 9 and is currently transitioning to a new curriculum for secondary level (grades 10-12). Ireland has separate curriculum and assessment documents for early, primary, junior cycle, and senior cycle levels. The Scottish, New Zealand, and Australian curricula have one combined description of progression of learning for children across ages 5-16. Having separate curricula and/or assessment guidelines for different stages of schooling may have implications for learners' transition into secondary school and for the extent to which the separate curricula complement one another. However, having one curriculum for all stages requires coordination across phases and schools.

Another important element of the curriculum structure with implications for progression is the number of levels included in the H&WB outcomes and whether these are related to grade/age. New Zealand and Scotland do not have levels tied to specific grade levels. New Zealand has 8 levels and each covers several years of schooling with a recognition that some pupils may attain stages earlier or later than expected. Scotland has 5 levels that are roughly 3-year bands but again not strictly tied to grade levels. The premise is that teachers meet each child at his/her current stage and provide learning activities to help support the child in moving forward at their own pace. In contrast, countries such as British Columbia have specific learning objectives tied to each grade level. Australia has two-year bands in the *Health and Physical Education* area. The language (e.g. 'Focus areas to be addressed in Years 1 and 2') suggests that learners must meet certain competencies by the end of each two-year period. When learning objectives are tied to a grade, there is a risk of focusing on covering a particular set of standards by a particular time, rather than concentrating on student learning (Heritage, 2008).

What Matters

Across the countries, H&WB curricula have a reasonable balance between understandings, competencies and skills. For example, British Columbia's curriculum is structured on a 'Know-Do-Understand' model; the learning standards within *Physical and Health Education* clearly designate competencies (e.g. Grade 5: Describe and apply strategies for developing and maintaining healthy relationships) and related content (e.g. Grade 5: Strategies to protect themselves and others from potential abuse, exploitation, and harm in a variety of settings). In Ireland, learning outcomes 'describe the knowledge, understanding, skills and values that students should be able to demonstrate' and include what 'students learn about' and 'students should be able to'.

Some countries explicitly recognise the interrelated nature of 'knowing' and 'doing'. For example, Quebec's competencies contain knowledge (concepts to be learned) and skills. Quebec's frameworks for the evaluation of learning use arrows to explicitly indicate 'that the evaluation of learning involves a process of going back and forth between the acquisition of subject-specific knowledge and the understanding, application and use of this knowledge'.

Several countries also have a set of overarching concepts that inform progression of learning. British Columbia lists 'big ideas' for each grade level, which are broad statements focused on understanding, generic personal skills and attributes, e.g. 'Learning about ourselves and others helps us develop a positive attitude and caring behaviours, which helps us build healthy relationships'. In Scotland, there are generic statements that seem, although not labelled 'big ideas', to inform the progression steps, e.g. 'experience personal achievement and build my resilience and confidence' or

‘participate in a wide range of activities which promote a healthy lifestyle’. New Zealand’s primary and secondary curriculum appears to define ‘what matters’ through their four ‘underlying and interdependent concepts’ at the heart of their *Health and Physical Education* learning area. The four concepts focus on broad attributes and capabilities rather than content knowledge, e.g. ‘Attitudes and values – a positive, responsible attitude on the part of students to their own well-being; respect, care, and concern for other people and the environment; and a sense of social justice’.

Across countries there also tends to be a balance of ‘what matters’ in terms of the physical, mental/emotional, and social components of wellbeing. Across countries, early years or foundation curricula largely focus on all three. At the primary and secondary levels, physical education appears more prominent than emotional or social wellbeing, presumably since progression is easier to define within the physical realm. For example, Quebec’s *Physical Education and Health* curriculum is focused on movement skills, physical activity, and an active lifestyle, while elements such as *cooperation with others* and *achieving one’s potential* are cross-curricular competencies. However, most of the countries include aspects of emotional and social wellbeing within their core H&WB area of learning. Scotland’s *Health and Wellbeing* curriculum focuses on mental, emotional, social, and physical wellbeing. British Columbia’s curriculum *Physical and Health Education* includes concepts of physical literacy, healthy and active living, social and community health, relationships, safety, and mental well-being. Across countries, mental health is not a common feature of curricular frameworks and, if mental wellbeing is included in a framework, progression is not addressed in detail. Further, career development tends to be a separate curricular area or cross-curricular competency for most countries rather than included within H&WB, for example as in British Columbia and Quebec.

Determining ‘what matters’ in terms of progression in H&WB can be challenging in countries that have multiple layers of principles, aims and competencies. In Ireland, for example, the junior cycle consists of 8 underpinning principles, 24 Statements of Learning, 8 Key Skills, and 6 Indicators. Different elements of each component are related to H&WB, for example, relevant key skills include *managing myself*, *staying well*, and *working with others* and relevant indicators that may be of interest to the Wales H&WB AoLE include *active*, *responsible*, *connected*, *resilient*, *respected* and *aware*.

Finally, it is worth noting that in New Zealand, Māori terms are included throughout the English documents, making it clear that the Māori language is an important part of ‘what matters’. For example, four concepts are considered to be at the heart of health and physical education, one being *Hauora*, a Māori philosophy of well-being. The extent to which cultural context is evident and explicit in the New Zealand documentation is of interest and relevance in the Welsh context.

Conceptualisation of Progression

Progression steps, the building blocks of students’ learning trajectories, can be conceptualised in many ways (Heritage, 2008). Progression could refer to the development of understandings / skills / capacities (i.e. learning) within one lesson, across a unit, across a school year, across schooling, or across lifelong learning. Donaldson (2015) proposes a broad level, representing big ‘steps’ of progression across schooling. Progression takes different forms, such as moving from novice to expert (Heritage, 2008), learning a series of different concepts and/or skills that build upon one

another, increased sophistication within a particular concept and/or skill, increased independence in enacting concepts or skills. In *Table 4* below we provide hypothetical examples of progression for two H&WB concepts: running and understanding one's identity. Most of the countries we reviewed seem to use a model focused on increased sophistication within a particular concept or skill.

Table 4. Hypothetical examples of some forms of progression

Forms of progression	Skill/Capacity: Running	Concept/Understanding: Understanding my identity
Different concepts/skills that build upon one another	learning to stand up -> taking first steps -> walking -> running	understanding personal likes and dislikes -> understanding how I am unique from others -> understanding my goals for the future -> reflecting upon my identity
Increased sophistication within a particular concept/skill	running slow -> running faster -> being able to run fast on uneven terrain	describe myself in terms of a few elements -> describe and understand myself at a deep level on a wide range of elements -> evaluate myself on a range of elements
Increased independence in a concept/skill	run with support and guidance -> run with minimal encouragement given -> run on one's own	others can help me describe my identity -> I can describe who I am with some help from the teacher to prompt me -> I can independently describe myself

In the countries reviewed, some implicitly included progression whereas others made it central and explicit. In New Zealand, progression is defined implicitly within the primary and secondary curriculum through achievement objectives. These outline learning processes, knowledge and skills across eight levels of learning which 'represent progress towards broader outcomes that ultimately amount to deeper learning'. Similarly, in British Columbia, progression is defined implicitly through statements that increase in complexity as learners progress through the different school grades although some 'big ideas' span across grades. In Scotland, on the other hand, progression is defined clearly and explicitly.

Quebec also explicitly includes 'progression' within the name of its curriculum. The documentation denotes when students are expected to move from completing a task with the help of the teacher, through applying knowledge on their own, to a stage where knowledge is 'reinvested'. This suggests a Vygotskian influence as children move from being able to do something with the support of the teacher to on their own. However, when exploring the H&WB curriculum documents, it is not always clear how skills and knowledge form a narrative of learning across ages 5-16. Through careful inspection, one can determine which skills are expected to come earlier or later and thus infer the nature of progression. For example, 'uses language that shows respect for his/her partner' is expected to be applied by the end of cycle one elementary school whereas 'uses language that shows respect for opponents' is expected to be constructed in cycle two and not applied until the end of cycle three. Therefore the curriculum suggests that using language to show respect for partners is a pre-requisite for using language that shows respect for opponents.

Australia is another interesting example. The curriculum is initially described as ‘a progression of learning’, but the main documentation makes little reference to this term after that. Within each level students are categorised as ‘below satisfactory’, ‘satisfactory’, or ‘above satisfactory’; supplemental portfolios of pupil work are provided to demonstrate each categorisation. This could suggest a micro model of progression as students move from less satisfactory to more satisfactory within a level. Further, comparing standards across levels can provide a sense of the expected macro model of progression over time, but, since this is not explicitly brought together within one document, it is unclear whether teachers would view it as a progression of learning. For example, we can compare achievement standards for Y1-2 with Y3-4:

‘By the end of Year 2, students describe changes that occur as they grow older. They recognise how strengths and achievements contribute to identities.’

‘By the end of Year 4, students recognise strategies for managing change. They identify influences that strengthen identities.’

The implicit progression here is moving from describing changes to recognising how to manage that change, and from recognising influences on identity to identifying influences that can strengthen one’s identity.

Importantly, some of the curricula note that for an area such as H&WB, progression may naturally take a spiral rather than a linear form. Some learners may need to revisit different parts of a progression model. For example, with a movement skill such as running, a child who does not engage in any physical activity for some time and loses that skill may need to revisit through building up strength and engaging in some running with encouragement from others. For example, Scotland’s curriculum document states, ‘Because of the nature of development and learning in health and wellbeing, many of the experiences and outcomes are written to span two or more levels. They should be regularly revisited through a wide range of relevant and realistic learning experiences to ensure that every child and young person is progressing in his or her development and learning.’

Form of Progression Statements

Examples of curriculum statements indicating progression from each of the countries are included in Additional Document 3.

There are interesting similarities and differences across the countries. One difference is in whether the statements are written for the teacher or the pupil. In New Zealand and Quebec, the statements are written for teachers following ‘the student will...’ format; at the primary level in Ireland, they are written as ‘the student should be enabled to...’. In Australia the statements are written for teachers, but in a paragraph format and follow the same format such as ‘students recognise...’ or ‘students apply...’; the statements are structured consistently with one paragraph on what students are expected to understand and the second on what students should be able to do. Alternatively, statements for Scotland are written for pupils following an ‘I am...’ or ‘I can...’ format.

Despite these differences, the statements themselves are often quite similar. Consider British Columbia, New Zealand, and Scotland (see *Table 5* below). The statements describe progression in a topic common to all – movement skills; the statements use similar descriptions of progress (*develop*,

will develop, am developing); all specify a variety of contexts or various play or physical activities. They differ in that British Columbia specifies *demonstrate a variety*; New Zealand specifies *will develop a wide range* of skills, which provides a more concrete definition and implies that some mastery is expected and multiple evidence needed; Scotland refers simply to *developing*. However, all three statements expect teachers to use their professional judgement as they consider such matters as: which movement skills are the necessary ones so that the child can progress to the next level? how many skills should be developed? does the child need to show mastery consistently before moving to the next level?

Table 5. Examples of progression statements for movement skills

British Columbia – K, 1, 2	New Zealand – Level 1	Scotland – Early Level
Develop and demonstrate a variety of fundamental movement skills in a variety of physical activities and environments	Students will develop a wide range of movement skills, for example, manipulative and gross motor movements, walking, running, hopping, ... climbing, kanikani, balancing...	I am developing my movement skills through practice and energetic play

Another interesting element of progression across countries is the level of specificity of the progression statements. Quebec's statements are specific and it would be quite clear whether a student has met the statement or not, e.g. 'indicates a few ways of synchronising his/her movements' or 'names a few offensive action roles'. Statements in Scotland's Curriculum for Excellence are worded very openly in order to offer teachers and learners opportunities for personalisation and choice, e.g. 'Opportunities to carry out different activities and roles in a variety of settings have enabled me to identify my achievements, skills and areas for development. This will help me to prepare for the next stage in my life and learning.' Identifying the extent to which a student has met this statement or not would require it to be interpreted by teachers in different contexts to meet individual needs and interests. However, the Scottish statement may engage the pupil by explaining the purpose of moving the pupil forward. In British Columbia there appear to be two levels of detail: while the statements for the curricular competencies are quite broad, the standards and expectations themselves are quite specific, although the latter are for voluntary use in schools.

In general, the countries use a mix of verbs to indicate how pupils should demonstrate their skills or knowledge. For example, Ireland uses statements such as 'develop an appreciation of' or 'identify and talk about...' and British Columbia uses statements such as 'explore the impact of...' or 'describe factors that...'. In general, the statements seem to represent increasing complexity in line with a framework such as Bloom's taxonomy. In Australia, for example, foundation and years 1-2 use key words of *identify, describe, recognise, participate*; years 3-6 use words such as *explore, describe, apply, investigate*; years 7-10 use *evaluate, practice, investigate, critically analyse*. However, it is important to acknowledge that all levels of knowledge may apply at all levels in the progression of learning, as new concepts and constructs may be introduced at all times. For example, pupils could

just as easily describe their identity at age 5 as they could at age 14; it may be the nature of the output that differs, not the essence of the task itself.

Often what is written alongside the progression statements is just as meaningful as the statements themselves because of the implications for how the progression statements should be used and interpreted. For example, in Ireland, the junior cycle statements are written for the teacher but there is a move to include students in the reporting of progress, and interestingly all statements appear to be assessed in light of the six themes of *active, responsible, connected, resilient, respected, aware*. As another example, in Quebec, there are three labels applied to each statement of progression: 1) student constructs knowledge with teacher guidance, 2) student applies knowledge by the end of the school year, and 3) student reinvests knowledge. In Australia, there are sample portfolios of work (containing written work, pictures, videos, etc.) that are rated as *satisfactory, above satisfactory, and below satisfactory* alongside the achievement standards, which provide concrete examples of progression in terms of becoming more sophisticated within a particular area.

Alignment with Successful Futures and Wales’s Vision

This section provides a broad evaluation comparing ways in which the national and international frameworks included in this review appear to align with or differ from Wales’ vision for their H&WB curriculum and with the recommendations in *Successful Futures* (Donaldson, 2015).

Te Whāriki and the New Zealand primary and secondary curriculum are useful to consider. Emphasis is placed on cross-curricular learning, e.g. links between Health and Physical Education and Science and Technology are made explicit. The curriculum acknowledges the need for a holistic approach to learning and teaching. The ‘vision’ for ‘confident, connected, actively involved, lifelong learners’ underpins all learning, which bears similarity to Donaldson’s ‘four purposes’ and may be useful for ideas on how to incorporate the ‘four purposes’ within progression steps. In terms of progression, Donaldson (2015, p. 52) emphasises ‘consolidation and depth in learning as a sound foundation for further progress’. This concept is also emphasised explicitly within New Zealand, where the curriculum documents highlight the need for learners to re-visit concepts in order to consolidate their learning in what appears to be a spiral approach to progression. However, Donaldson (2015) proposes ‘steps’ rather than ‘levels’ of progression, the term used in that curriculum. Although these levels span across the school years similarly to the proposal in *Successful Futures*, the New Zealand documentation acknowledges that many learners do not fit this pattern, e.g. those with special educational needs, the more able or speakers of English as an additional language. Donaldson (2015) on the other hand proposes a more inclusive approach to progression. Finally, it is worth noting that the New Zealand curriculum is inclusive of Māori cultural values, and consequently some terms, particularly within the Te Whāriki curriculum, may be difficult to interpret. The extent to which cultural context is evident and explicit in the New Zealand documentation is of interest and relevance in the Welsh context. Values are also a prominent feature of the curriculum and according to Benade (2011) these are nationally and politically based in order to empower learners to develop into lifelong learners and knowledgeable citizens.

The British Columbia curriculum is informative as this Canadian province has undertaken a similar process to Wales in developing curriculum and assessment. This ongoing process is informed by research into national and international practice, subject specific disciplines and assessment design.

The assessment framework is developed in consultation with educators and validated and tested by both the educators and experts. The focus on ‘big ideas’ within the subject themes is similar to that in Wales. Although the concept of progression can be tracked within the learning standards, these standards lack the clear continuum proposed by Donaldson. While elements of the four purposes appear sporadically across the learning standards, again there is lack of clarity or clear pathway. However, in much the same way as *Successful Futures*, this curriculum emphasises the importance of cross-curricular learning and suggests a spiral approach to learning whereby learners need to re-visit concepts in order to progress and achieve. It is worth noting that ‘personal and social’ skills are one of the core competencies within this curriculum rather than specific to H&WB, an issue that has been raised by the Welsh H&WB AoLE group.

Scotland’s Health and Wellbeing curriculum documents align very closely with its national policy of *Getting it right for every child*, commonly known as GIRFEC, that emphasises the need to tailor the support and assistance that children, young people, and their parents are offered to ensure their wellbeing (Scottish Government, 2017). The approach uses eight areas of wellbeing in which children and young people need to progress in order to do well now and in the future. These eight areas are set in the context of the ‘four capacities’, which are at the heart of the Curriculum for Excellence (Scottish Government, 2012). Commonly referred to by their initial letters – SHANARRI –, the eight wellbeing indicators are safe, healthy, achieving, nurtured, active, respected, responsible and included. These eight wellbeing indicators, represented through the *Wellbeing Wheel*, ‘are the basic requirements for all children and young people to grow and develop and reach their full potential’ (Scottish Government, 2012, p.10).

Furthermore, similar to the aims of *Successful Futures*, this Health and Wellbeing curriculum focuses on developing for all learners: knowledge of social, physical and emotional health in their own lives; skills and attributes for successful participation; understanding of the health consequences of their actions; knowledge of how to keep safe in a range of circumstances. Progression steps are defined in five broad levels and recognise that children and young people progress at different rates. The documentation acknowledges that although children and young people generally develop knowledge, skills, and capacities in a certain order, there is no strict timetable for this. Progression statements are worded in a pupil first person language. Learners are expected to be involved in metacognitive processes around their learning and future expectations and aspirations. As noted elsewhere in this document, health and wellbeing is uniquely included as both a specific area of learning and as a responsibility of all teachers, with progression steps provided for both.

In Ireland, the recently reviewed Junior Cycle aligns in several ways with *Successful Futures*, whereas the Primary School framework does less so. The aspects in the Junior Cycle that align to Donaldson’s (2015) recommendations include the recognition that children and young people will progress at different rates and the purpose and nature of assessment. In terms of progression, assessment is described as mainly formative in nature and is specified to serve as reference points and not universal expectations of the performance of all children and young people at fixed points. There is also an explicit emphasis in the curriculum documents of the recognition of all children’s achievements, remembering that they will progress in different ways. Despite recent reviews of the curriculum, it could be argued that a clear definition of ‘progression’ and of how children progress is still missing from this country’s specifications, guidelines and supporting materials. Instead, the focus of any changes appears to be the assessment of progress with a shift from summative to formative assessment strategies. Abundant materials support teachers in underpinning teaching and

learning with effective AfL tools, yet guidance on what progress looks like is woolly. Finally, statements of learning/achievement outcomes use pupil-first language. Interestingly, in the Senior Cycle SPHE curriculum, students can select learning outcomes that are relevant to them, which tailors it to individual needs and interests. Also noteworthy is that teacher well-being appears in the Junior Cycle Framework: 'Wellbeing in school starts with the staff. They are in the front line of the work and it is hard for them to be genuinely motivated to promote emotional and social wellbeing of others if they feel uncared for and burnt out themselves.'

Australia's curriculum has a balance between skills and content, as recommended in *Successful Futures*. However, there seems to be a significant focus on achievement rather than progress. Concerns about the pressures of standardised testing remain. The health and physical education area seems to incorporate the notion of learning progressions and has conceptualised learning as a process of increasing sophistication in skills, knowledge, and understanding. There does, however, remain an aspect of 'horizontal learning' as standards apply to each year level, though the notion of development over time is captured through the use of 'bands' (Heritage, 2008). Teachers are encouraged to combine content descriptions across numerous sub-strands to plan opportunities for progression in learning which is tailored to their pupils' needs, interests and contexts, but also ensure that content is drawn from both strands. Miller (in Callcott *et al.*, 2015) notes the possible danger in using strands to structure H&WB, as this could be viewed as conceptually divided. She also notes historical tendencies in Australian schools to outsource provision of Physical Education as a result of lack of expertise, particularly in Primary schools. This leads to the risk that one strand is favoured over the other or that a disparity of resourcing means that schools are unable to provide high quality provision. This may risk children in less affluent areas being denied the opportunities needed to sufficiently gain the knowledge, skills and understanding outlined in the sequence of content. Given the socio-economic status of many children in Wales, this is also a pertinent warning here, too.

Health and Well-Being: Research Review

Nature of Progression in H&WB

Successful Futures (Donaldson, 2015:45) defines the Health and Well-being (H&WB) Area of Learning and Experience (AoLE) as including: subjects and themes from PE, mental, physical and emotional well-being, sex and relationships, parenting, healthy eating and cooking, substance misuse, work-related learning and experience, and learning for life. This review examines published research that might inform understanding of how young people's learning progresses within H&WB. The review groups some of the major themes listed in *Successful Futures* into four broad areas of health and wellbeing: physical, emotional, social, and intrapersonal. This review does not review research on important school-wide efforts to support health and wellbeing, as this is outwith individualised learning progressions.

Progress in well-being across nations has been linked to Gross Domestic Product (GDP) and, more recently, to employment, health and physical activity, productivity, subjective well-being, civic participation, risk and safety and life expectancy (Bradshaw, Hoelscher, & Richardson, 2007; Hall & Matthews, 2008; Trewin & Hall, 2010). However, empirical examinations of learning progression by individual learners in many areas of H&WB are underexplored. Studies on progression from other disciplines such as science document pupils' progression in learning core concepts (e.g., Black *et al.*, 2011) and may offer useful insights into identifying learning progression in H&WB.

When considering progression in H&WB, links can be made to research in child development. While child development differs from progression in learning within a domain, developmental stages are closely tied to achievement within H&WB: a young child typically cannot run, regulate emotions, navigate social situations or demonstrate self-control as well as an older child. Teachers may draw on knowledge of child development to understand what typical development looks like within the physical, mental, and social domains, identify when pupils seem to be developing atypically and provide support to help children progress. For example, as noted in Scottish documentation, 'Progression in many aspects of health and wellbeing will depend upon the developmental stage of learners as well as their social environment' (Education Services, NHS Greater Glasgow & Clyde, 2015).

Learning Progression within Specific Areas of H&WB

Heritage (2008:4) defines learning as the 'development of progressive sophistication in understanding and skills within a domain'. Progression within H&WB involves children moving from novices to experts in terms of their knowledge, skills, and competencies in relation to healthy lifestyles. It should also include supporting students' lifelong journeys to thrive and reach their future potential. When teachers have a clear, well-articulated roadmap of children's learning in H&WB and understand pupils' current achievement, they can decide where they need to develop next. As noted by Heritage (2008:2), 'learning progressions that clearly articulate a progression of learning in a domain can provide the big picture of what is to be learned, support instructional planning, and act as a touchstone for formative assessment.'

Theme 1: Physical

Within the ‘physical’ theme we reviewed learning progressions in physical education and physical literacy, nutrition and eating, and substance use. Donaldson (2015:45) refers to children and young people’s physical development as ‘physical well-being’, ‘physical activity’, ‘physical health’ and ‘physical education’ (PE). A more theoretical paradigm in this area is ‘physical literacy’ (PL) (Dudley, 2015; Edwards *et al.*, 2016; Robinson *et al.*, 2015). PL can be defined as ‘the motivation, confidence, physical competence, knowledge and understanding to maintain physical activity throughout the life course’ (Whitehead, 2010:11). The Welsh Government’s 2013 commitment to physical literacy was based on extensive research which established the links between physical development and cognitive, emotional and social competency and the significance of a holistic approach to ensuring life-long physical activity (Lu & Buchanan, 2014). As noted by Carse *et al.* (2017), conflicting schemas (related to education, psychology, health, and sport) must be addressed within the PE curriculum and considered when mapping progression.

Milestones for children’s physical development, particularly within the early years, are well documented and focus on an age-related linear acquisition of fine and gross motor skills (Sheridan, 1981; Bee and Boyd, 2013). However, other literature suggests that progression should be spiral where skills are acquired, developed and consolidated in a holistic approach (Woodfield, 2004). Research focusing on human development identifies issues (e.g. gender, puberty) which can impact on learning and progression but recognises that a lack of early proficiency may also be an inhibiting factor in the development of more complex skills in adolescence (Jurbala, 2015). This has been well documented within the disciplines of psychology, health and social sciences, less so within education. The rate of development will vary, depending on individual needs, experiences and opportunities (Thomas & Thomas, 2008). Other factors may impact on development and progression, for example motivation, effort and participation. However each of these factors is defined in multiple ways and assessment of achievement in these areas has often been subjective as measuring competence, understanding and application in these areas is challenging and contested (Callcott *et al.*, 2015).

A range of literature relating to PE focuses on the development of skills, in particular Fundamental Movement Skills (FMS), which are defined by Barnett *et al.* (2016) as ‘the most representative of salient skills that, if mastered, will give children the best possible chance to successfully and persistently participate in a range of health-enhancing physical activities’. Stodden *et al.* (2014) provides further evidence of the importance of such skills to health related fitness but recognises that these relationships may be dynamic and may change across childhood. However, the research indicates that *‘the development of object control skills in childhood may be important for the development and maintenance of HRF across childhood and into adolescence’*. (p. 231)

While there is much debate about the concept of FMS it is commonly accepted that these do not refer to culturally specific groups of skills but rather to a broad notion of fundamental movements that underpin all later context specific skills. Thus, Jarvis *et al.* (2018:90) in a study of children aged between 9 and 12 in South-East Wales make use of an established checklist which includes

skills from all categories of FMS (locomotor, manipulative, and stability) ... is valid for use with both children and adolescents... [and] contains eight individual FMS, including four locomotor skills (run, vertical jump, side gallop, leap), three manipulative skills (catch, overhand throw, kick), and one stability skill (static balance).

Jarvis *et al.* conclude that the children displayed FMS proficiency levels which were low and in line with results in other UK-based studies with similar aged children. In particular they report:

This is concerning given the importance placed on FMS in enhancing physical literacy and promoting health (Tompsett et al., 2014). It is generally believed that most children should master the less complex FMS (i.e., sprint run, vertical jump, catch, side gallop, and over-arm throw) by 9-years-old and more complex FMS (i.e., leap and kick) by 10-years-old. (p. 96)

This checklist has been developed in Australia for use in the regular New South Wales Schools Physical Activity and Nutrition Survey (SPANS); the most recent survey (Hardy *et al.* 2016) makes a similar claim for expected levels of attainment of FMS but does not clearly provide evidence for this.

children should demonstrate skill mastery of the less complex FMS (such as the sprint run, vertical jump, catch, side gallop and over-arm throw) by the end of Year 4, and more complex FMS (including the leap and kick) by the end of Year 5. (p. 388)

However the report in comparing achievement in the 2015 cohorts with those of 2010 provides clear evidence that it is possible to raise significantly levels of achievement in the skills included in these FMS (pp. 391 & 429)

Literature that focuses specifically on PE tends to concentrate on particular themes, e.g. movement, dance, gymnastics, games, athletics. Frameworks to identify progression exist in some of these areas. These are mainly skills-focused with links to developing knowledge and understanding in tandem (Ward, 2012; Griggs, 2012; Maude, 2009; Gagnon, 2016); however links are not always explicit and progression is mainly identified through exemplification of activities. Australian research suggests a 'backward design' model for identifying steps in progression, i.e. setting developmental goals for learning before choosing learning activities or content to teach (Callcott *et al.*, 2015). Haydn-Davies (2012:30) suggests that 'children need time to make progress' through practice, exploration, development and application and need to re-visit, again suggesting a spiral approach to consolidating learning.

There are developmental models that recognise the complex relationships between motor competence, perceived competence, fitness and physical activity and as such predict lifelong health trajectories. Recent research in the field of motor development evidences strong links between this area of development and improved attention, executive functioning and cognitive development as well as physical health and there is clear evidence of positive impacts on neural changes. (e.g. Pesce *et al.* 2017). Such research recognises that our holistic nature as embodied beings must imply that the development of the brain and body are inseparable and that, in consequence, the importance of movement in supporting a wide range of learning and well-being needs to be acknowledged: this requires more than experience of narrowly defined sporting activities but a variety of interactions with the environment and a range of affordances. Such research may, as yet, not readily inform the development of progression frameworks for use in schools.

Even when research focused on the health and well-being aspects of physical activity reports psychosocial and physical assessment instruments, these do not provide a complete and detailed overview of how children and young people develop holistically and tend to focus on linear skills progression. In contrast, Dudley (2015) suggests a conceptual model for identifying progression that focuses on metacognition, behaviour and motivation, which he believes to be three core elements of PL. This theoretically based model applies Bloom's Taxonomy and Hattie's 'visible learning' approach

to these core elements and leads to the development of ‘*A Rubric of Observed Learning in Physical Literacy*’ which covers 4 broad domains of movement and 4 dimensions as seen in *Table 6*.

Table 6. Rubric of Observed Learning in Physical Literacy

Domain	Dimension
personal and social attributes	unistructural
motivation and behavioural skills	multistructural
rules, tactics and strategies	relational
competencies	extended abstract

Adapted from Dudley (2015)

Whereas PE frameworks tend to consider meso- and micro-levels of learning and progression, Dudley’s model appears to take a macro- approach to life-long learning and progression in physical literacy. Further research is needed into the effectiveness of this model. Measuring progress is an important aspect of learning and progression and needs to be considered in terms of how children and young people establish the links between their physical, psychological and cognitive development (Wójcicki & McAuley, 2014).

The Australian Sports Commission has published detailed work on the development of physical literacy at https://www.ausport.gov.au/participating/physical_literacy. This concept is here defined as:

Physical literacy is the integration of physical, psychological, cognitive and social capabilities that help us live active, healthy and fulfilling lifestyles:

- *Physical – the skills and fitness a person acquires and applies through movement*
- *Psychological – the attitudes and emotions a person has towards movement and the impact these have on their confidence and motivation to move*
- *Cognitive – a person’s understanding of how, why and when they move*
- *Social – a person’s interaction with others and the environment in relation to movement*

Following a lengthy Delphi process which considered definitions, standards and a framework for physical literacy, the Australian Sports Council developed ‘*a Draft Australian Physical Literacy Standard (the Standard)*’. As can be seen in Figure 1 which illustrates this Standard each of the four domains is constituted of a number of elements. To support the application of the Standard, Development Milestones for physical literacy have been created. These represent aspirational milestones drawn from the Standard that promote lifelong participation in movement and physical activity. Each milestone includes suggested levels of proficiency for all elements within the Standard as a target for development to support a participation pathway for all. This is illustrated in Figure 2.

the PHYSICAL LITERACY STANDARD

At a glance



The Draft Physical Literacy Standard (the Standard) is a framework that supports the development of physical literacy in all people across the lifetime.

Physical literacy is about building the skills, knowledge and behaviours to help us lead active lives. It is the holistic learning that occurs through movement and physical activity integrating physical, psychological, social and cognitive capabilities.



The Standard supports individuals to identify and reflect on proficiency across four interrelated domains and plan development to support lifelong participation in movement and physical activity

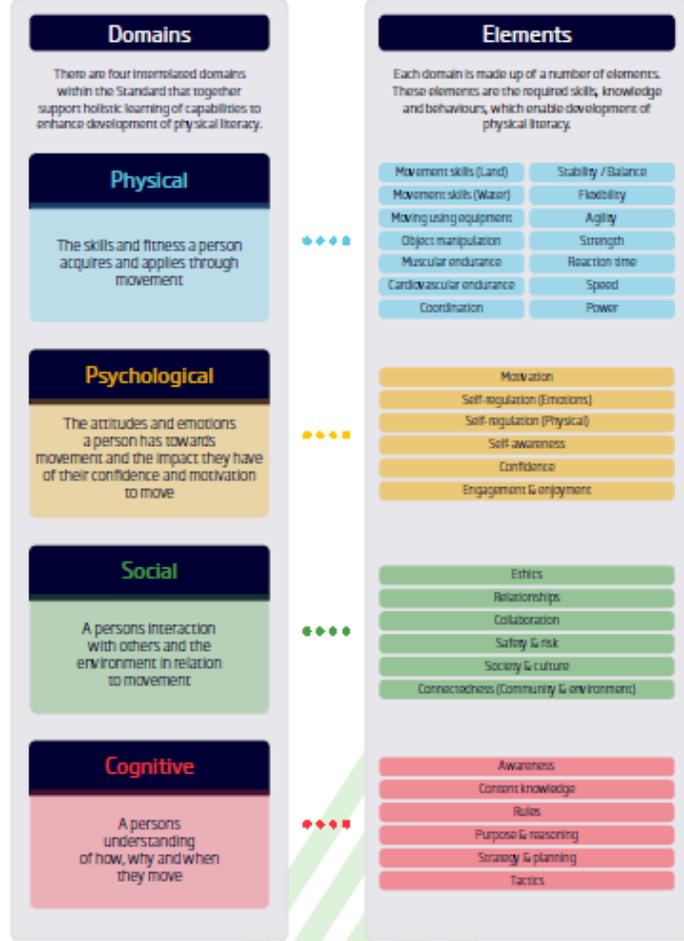
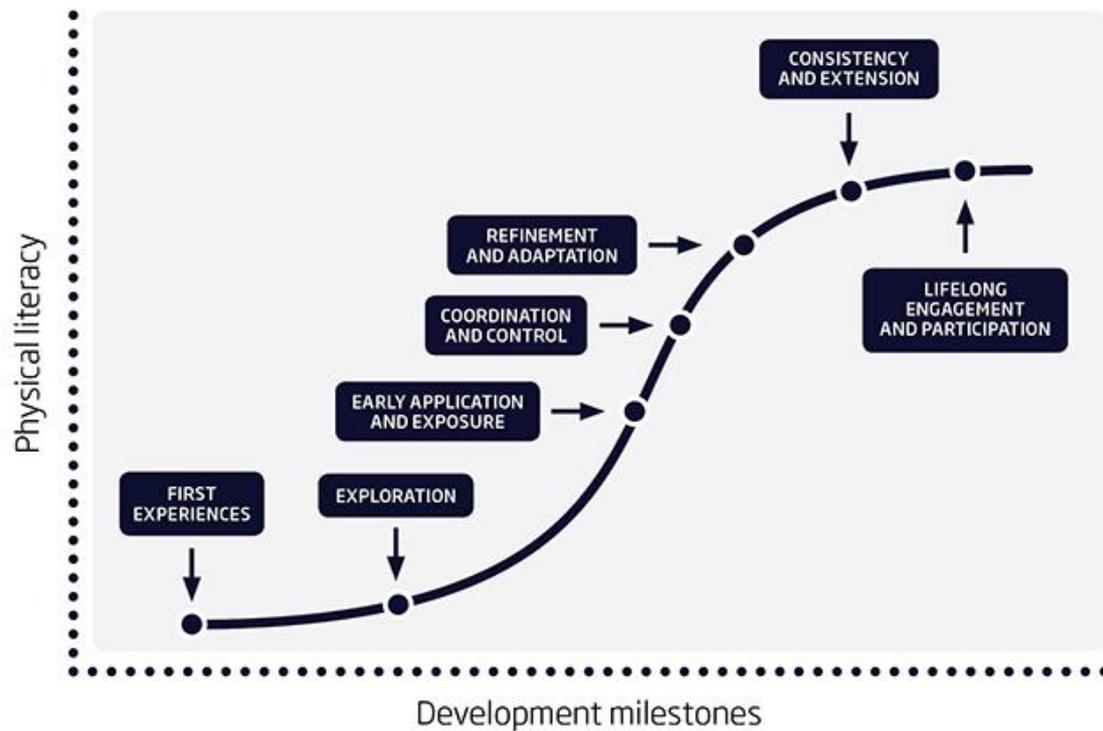


Figure 1: Australian Sports Commission: Draft Australian Physical Literacy Standard

Figure 2: Australian Sports Commission: Draft Australian Physical Literacy Standard



While this approach to developing a standard and associated milestones was developed within the context of sports, it provides a model which could inform the development of physical literacy and recognise progression in this within school education.

Nutrition and healthy eating are another important element of the body theme. Başkale *et al.*, (2009) propose nutrition education programmes appropriate for the developmental stage of preschool-aged children based on work by Piaget. Messages in nutrition education for young children in the preoperational stage of cognitive development should be simplified and concrete, use pictures and avoid abstract terms. Schools play an important role in teaching children about nutrition (Young, 1997); the food preferences of children as young as ages 2-6 are negatively impacted by the media (Borzekowski & Robinson, 2001), suggesting that school-based health programmes should begin early.

There are behaviour change models related to nutrition counselling outside of the school context. Prochaska and DiClemente (1982, 1992) propose a 5-stage model of change:

1. precontemplation – not intending to change in the near future
2. contemplation – considering a change but not making a firm commitment
3. preparation/decision – commitment to change and making small steps
4. action
5. maintenance – behaviour change sustained over 6 months.

Mhurchu *et al.* (1997) cite studies showing the success of this model. Parallel to how a progression model can support student learning, Mhurchu *et al.* (1997, p. 11) note that ‘to facilitate the successful movement of a person through the stages of change, the person’s stage of change must first be elucidated and then the appropriate processes of change should be applied.’ The stages of

change model has been shown to be useful across a range of areas beyond healthy eating, such as smoking cessation, reducing adolescent delinquent behaviours, and safer sex (Prochaska *et al.*, 1994).

Substance abuse, including alcohol and drug use, is another aspect of the body theme. Engagement with substance misuse is heightened in late adolescence and twenties (UNODC, 2012), which clearly correlates with the developmental stage. Neuroscientific research has made significant discoveries about the development of the adolescent brain; at this stage the thrill and pleasure seeking zones are heightened (Winston, 2017; Siegel, 2014). Reviews examining provision in schools for the prevention of substance misuse find that programmes need to be context sensitive to maximise impact (Bangert-Drowns, 1988; Dietrich *et al.*, 2015). Champion *et al.*, (2013) met with some success from using online resources and offering choice, a key component of effective well-being education (Bradshaw, 2015).

There does not appear to be research specifically on progression of learning in this area. Drug Abuse Resistance Education (DARE) (www.dare.org), a widely used programme in the United States, has different curricula for elementary, middle, and high school. The original programme was ineffective (Lynam *et al.*, 1999); research on the modified DARE curriculum shows mixed evidence of its effectiveness (Singh *et al.*, 2011). Topics appear to be introduced when they have relevance for pupils rather than as a progression of learning; at primary school the focus is on decision making and self-awareness, at middle school on risks, consequences and refusal skills, and at high school on media literacy and how to enjoy celebrations (e.g., prom, graduation) safely. It is worth considering whether there is an appropriate roadmap for developing understandings and skills in this area. Clearly there is also overlap with other areas of H&WB such as emotional wellbeing (e.g. managing anxiety, self-control) and relationships (e.g. peer pressure).

Theme 2: Emotional

Within the 'emotional' theme we examined learning progressions within mental wellbeing and mental health. Research literature relating to progress in mental wellbeing can be found across the disciplines of psychology, health and education. There is a lack of clarity about the definition of the term 'mental wellbeing' (used interchangeably with 'emotional' and/or 'social wellbeing') and differences between the three fields (Glover *et al.*, 1998; Barblett and Maloney, 2010). Health literature predominantly deals with mental wellbeing within the context of mental health; psychological research predominantly explores characteristics of good mental wellbeing. This field offers scales which can be adopted in settings, including schools, to measure the wellbeing of children. However, whilst there are some useful definitions of key terms, there is little research into the process or stages of the development of mental wellbeing by children and young people (Glover *et al.*, 1998; Liddle and Carter, 2015).

A number of frameworks regard progress in mental wellbeing as a continuum e.g. from maximum health to maximum disease/death. Antonovsky (1987, cited in Keyes, 2002) offers the salutogenesis model which views mental health as a dynamic process of developing and maintaining health; progress depends on how well individuals can cope with the challenges of life and how competent they feel to take care of their own health. This model of well-being development has been adopted

by curriculum frameworks, e.g. Australia’s Health and Physical Activity curriculum (Callcott, Miller and Wilson-Gahan, 2015).

Keyes (2002) offers a continuum of mental health from ‘flourishing’ to ‘languishing’, but does not describe progression points along that continuum. Flourishing is being filled with positive emotion and functioning well psychologically and socially – living the ‘good life’ (Keyes, 2002; Kern *et al.*, 2015). Kern *et al.*, (2015) stress the importance of focusing on the positive, rather than negative, development of mental wellbeing. Benson and Scales (2009), cited in Kern *et al.*, (2015) describe this process of ‘thriving’ as a dynamic interplay between multiple dimensions of a person and multiple developmental contexts. The wider environment impacts on the development of the child, from attachment with caregivers (Gus, Rose and Gilbert, 2015) to positive regard with teachers and peers (Glover *et al.*, 1998). Culture provides a context for children to develop their sense of identity and make meaning from the world around them (Glover *et al.*, 1998). Bronfenbrenner’s ecological systems theory (1979, cited in Gus, Rose and Gilbert, 2015) centralises the role of relationships and interactions in all aspects of a child’s development. The role of the adult (particularly the teacher) is vital in supporting children’s development of competencies related to mental wellbeing, echoing a Vygotskian approach to progress (Gus, Rose and Gilbert, 2015; Eames, Shippen and Sharp, 2016).

Children and young people with higher levels of emotional wellbeing have higher academic attainment and there is a close link between the ability to regulate emotion and the ability to learn (Barblett and Maloney, 2010; Durlak *et al.*, 2011; Lavis, 2014; Popordanoska, 2016). Eisenberg *et al.*, (1997, cited in Popordanoska, 2016) find that self-regulated children are able to better cope in unpredictable or stressful situations. Popordanoska (2016) argues that regulation is integral to healthy child development, leading children to ‘manage their own emotions effectively, empathise with others and make sensible decisions about their behaviours’ (p. 499). The capacity to control emotions appears during the early years with significant advances between the ages of 5 and 7, linked to neurological developments (Denham, Bassett and Wyatt, 2007 cited in Popordanoska, 2016). In mastering these competencies, children’s development moves from being controlled by external factors to autonomous responses based on internalised values, leading to caring, good decision making (Bear and Watkins, 2006 cited in Durlak *et al.*, 2011).

Finally, progress in mental wellbeing is unlikely to be linear in nature. Children may have ‘growth spurts’ which impact on neural development in the early and adolescent years and competencies are constantly evolving. Because of social and contextual framing of knowledge and skills in this area, development is unlikely to be uniform and may be uneven across sub-areas (Moore, Lipman and Brown, 2004; Gus, Rose and Gilbert, 2005). The early years offer a significant period where qualitative jumps can be made, but within the area of mental wellbeing concepts become increasingly more sophisticated over long periods of time. Progress may not follow normative standards of cognitive development and Kern (2015) warns that it is important not to confuse ‘normative immaturity’ with low wellbeing.

There is good evidence for the impact of outdoor education in general and outdoor adventure education in particular on development in several domains of well-being; this impact is not only immediate but longer lasting. Thus Williams and Wainwright (2017) in what they describe as an ‘advocacy paper’ (p. 496) conclude from a literature review of an extensive range of research:

‘Our review identifies pupil learning in the affective domain to be the most prominent impact of OAE, particularly in relation to developing a positive self-concept closely supported and

inter-linked with learning in the cognitive and physical domains. From this we identified the major theme for the model to be personal growth through adventure.’ (p. 496)

Drawing on a more limited range of evidence (statements from provider organisations as well as peer reviewed research), Natural England (2016) concludes:

‘There is now a substantial body of evidence which tends to demonstrate a positive association between learning which takes place in the natural environment and delivery of a diverse range of learning processes and outcomes, including cognitive outcomes and attitudinal, social and developmental outcomes in people of all ages.’

There is, however, little evidence directly related to progression, either in descriptions of outdoor learning itself or in descriptions of the impact of outdoor learning on other aspects of learning.

Theme 3: Social

The development of healthy relationships with peers is a necessary pre-requisite for the effective social functioning of individuals across the lifespan. Arguably, the roots of the social relationships we enjoy as adults lie in early childhood; infants are born to be sociable (Lawrenson 2011). Empirical findings have enhanced understanding of the development of children’s social relationships, as briefly summarised below.

There are large developmental shifts in children’s social participation in early childhood. For example, between the ages of 2 and 4 children’s play progresses through the stages from ‘unoccupied’; onlooker; solitary; parallel; associative; and ‘cooperative’ (Parten, 1932). Rubin, Watson and Jambor’s (1978) work later combined these findings with those of Smilansky (1968) in their description of the progression of children’s play through levels: ‘functional’, ‘constructive’, ‘dramatic’, and ‘games with rules’ (Smith, 2011).

Children who have difficulty in forming effective social relationships with their peers may differ in their capacity for Social Information Processing. Dodge, Pettit, McClaskey, & Brown (1986) devised a model of social interaction exchange, which involves five steps (encoding; interpreting; searching for the appropriate response; evaluation; and enacting) involving the interpretation of the behaviour and motivations of others. Some children who lack social skills may show a deficit in interpretation of others’ motives. Sutton, Smith and Swettenham (1999) have demonstrated that children’s maladaptive behaviour is not always enacted by children lacking in social understanding; in fact, aggressive children often perform well in Theory of Mind tests. These findings suggest that, while antisocial, aggressive children may lack empathy, they have a strong awareness of the weaknesses of others (Smith, 2011).

Therefore, when considering how children typically develop in terms of their interpersonal relationships with others, we may also consider their moral development. Much research has been conducted to understand prosocial and antisocial tendencies and their link to social cognition in the individual. Eisenberg (e.g. 1983), building upon previous work by Piaget, proposed a five-stage theory of prosocial development. As shown in *Table 7*, children’s prosocial behaviour follows a series of development steps, which could potentially be linked to a model of progression. Eisenberg’s stage theory has been supported by longitudinal research (Eisenberg *et al.*, 1991) and is seen as an improvement upon earlier theories of moral development (e.g., Kohlberg, 1981).

As children and young people enter primary and secondary schooling, peer relationships take on increasing importance. Among young children, friendships are marked by sharing common activities (Bukowski, Motzoi, & Meyer, 2009). In primary school, children increase in amount of time spent with peers, begin to share interests and beliefs, and have more intimate interactions (Hartup & Stevens, 1997). By adolescence, youth seek independence from authority figures and desire to spend more time with peers (Lam, McHale, & Crouter, 2014; Larson et al., 1996), and by ages 16-18, late adolescents perceive that friend support exceed both teacher and parent support (Bokhorst, Sumter, & Westenberg, 2010).

Table 7. Eisenberg's Stages of Prosocial Reasoning

Age	Stage	Description
Pre-school	Hedonistic orientation	Individual is concerned with self-oriented consequences rather than moral considerations. Reasons for assisting/not assisting another - consideration of direct gain to self, future reciprocity, and concern for others who the individual needs and/or likes (due to the affectional tie).
Late pre-school and primary school	Needs of others orientation	Individual expresses concern for physical, material; and psychological needs of others even though the other's needs conflict with one's own needs. Concern is expressed in simplest terms, without clear evidence of self-reflective role taking, verbal expressions of sympathy, or reference to internalized affect such as guilt.
Primary and some secondary school children	Stereotyped approval-focused orientation	Stereotyped images of good and bad persons and behaviours and/or considerations of others' approval and acceptance used in justifying prosocial or nonhelping behaviours.
Secondary school children	Empathic orientation	Individual's judgments - evidence of sympathetic responding, self-reflective role taking, concern with the other's humanness, and/or guilt or positive affect related to the consequences of one's actions.
Rare in children/youth	Internalised orientation	Justifications for helping/not helping based on internalized values, norms, or responsibilities, the desire to maintain individual and societal contractual obligations, and belief in the dignity, rights, and equality of all individuals.

Note. Descriptions are taken verbatim from Table 1 (Eisenberg et al., 1983, p. 850). Transitional stage of empathic orientation removed for brevity.

Theme 4: Intrapersonal

Within the ‘intrapersonal’ theme we focused on learning progressions within learning for life, decision making, and character development.

Research by the Centre for Real World Learning has identified the development of ‘Habits of Mind’ as a means of supporting and recognising progress in the domain of engineering (Lucas, Hanson, Bianchi, & Chippindall, 2017). To develop an ‘engineering mindset’ (p. 5), teachers identified six *Habits of Mind* which they strove to cultivate in their pupils. Subdividing the habits into twelve sub-habits allowed teachers to monitor pupils’ progress and recognise any small changes (p. 43). The research concluded that ‘dispositional teaching using appropriate pedagogies could develop in young people the habits of mind most valuable for engineers’ (p. 69). How pupils progress within a particular domain relies foremost on teachers’ approaches to teaching and learning. The research found that other learner outcomes were enhanced: ‘As well as acquiring more confidence and capability in the target habits, there were significant improvements in terms of mindset (perseverance, learning from mistakes, playful experimentation) and the development of confidence as independent learners’ (p. 71). Though these findings relate to engineering, they might offer an insight into how pupils progress in the domain of health and well-being in a way that prepares them for learning for life. The improvements identified in perseverance, learning from mistakes and independent learning resonate with the competencies of reflectiveness, resilience, resourcefulness and responsibility.

‘Character education’ is a problematic term, but research in this area is relevant to the competencies deemed critical by the H&WB AoLE, such as resourceful, respectful, and resilient. Although there is extensive research on how to assess mental health, emotional well-being and character traits such as resilience, there is little empirical evidence of how children’s capacities in these areas progress over time in educational settings although it is clear that schools have an important role to play in supporting children in this area.

As noted by Berkowitz (2002, p. 49), character is multifaceted, each trait has its own developmental trajectory, children develop at different rates, and the developmental sequence and profile of the components of character differ across individuals. Berkowitz (2002) describes the typical trajectory of the development of children’s character, using examples such as sense of self-control, guilt, and perspective-taking, and highlights four school practices that have empirical support for promoting students’ developing character. Closely related to the development of character are developing moral and prosocial reasoning (Eisenberg, 1983) and the development of children’s ability to delay gratification (Mischel, Shoda, & Rodriguez, 1989). Longitudinal research demonstrates that children who were able to delay gratification at a young age developed into more cognitively and socially competent adolescents, achieved higher academically, and coped better with stress (Mischel, Shoda, & Rodriguez, 1989). The New Pedagogies for Deep Learning Global Partnership (2014) provide a learning progression [map for character education](#), detailing what learners look like at five different levels, but it is unclear whether there is empirical support for this approach.

The Interrelated Nature of H&WB

Areas within H&WB are closely intertwined. For example, there is evidence of strong links between physical activity and wellbeing (Abdallah, Main, Pople and Rees, 2014; Lu and Buchanan, 2014). Lu and Buchanan (2014) suggest that physical activity can provide a meaningful context in which children can develop emotional competence. Emotions can be displayed through physical movement and interaction and physical activity can provide a setting for students to develop cognitively, socially and emotionally. Through physical activity, children and young people can understand that they are vulnerable to emotions and that it is possible to learn emotion regulation skills in such a context (Bergin and Bergin, 2012, cited in Lu and Buchanan, 2014). *Figure 3* is an adapted model of emotional development applied to physical activity. This framework posits progress as moving from understanding of self to being able to apply that understanding to others.

Figure 3. Bosacki's Framework for Developing Emotional Competence

Framework for Developing Emotional Competence		
Metacognitive Skills	Learning Goals	Learning Activities
Self Connections <i>Learning questions: What am I thinking? Why?</i>		
Intrapersonal understanding	Develop the ability to attribute mental states to self	Reflect on performance completed (e.g., games, dance, outdoor pursuit)
<i>Learning questions: What am I feeling? Why?</i>		
Affective	Develop an activity to trust, care, and accept oneself	Eurhythmy, guided meditation/mindfulness
Social and Transcultural Connections <i>Learning questions: What are others thinking? Why?</i>		
Conceptual role-taking	Understand the beliefs and intentions of others	Cooperative games, peer teaching and learning
<i>Learning questions: What are others feeling? Why?</i>		
Empathetic sensitivity	Understand the emotional worlds of others	Creative games, group dance, conflict mediation

(Bosacki, 2008 in Lu and Buchanan, 2014)

In summary, developing a road map of progression for H&WB helps teachers (and learners themselves) assess where learners currently are within their trajectories of learning and make pedagogical decisions about where they need to be supported to go next (Black *et al.*, 2011; Heritage, 2008). This review suggests that progression in H&WB is likely to be spiral rather than linear. Given the interconnections between children's physical, mental, and social development, it is worth considering that children's developing skills, understandings, and competencies (or difficulties in progression) in one area of H&WB, such as relationships, may in turn support (or stifle) their progression in another area, such as mind and body (*Figure 4*). The evidence for social and emotional learning programmes in schools highlight the importance of moving away from fragmented workshops and lessons toward more comprehensive and research-based approaches focused on 'whole school' changes (Greenberg *et al.*, 2003).

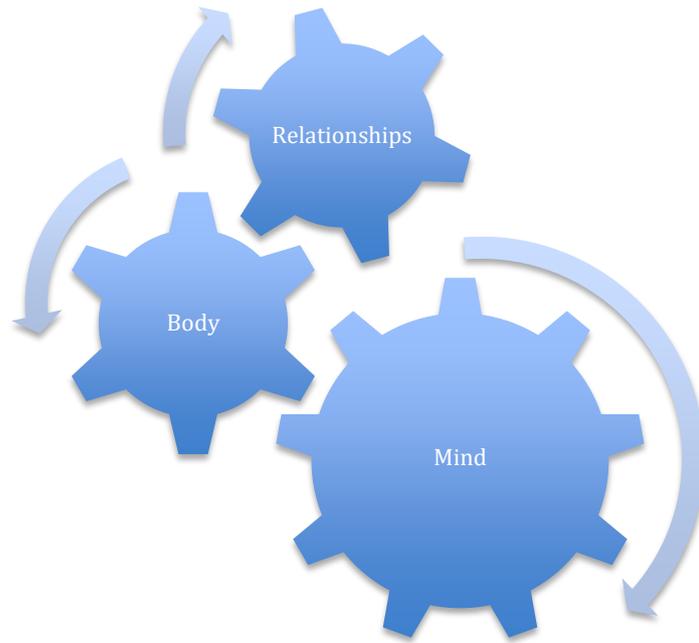


Figure 4. The cyclical and interconnected associations between children’s social, physical, intrapersonal, and emotional health and well-being

Section 4: Conclusions and Framework for Decision Making

Introduction

This section of the report is in four parts.

- Part 1 draws together major themes emerging from evidence analysed in Sections 1 and 2 of the report.
- Part 2 relates key messages to *Successful Futures*.
- Part 3 states fundamental principles which will underpin decisions within each AoLE Group.
- Part 4 provides evidence derived from the review relevant to key questions each AoLE will consider as they take decisions about the development of progression frameworks.

This **research** report is intended to support thinking across and within the AoLE groups as ideas of progression are developed and shared across Wales.

Part 1: Major themes

Progression matters for learning

The crucial function of the curriculum is to identify for each AoLE what matters in order to achieve the overall purposes of the Welsh curriculum, viz., to enable each young person to be

- an ambitious, capable learner, ready to learn throughout life;
- an enterprising, creative contributor, ready to play a full part in life and work;
- an ethical, informed citizen of Wales and the world;
- a healthy, confident individual, ready to lead a fulfilling life as a valued member of society.

Within the curriculum for each AoLE description of progression is important:

- for teachers to have an overview of the curriculum
- for learners to see a bigger picture and relate what they do on a day to day basis to a broader understanding of what matters
- as the basis of decisions about next steps in learning and pedagogy.

The research review suggests that, to achieve these three purposes effectively, descriptions of progression should be structured in terms of learning development such as beginning learner to expert in a domain, rather than in terms of predetermined statements of standards related to age or stage of education.

Descriptions of progression serve two main purposes

The research and national framework reviews suggest that descriptions of progression can usefully be of two broad kinds, interrelated but with the following separate purposes:

- **Broad statements providing an overview of the journey from beginning learner to expert in a domain.**
 - These descriptions summarise succinctly what matters over time within the domain.
 - They can guide teachers' large-scale planning over an extended period of students' education.

- They can show students and teachers how current work relates to longer term aims and so avoid students seeing their learning as fragmented and with little sense of clear purpose.
- **Detailed description of progression in learning within topics in a given domain**
 - Specifying the knowledge, skills and capacities which students acquire and practise in the process of working towards the learning described in the broad statements.
 - These detailed descriptions should enable the teacher and the learners to identify in assessment for learning dialogue what has been achieved and the next immediate steps to ensure further successful learning.

Evidence emerging from the research and frameworks reviews suggests that different countries have taken different approaches to the presentation of national curricula and assessment arrangements. In Wales, it will be important to consider how best to address both the above purposes in a way that would promote clarity, eg, allowing teachers and learners to have a sense of the overall learning journey using broad descriptors whilst more detailed information on learning related to the overall descriptors is contextualised within professional learning. Such an approach should create clear links between the national framework and local practice, providing an effective basis for

- developing teachers' discussion and deep understanding of learning
- exploring means of responding to the voices of learners and promoting their ownership of learning
- exploring the potential of assessment for learning and pedagogical action to ensure success
- demonstrating ways in which day to day work builds towards achievement of what matters in the AoLE, as defined in succinct broad curriculum descriptors.

Successful curriculum and assessment development is only possible if contextualised in professional learning.

Successful development and enactment of learning progression frameworks developed for Wales will depend on an inextricable relationship between development of curriculum and assessment and professional learning.

Part 2: Relating AoLE Review Findings to *Successful Futures*

The ideas presented in *Successful Futures* form the principles from which curriculum, pedagogy, models of progression and assessment in Wales are to be developed and offer a touchstone against which emerging proposals can continue to be evaluated. These principles serve as touchstones for the CAMAU project processes.

Progression is characterised in *Successful Futures* in terms of increasing achievement in a range of aspects of learning such as: breadth, depth, complexity, level of abstraction, mastery of techniques, sophistication, accomplishment and skill, application, challenge and independence and confidence: this increasing achievement will be evident for both disciplinary knowledge and wider competencies. *Successful Futures* recognises the diverse needs of learners and is clear that the curriculum purposes can be met in a wide variety of ways and allow for wide variations in the experiences of individual children and young people. Each child's learning continuum functions as a journey

through the curriculum; while the road map will be common to all learners, this journey should allow for variety of pace, diversion, repetition, and reflection, as appropriate for each individual to make progress in learning. These aspects of progression are all identified in the six reviews in section 2 as being visible to some extent and at some points in both the findings of research and national policy statements, but the review found no existing national system where all these issues had been fully addressed.

Similarly, learning is defined in *Successful Futures* through the concept of progression, represented as a coherent continuum without separation or interruption. The continuity that the new curriculum places at the centre of learning describes a holistic approach to the development of the individual, including experiential learning that is valuable in and of itself. The characterisation of progression embedded within *Successful Futures* as the vision for education in Wales is not fully evident in any one country’s policy or one theoretical model.

The Curriculum for Wales, therefore, is breaking new ground and will need to bring together multiple forms of evidence, for example, research where it exists as documented in the research reviews, teacher and pupil understandings of progression, samples of pupil work that show progression, and insights from other national frameworks, in order to create bespoke progression frameworks for each AoLE tailored to the needs of young people in Wales.

By revisiting the elements of the *Successful Futures* vision for progression outlined in section 1 of this report we can summarise relevant findings of the six reports in section 2 (see *Table 15*). Each of the 12 points summarised in this table may help inform decision-making within each AoLE group as well as across the system.

Table 15

	Element of the vision for progression embedded within <i>Successful Futures</i>	Summary comment from section 2 reviews
1.	Phases and key stages should be removed in order that progression can be continuous, increasing the potential for higher attainment by minimising transitions.	Evidence from research considered in some reviews supports this principle: if progression steps represent significant aspects of learning, then reference to specific ages/stages/phases is at least difficult, and maybe inappropriate. There exist some frameworks which do not prescribe attainment by age or grade.

	Element of the vision for progression embedded within <i>Successful Futures</i>	Summary comment from section 2 reviews
2.	Progression in each Area of Learning and Experience should be based on a well-grounded, nationally described continuum of learning that flows from when a child enters education through to the end of statutory schooling at 16 and beyond.	<p>Reviews report that some progression frameworks run through the whole of a child’s learning while others are specific to particular stages (e.g. primary, early secondary). The latter may be marked by discontinuity.</p> <p>Some research reviewed considered the whole continuum; other research reviewed investigated progression in the shorter term. The latter may inform the former.</p>
3.	Learning should be an expedition, with stops, detours and spurts rather than a straight line. Progression is a ‘road map’ for each and every child/young person’s progress in learning though some children and young people will progress further and/or faster than others.	Although some countries do outline tightly prescribed linear progression, there is considerable evidence from research that non-linear progression (sometimes ‘spiral’) is either to be expected or is necessary. This is recognised in some policies. The question of moving forwards and backwards in learning is raised in some reviews, as is the notion that there may be multiple paths of progression that different children may take.
4.	Progression Steps will be described at five points in the learning continuum, relating broadly to expectations at ages 5, 8, 11, 14 and 16 (staging points for reference rather than universal expectations – but expectations should be high for all learners).	Research considered in some reviews questions the value of progression steps which represent significant aspects of learning referring to specific ages/stages/phases as at least difficult, and perhaps inappropriate.
5.	Progression Steps are made up of a number of achievement outcomes linked to what matters in the curriculum and linked to the four purposes (‘I can’ statements). Literacy, numeracy, digital competence and wider skills should be embedded as well as elements of the Cwricwlwm Cymreig.	<p>The reviews provide evidence on the nature of ‘achievement outcomes’. Some progression frameworks contain many statements of achievement, an approach which presents both practical and educational difficulties: difficult to manage and detailed prescription is unlikely to be consistent with flexibility in individuals’ learning. Very broadly stated outcomes may be open to a breadth of interpretation and be perceived by teachers as unsupportive.</p> <p>First person learner statements are uncommon.</p>

	Element of the vision for progression embedded within <i>Successful Futures</i>	Summary comment from section 2 reviews
6.	Achievement Outcomes should not be a checklist of knowledge or skills and should incorporate effective pedagogy.	The reviews provide accounts of research evidence which points up the potential disadvantages of this ‘checklist’ approach. While some countries do adopt this ‘checklist’ approach there exist in at least some curricular areas in some countries models of progression which avoid this approach.
7.	Achievement outcomes should inform next steps and be framed as broad expectations achievable over a period of time (approximately 3 years).	While a number of countries monitored progression across periods of time longer than a year, there was less clarity about how achievement outcomes might explicitly inform next stages in learning.
8.	Achievement Outcomes should use ‘I can’, ‘I have’ (and ‘I am ready to’) statements to describe progression (not over specified or overly vague – this may vary across AoLEs).	The reviews found that use of first person statements is rare in the countries examined. Typically, third person statements referred to the past ‘The learner will have developed...’ or present ‘The learner is able to...’. There seem few statements that could be equated with ‘I am ready to...’
9.	Assessment (relevant and proportionate) should be focused on learning intentions and progression in relation to the four curriculum purposes and based upon the intentions set out in the Achievement Outcomes at each Progression Step within each Area of Learning and Experience.	There was some evidence that tensions could arise from seeking to incorporate within achievement outcomes both learning directly related to the discipline and evidence related to broader statements of learning such as the four purposes.
10.	In each AoLE the Achievement Outcomes at each Progression Step will need to encapsulate the most important aspects of learning, take account of the ways in which children progress in different kinds of learning and recognise what they need to be able to know and do to move securely to the next stage.	This issue is noted in some of the reviews: some progression frameworks reviewed would seem to be inconsistent with aspects of this aim, those which have many statements of achievement for example. In many countries statements of standards (or similar) focused on attainment to date and made little reference to next stages of learning.

	Element of the vision for progression embedded within <i>Successful Futures</i>	Summary comment from section 2 reviews
11.	Professional judgement is central to assessment (formative assessment with relevant summative information collected and used formatively within classrooms and schools).	The research and policy reviews undertaken here found less evidence for the use of assessment to inform school evaluation than for its use to inform learning.
12.	Schools should use teacher assessment of progression systematically, together with other sources of evidence, to inform their self-evaluation for school improvement purposes.	The reviews found less evidence for the use of assessment to inform school evaluation than the use of assessment to inform learning. This applies both to research and policy reviews.

Part 3: Principles

Building from the evidence emerging from the review of national frameworks and the research literature, a number of principles emerged that might be used to take forward the progression aspirations of *Successful Futures*.

Principle 1

The four purposes should inform and be evident in learning progression frameworks and achievement outcomes.

The six reviews in Section Two recognise that each AoLE has specific characteristics, reflected in both research and existing national frameworks. It will be important that learning progression frameworks in Wales recognise these characteristics. In some of the frameworks reviewed, the ‘main aims’ of the curriculum are articulated at the start and then elaborated in detail in a description of the curriculum or in a description of learners’ expected achievement (e.g. learning or achievement outcomes, standards, descriptions of progression) or in descriptions of both. A learning progression framework, the progression steps within it and associated achievement outcomes must reflect or encapsulate what the designers of the curriculum most value in the process of educating young people.

Principle 2

Progression frameworks must relate to what matters

Each progression framework should focus on the knowledge, skills and attributes which have been identified within each AoLE as the heart of successful learning in each domain and must encompass the four purposes of the curriculum.

Principle 3

Learning progression frameworks will place the development of learning at their heart rather than focusing on content or activities.

In the past insufficient attention has been paid to progression in learning with negative consequences for learners and teachers who perceive learning as fragmented and with little sense of

clear purpose. This leads to problems with practice in Assessment for Learning where understandings of where a learner is and where a learner might next progress to are commonly not linked into a bigger picture of what matters. Reviews emphasised the interdependency among pedagogic approaches, content and assessment in how progression is described.

Achievement outcomes at each progression step should encapsulate the most important aspects of learning, take account of the ways in which children progress in different kinds of learning and recognise what they need to be able to know and do to move securely to the next phase of learning in that framework.

Principle 4

Progression frameworks should serve two main purposes: broad statements and detailed descriptions

Each AoLE will develop broad statements to provide an overview of the learning journey over time and more detailed statements related to individual topics, themes or other aspects of learning. A little like Russian nesting dolls, the more detailed progression statements should be linked clearly to the broad progression statements and the broad statements should be derived from what AoLEs have identified as what matters.

Principle 5

National progression frameworks should enable and support schools to develop curriculum and assessment practices to suit local circumstances

It is important that broad progression statements are written in a way that allow schools to have the flexibility to ensure that they can relate the curriculum to local circumstances as they maintain high levels of challenge for all learners.

Principle 6

Successful curriculum and progression development requires professional learning

It is important that professional learning builds on available evidence: this involves bringing together research understandings with practice insights in the emerging policy context of Successful Futures. Professional learning will stimulate and support teachers to recognise, build on and develop their pedagogical insights and practice. There are opportunities for professional learning to be built around the development of the national programme rather than simply learning about the national programme. For example, the evidence base to build more detailed progression statements does not exist in all areas. One function of the professional learning programme should involve groups of teachers working together to help build a better evidence base whilst learning about the new curriculum and assessment arrangements.

Principle 7

Where possible progression frameworks should be informed by research evidence

Consistent with the policy aspiration of Successful Futures achievement outcomes should describe significant progression steps within a learning progression framework. Achievement outcomes should not be a checklist of knowledge or skills and should incorporate effective pedagogy; they should inform next steps and be framed as broad expectations achievable over a period of time (approximately 3 years).

Part 4: Evidence derived from the review which may help to inform decisions to be taken within each AoLE Group

Here, questions arising from the review related to the principles identified above were identified. These were offered as a stimulus for thinking within and across AoLEs as they made proposals to the Coherence Group on how progression frameworks might best be developed.

1. What are key features of research-informed progression?

Each of the AoLE reports refers to and supports Heritage's (2008) argument noted in section 1 that

'By its very nature, learning involves progression. To assist in its emergence, teachers need to understand the pathways along which students are expected to progress. These pathways or progressions ground both instruction and assessment. Yet, despite a plethora of standards and curricula, many teachers are unclear about how learning progresses in specific domains. This is an undesirable situation for teaching and learning, and one that particularly affects teachers' ability to engage in formative assessment.' (p.2)

Common conceptual features of progression frameworks were summarised in Section 1. Heritage (2008) argues that all models of progression conceptualise progression as a continuum of increasing sophistication of understanding and skills as young people move from 'novice to expert'. This concept is explicit in some of the national frameworks and may underpin others; however, there is a range of understandings of the nature of development from novice to expert. Some learning progression frameworks adopt a developmental view, inviting teachers to conceptualise learning as a process of increasing sophistication rather than as new bodies of content to be covered within specific grade levels; others detail content or very specific skills to be developed at each stage. It seems that approaches may vary from AoLE to AoLE: whether this is the result of different epistemological models or of tradition is unclear. No definition of learning progression contains references to grade or age level expectations, in contrast to many standards and curriculum models as learning is conceived as a sequence or continuum of increasing expertise.

Implicit in progression is the notion of continuity and coherence. Learning is not seen as a series of discrete events, but rather as a trajectory of development that connects knowledge, concepts and skills within a domain. Issues related to interconnection of knowledge, concepts and skills across a domain – or domains – are considered in the individual AoLE reviews; these demonstrate differences between AoLEs, some associated with the range and fit of the domains within each AoLE, some associated with differing balances among knowledge, skills and dispositions. Learning progressions are accommodating. They recognise that, commonly, learners do not move forward at the same rate or with the same degree of depth and progression. This issue was consistently acknowledged in each of the AoLE reviews. A number of existing frameworks do not appear to allow learners to move forward at different rates.

Learning progressions enable teachers to focus on important learning goals, paying attention to what a learner would learn rather than what a learner would do (the learning activity). The learning goal is identified first and teaching, pedagogy and assessment are directed towards that goal. 'Consequently, the all too common practice of learning being activity driven rather than driven by the learning goal is avoided.' (Heritage 2008 p.5). Clear connections between what comes before and after a point in the progression offer teachers a better opportunity to use assessment to

calibrate their teaching, to address misunderstandings or to develop skills, and to determine what would be important next steps to move the student forward from that point.

2. Who might key audience(s) be for Learning Progressions?

Learning progression frameworks provide teachers with an overview of the curriculum and provide learners with a bigger picture which allows them to relate what they do on a day-to-day basis to a broader understanding of what matters. The AoLE reviews set out the intentions for the articulation of progression and achievement that can be summarised as follows:

Achievement Outcomes and any associated description of learning progression should enable teachers to know what kinds of knowledge, skills and aptitudes they should aim to develop with learners at all stages of their learning journey. Achievement Outcomes should enable both teachers and learners to see the next steps to be taken.

The purpose, scope and structure of the progression frameworks within and across AoLEs will need to be clear to those who will use them prior to developing their content.

As noted in Section 1, Black *et al* (2011) make a strong case for the centrality of teacher assessment. This is well supported in the reviewed literature and international models where the potential for rich evidence of progression and better standards of validity and reliability than national or state tests are noted. However, each AoLE review highlights that, as Black *et al* (2011:106) suggest, attaining a position where teacher assessment fulfils this promise may require significant professional development. Lambert (2011) also raises the issue that the actual understanding (and perhaps even the actual relevance) of level descriptors is often questionable. Lambert cites the difficulties that teachers have in identifying work to exemplify certain levels, implying an uncertainty about what constitutes a level (and therefore arguably progression).

Heritage (2008) reminds us that many learning progressions are written primarily for teachers and tensions can arise if a single learning progression attempts to serve too many purposes. For example, problems can arise if it is assumed that the same degree of granularity (level of detail) will serve both long term planning and assessment to support immediate next steps. The degree of granularity in a learning progression designed to ensure that teachers have an overview of progress from novice to expert is very different from the degree of granularity necessary to enable teachers to support learning formatively: the latter would require a far more detailed analysis of progress in learning.

Learning progressions can also be written in ways which provide a framework for learners to understand their own learning journeys. Such models were not explicitly noted in the AoLE review reports. Heritage (2008) argues for the importance of learners being aware of longer term goals and the relationship between those and their day to day progress. Increased involvement in learning occurs when teachers share with the students what their longer-term goals are and enable them to participate in evaluating the degree to which they have met the goals.

3. How detailed should the descriptions be? (described in research literature as ‘granularity’)

There are different understandings about what is meant by progression in learning. It is important to make a clear distinction between learning progression as providing an overview of the long journey from emerging to expert in a domain and as detailed insight into the expectations of immediate progression in learning within a topic in a given domain. Both are necessary and inter-related but

different in their purpose, scope and level of detail. Both should help teachers and learners to see, and indeed to develop habitual awareness of, the appropriate next steps, as dialogue and assessment for learning take place during the learning process. Heritage (2008:2) suggests that greater attention should be paid to the different levels of specificity used to articulate the curriculum. Some curricula specify detailed objectives to be mastered at each grade in sequence. When the curriculum is described in this level of detail, ‘grain size’, it may be difficult to see how these many discrete objectives connect to bigger, organising concepts; learning can become little more than a checklist of things to be learned. Curricula organised around core concepts or ‘big ideas’ and sub-concepts offer better opportunities for a stronger relationship between formative assessment and learning goals. However, Heritage (ibid) argues that care also needs to be taken with this approach for too often ‘big ideas’ are not brought together as a coherent vision for the progressive acquisition of concepts and skills. Without a coherent vision the potential for teachers to have a broad overview of learning in a specific domain is restricted.

The AoLE reviews include some detail about specific models for progression which teachers may employ; these may be domain-specific or applicable more generally.

All of this implies the need for consideration not only of the determination of the central aspects of achievement in the AoLE but also of the appropriate (that is, helpful and manageable) levels of specification of description of achievement. If the central aspects are described in ‘lean’ statements, then it will be necessary to consider the most appropriate format: e.g. succinct broad statements, possibly with a small amount of expansion; or narrative descriptions. It will also be necessary consider where more detailed guidance and support for teachers about progression, next steps and pedagogy should be located and how this could be used? If descriptions of achievement are detailed, it will be necessary to consider how these can be used effectively to support assessment for learning and progression, given the issues about manageability which have been raised.

There is evidence from several countries reviewed that exemplification of standards through learner work significantly reduces the level of abstraction. Descriptive statements alone do not always make clear what performance/behaviours at a given level would look like in a classroom and this is a potentially powerful way of addressing this issue. The use of such material to inform professional learning requires consideration. Several of the reviews raise the issue of the most appropriate location of detailed guidance for teachers about progression, next steps and pedagogy: within the curricular/progression framework itself or in associated material available to teachers as part of their continuing professional development? Related to this is the question of how such material can be most effectively used to support professional learning.

4. Steps in a learning journey?

The issue of relating learning progression frameworks to ages, stages or even phases has already been referred to. Research argues that this should not be the case on both fundamental and instrumental grounds. As the groups develop an empirically well-founded learning progression framework where achievement outcomes describe learning necessary to make further progression, how will they address the issue of descriptions of achievement which are related to phases?

The reviews of international frameworks demonstrate how some frameworks seek to differentiate the performance of learners’ who are at the same chronological or grade stage by using a grading system or mark. This may take the form of such phrases as *Not Yet Within Expectations*, *Meets*

Expectations (minimally), *Fully Meets Expectations* and *Exceeds Expectations* or a mark such as: 1 = *limited effectiveness*, 2 = *some effectiveness*, 3 = *considerable effectiveness* and 4 = *a high degree of effectiveness or thorough effectiveness*. This matter may be related to the level of specification or the number of stages of development employed in a framework. A possible justification for the kinds of grading or marks systems shown may be that very broadly defined frameworks do not give teachers and learners enough detail in deciding on next steps in learning. An obvious potential disadvantage is the danger of labelling learners and the associated motivational issues. Such grading approaches are usually linked to statements of standards which themselves may be linked to age and stage; there is powerful evidence that such approaches divert teacher and learner attention away from learning to simplistic models of attainment.

The reviews demonstrate that existing frameworks can provide ungraded descriptions of complex achievement and interacting skills. These may be supported by desirable guidance and support for pedagogy and assessment for learning through additional associated material and by encouraging continuing professional development activities.

5. How might the progression frameworks relate to previous frameworks?

During the process of review it was noted that the former National Curriculum in Wales and the Literacy and Numeracy Frameworks used progression frameworks which took some account of pupils' varying pace of progress. This raises the prospect that there may be some value in looking at earlier local models of curriculum and learning progression in the writing of new achievement outcomes. However, it was also noted that practice must align with the new intentions for the curriculum in Wales: in particular, the requirements to address the four purposes; the fundamental importance to learning of ensuring that curriculum, pedagogy and assessment are coherent and aligned; and the need to move from backward focused statements of standards to forward focused statements of achievement. This has implications for the development of learning progression frameworks which support effective learning.

While considering descriptions of performance it is worth noting the Review of the National Curriculum in England (2010-2014) was highly critical of the previous levels-based system. In this context, best-fit judgement failed to recognise major gaps in children's knowledge and contributed to superficial coverage of the curriculum because the levels-based system encouraged learners to move on to new content without secure grasp of key areas.

6. Relationship with literacy, numeracy and digital competence frameworks?

The Languages, Literacy and Communication review notes that *Successful Futures* explicitly states that the achievement outcomes and progression framework for Languages, Literacy and Communication should take appropriate account of the national Literacy Framework. There are therefore important decisions to take about how the development of the Languages, Literacy and Communication learning progression framework may relate to the Literacy Framework. Parallel issues will apply in the articulation of progression for numeracy with Mathematics and Numeracy and for digital competency and the computing aspect of Science and Technology. All AoLE groups will wish to consider how achievement in these three frameworks and in other cross-curricular aspects may be reflected in their learning progression frameworks.

7. **What view do we have of the developing child and young person?**

The place of child development within the domain and associated expectation for progression in learning is raised in several reviews. Pellegrino (2017) suggests that although learning progressions are not developmentally inevitable, they may be developmentally constrained. This issue was noted in some AoLE reviews and was of particular importance for the H&WB AoLE review. It may be that this issue is more broadly applicable, especially in the earliest years of learning. When considering progression (e.g. in H&WB), links have been made to research in child development. While child development differs from progression in learning within a domain, developmental stages are closely tied to achievement within H&WB: a young child typically cannot run, regulate emotions, navigate social situations or demonstrate self-control as well as an older child. Teachers may draw on knowledge of child development to understand what typical development looks like within the physical, mental, and social domains, identify when pupils seem to be developing atypically and provide support to maintain the progress of all learners. Progress in domain-related learning relates to developing metacognition and self-efficacy; this observation underlines that there is a complex relationship between children's progress in the H&WB and their progression in other AoLEs.

While it is argued that research undertaken on cognition and learning has led to the emergence of highly developed descriptions of progression in particular curricular areas, specifically science, reading and mathematics (Pellegrino 2017), the evidence from several of the AoLE reviews is that this is often at a micro or detailed level (e.g. one topic) rather than over a longer time scale. Learning progressions can be developed through tracking the actual development of thinking/learning during a sequence of learning or topic. The premise of these 'learning progressions' is that they allow the teacher to understand the ways in which learners progress in their thinking or skill development in order to track progress. This approach would seem to have the potential to produce evidence based learning progressions which would act as a usable version of level descriptors and would support a genuinely formative process of checking current attainment against a known progression and the setting of targets for improvement. However, it should be noted that such progressions are extremely complex (taking 2-3 years to produce) and that a large number of these may be needed in order to cover 'big ideas' within any curriculum area.

Children and young people are beings not becomings. The four purposes describe what all children and young people should become and achieve through statutory education as well as how they are perceived and positioned to experience the curriculum. *Successful Futures* (p.22) argues that:

*'statements of curriculum purpose need to be formulated carefully so that they have integrity, are clear and direct and become central to subsequent engagement and development; in that way they can **shape the curriculum and suffuse practice** [authors' emphasis]. Common understanding of why we are doing what we are doing is a powerful starting point from which to determine what it is we need to do and how we are going to do it'.*

Recommendation 2 (p.23) states:

'The school curriculum should be designed to help all children and young people to develop in relation to clear and agreed purposes. The purposes should be constructed so that they can directly influence decisions about curriculum, pedagogy and assessment'.

The purposes therefore tell us about how children should experience their curriculum day to day. Each child's learning continuum functions as a journey through the curriculum; while the road map will be common to all learners, this journey should allow for variety of pace, diversion, repetition, and reflection, as appropriate for each individual to make progress in learning. There is therefore a greater responsibility for schools and teachers to ensure that learning is child-centred, since the details and pace of each journey are set according to the requirements of the learner, always in order to ensure challenging, sustainable and effective learning takes place.

As children and young people move through the education system in Wales they must not be viewed as *aiming towards* the four purposes, but rather must be seen *as living the four purposes* during their time at school – the purposes, then, are not simply goals to be reached at the age of 16, but are also descriptions that inform how we 'position' children throughout their education in schools in Wales.

8. What view do we have of pedagogy?

The notion of 'child-centred' learning and children 'working at their own pace' can imply a pedagogic role that is facilitatory; that is, the role of the teacher is to facilitate the child or young person to lead their own learning or set the pace and/or direction of this learning; the teacher does not take a proactive role in progressing this learning. It is suggested here that such a view of pedagogy in the new curriculum will be unhelpful. Wales has experience of significant curricular innovation in the shape of the Foundation Phase, introduced in 2008. Recent evaluations (Siraj 2014; Welsh Government 2015) have indicated that poorly understood models of appropriate pedagogy hampered the success of the innovation that, where effectively implemented, has had positive impact on learner outcomes.

Successful Futures provides clear guidance on what is meant by appropriate pedagogy:

Pedagogy is about more than 'teaching' in the narrow sense of methods used in the classroom. It represents the considered selection of those methods in light of the purposes of the curriculum and the needs and developmental stage of the children and young people.

Teachers will draw on a wide repertoire of teaching and learning approaches in order to ensure that the four purposes are being fully addressed and that all learners are engaged and the needs of individual learners are recognised. Teachers will avoid labelling teaching approaches; rather they will consider their appropriateness in terms of purpose. Approaches will encourage collaboration, independence, responsibility, creativity and problem solving in authentic contexts which will draw on firm foundations of knowledge. Approaches will employ assessment for learning principles and make use of scaffolding, modelling and rehearsal.

In order to enact the vision set out in *Successful Futures* it may be helpful to signal *intentional pedagogic approaches* throughout. That is, the teacher, with the support of appropriately articulated progression frameworks, undertakes to work intentionally with each learner in the direction of progress and to maintain a focus on pace and ambition throughout this process. AoLE groups will wish to consider how this approach may be facilitated by the learning progression frameworks which they develop.

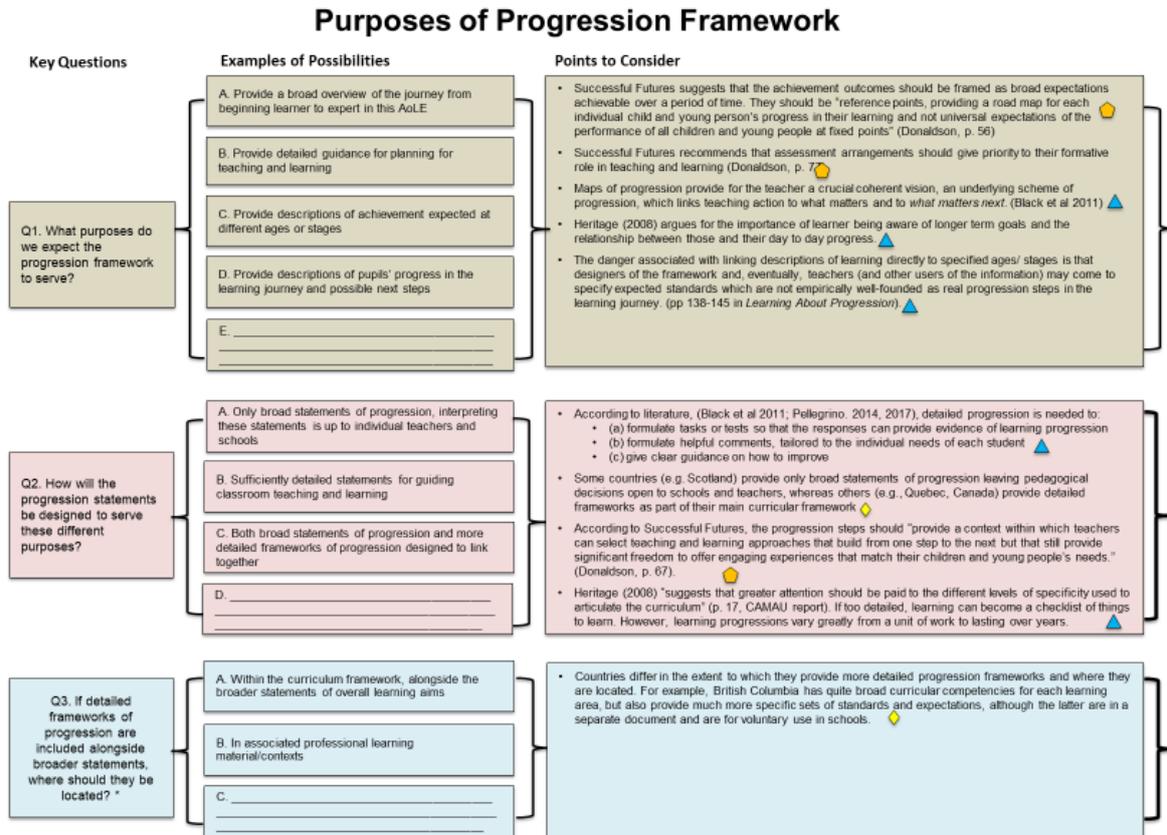
In conclusion

This research report, following the first seven months of work of the CAMAU project, is offered to the education community of Wales and, specifically, to the Pioneer Networks in the spirit of subsidiarity as set out in *Successful Futures*. The report reviewed evidence from a range of national curriculum and assessment frameworks and evidence from research on progression both as it relates to curriculum and assessment and in the context of the six Areas of Learning Experience. In this final section key ideas emerging from the various evidence sources were used to develop principles. These principles may be used in a number of ways, eg, as a touchstone to check that as ideas develop they remain consistent with original aspirations. Analysis of the evidence pointed to a number of possible alternative approaches to the design and development of progression frameworks. To remain consistent with the concept of subsidiarity, these alternatives were offered as decisions to be taken. Each decision was structured around questions to be addressed, each supported by available evidence to promote better informed decision making. Each AoLE considered carefully the evidence available and made proposals to the Coherence Group. In the majority of cases it was possible for groups to agree a single proposal, however, in a small number of cases, two alternative proposals as to how a particular issue should be addressed were submitted from the same group. An example of a decision tree can be found in *Figure 13* below. Further examples of decision trees from different AoLEs are provided in Appendix 3.

The decision tree approach was very well received by AoLE members and the proposals submitted to the Coherence Group provided them with a strong evidence base from across AoLEs to allow collective, well informed decisions to be taken.

The next and final CAMAU research report will begin by examining the agreed progression framework and will consider the development and enactment of its principles as they begin to emerge in practice.

Figure 13: Decision Tree



* Q3 follows from Q2 and is only relevant if the preferred possibility for Q2 is B or C

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Appendix 1

CAMAU Project

International Policy Review Guidelines

STEP 1: Notes on progression for the country

Name of Country:

Year the curriculum was written/published/updated:

Website(s) where materials were found:

How is the curriculum structured? E.g., Is there a curriculum document as well as achievement outcomes or are these combined? Are there supporting materials for teachers? Is there one curriculum across all ages or is it split into primary and secondary?

How many stages/levels/benchmarks are included? Are they aligned with specific years?

What components/subjects/themes related to the AoLE are covered in this country's curriculum?
What seems to be missing?

How does the documentation define 'what matters' in this AoLE? Does this include content knowledge, competencies, skills, etc? What is the balance between knowledge and understanding, skills, attributes, and capabilities?

How is progression defined? Is it defined explicitly or implicitly? You may need to look outwith the statements themselves at the supporting documentation and introductions to the curriculum. Give some specific quotes or examples.

Are key progression points identified as expected standards for specified ages? Or as descriptions of knowledge, skills, capabilities needed for further progression in learning? Or is it some combination?

What form do statements of progression take? Are they detailed or broad? Are they in pupil-first language or written for the teacher? Provide some examples.

To what extent does the curriculum for this AoLE seem to align with what is written in Successful Futures? Does it seem to align with Donaldson's vision for progression? Give some examples.

Is there anything else worth noting? E.g., Is there anything particularly unique, innovative, or useful about this curriculum? Are there any aspects of the AoLE that are included in cross-curricular aims? Was there anything within this portion of the curriculum that seems to have connections with any other AoLE?

STEP 2: Summary Statement

Please write a summary of how this country has tried to describe or incorporate progression into their curriculum for the AoLE. Please include your own evaluation in terms of its potential advantages and disadvantages as an example of incorporating progression for this AoLE. This summary should be less than a page (less than 500 words) but can of course be shorter or longer as needed, and should complement the notes you have taken above.

STEP 3: Collating Across Countries

We will combine the information you have provided for each country into one document and write an overall summary statement comparing across the countries. We will then send this final document out for your feedback to make sure your country is represented appropriately and to seek your insight on

Appendix 2

Guidelines for H&WB Literature Review

Aim:

To describe what published evidence exists that might inform our understanding of how pupils progress within the domain of health & wellbeing

Scope:

Successful Futures defines the scope of this AoLE as: “This Area of Learning and Experience draws on subjects and themes from PE, mental, physical and emotional well-being, sex and relationships, parenting, healthy eating and cooking, substance misuse, work-related learning and experience, and learning for life. It is also concerned with how the school environment supports children and young people’s social, emotional, spiritual and physical health and well-being through, for example, its climate and relationships, the food it provides, its joint working with other relevant services such as health and social work, and the access it provides to physical activity.”(Successful Futures, p. 45). Our review, in line with Successful Futures, will aim to cover these core areas of the field. In accordance with the health and wellbeing report that the AoLE presented in June 2017, we will also include a brief overview of character education, which is somewhat aligned with the competencies that the teachers deem important: readiness, reflectiveness, resilience, respectfulness, resourcefulness and responsibility.

Thus our review will examine what evidence exists on progression in pupils’ learning related to the following themes:

- physical education, physical literacy, physical wellbeing (Nanna)
- mental wellbeing and mental health (Sarah Stewart)
- healthy relationships, peer relations, sex, and parenting (George Wardle)
- nutrition, including healthy eating and cooking (Kara)
- substance misuse, abuse, and personal safety (Sue James)
- work-related learning and learning for life (Rachel Bendall)
- character education (Kara)

Stage 1: Finding Literature:

It is important to be systematic in the steps that we take so that we can communicate to others how we conducted our review so that it can be evaluated by others, be replicated if desired, and also to allow for consistency across the members of the group. In order to do this, we should follow the following guidelines:

- 1) Independent search with keywords: It is recommended that we use Ebscohost or a similar academic database and keep track of the keywords that we have used to search for literature. Certainly we should search for “progression” but be aware that it may not be a word that is commonly used so additionally we may look for similar keywords such as “child development” or “developing” + various keywords for the topic we are exploring. When looking through results, we can scan the title and abstracts to decide what may be relevant, and we should keep a running list of the sources that we plan to review. If a source sounds particularly relevant but one of our Universities do not have access we can use interlibrary loan to try to obtain the relevant source.
- 2) Expanded search: The next set of searches will involve exploring the work and authors that are cited within the original sources we have found. For example, one paper (such as the article by Margaret

Heritage) may cite very useful literature that we can then follow up with, or we may start to recognize some names of authors who are experts in our area and can do an author search within Ebscohost to explore their work. Again, we should keep track of the process we have used and keep a running list of the sources we plan to review.

- 3) Advice from Professors: We will ask our professorial consultants to also recommend papers or authors that would be relevant for our purposes.
- 4) Collegiate advice: If we come across something that may be relevant, share with one another. If we have a colleague who studies this topic, ask them. Keep track of which sources were recommended in this manner.

During this phase it is important to consider screening and excluding any papers that seem less useful. We may want to keep a list of all the papers we have considered and the ones we end up using for the review. Given our short time frame, the important thing is that we read enough core pieces in the area in order to begin describing with some confidence what is known in this area of progression.

Stage 2: Analysis for the Review:

Our literature review should be a synthesizing statement about the broader literature within a particular area that answers some critical questions related to progression (rather than just a summary of individual articles). It should be clear that this is an informed perspective and evaluation of the field, citing relevant sources for each point that we are making. When it is helpful we can use quotes and specific examples from the literature, or to create tables to help make points of comparisons or contrasts.

Next, using the papers that are relevant, we will want to report/describe substantial elements from the papers, consider the extent to which they inform our work of progression, note similarities/differences across the papers, and at the highest level, consider the sources themselves and their relevancy.

When reviewing the articles, we may wish to consider the following questions:

- What evidence exists that informs our understanding of progression in this domain?
- In what ways have researchers described how children develop their knowledge/skills/capacities in this area? In other words, how do they model progression? For example:
 - o According to the literature, are the changes that children make qualitative jumps (with big steps at key moments) or more gradual sophistication (children seen to gradually add more of the same skills over time)?
 - o Is progression linear or could children move backwards and forwards?
 - o Do the researchers see children's progression as something that can be impacted on by the environment and open to change, or is it fixed?
 - o Is there one path that children seem to take in this area, or are there multiple paths? Do the researchers acknowledge that children may have different paths based on the context in which they grow up/learn?
 - o Are there different models of progression for the same topic and to what extent do they overlap, complement, or conflict?
- To what extent does the literature focus on how children develop in terms of their knowledge/understandings vs. behaviours/skills?
- To what extent is the progression that is described at a micro-level (for one lesson/unit) or at a macro-level (across multiple years)?
- What ages are covered when describing how pupils learn in this area? Which ages seem to be missing or receive less adequate attention?
- What is the theoretical background of the relevant literature (e.g., education, public health, psychology, etc.)? We may get some insight by looking at the journal it is published in as well.

- Importantly, what seems to be missing in this area? What do we still not know? Is there not a lot of research on this topic?
- To what extent could the research in this area help to inform models of progression that could be useful for teachers and for learners?
- What can we use from this literature for our purposes of writing a framework of how children progress in this area?

This literature review will serve two purposes. 1) to inform teachers about what is known in the literature that may inform their understanding of progression in this area, 2) to be a systematic review that would be appropriate for journal publication.

Stage 3: Writing the Review:

What will the overall review look like? Proposed outline for the literature review:

- A. Introduction with description of H&WB for Wales based on Successful Futures
- B. Literature reviews for each of the sub-areas we propose to examine
- C. Overall summary comparing and contrasting literature across areas as well, as well as evaluation of the scope and depth of literature on progression in the H&WB area, and unanswered questions
- D. Implications and issues, based on the literature, for creating assessment frameworks of progression in H&WB

How long should the review be? The overall review for our AoLE will likely be approximately 6-10 pages but could be up to twice as long if we happen to find a lot of relevant literature. That means approximately 1-2 full page per sub-area (about 500-1000 words if using Arial 12pt single spaced), with an understanding that some will be longer and others will be shorter depending upon what is or is not available.

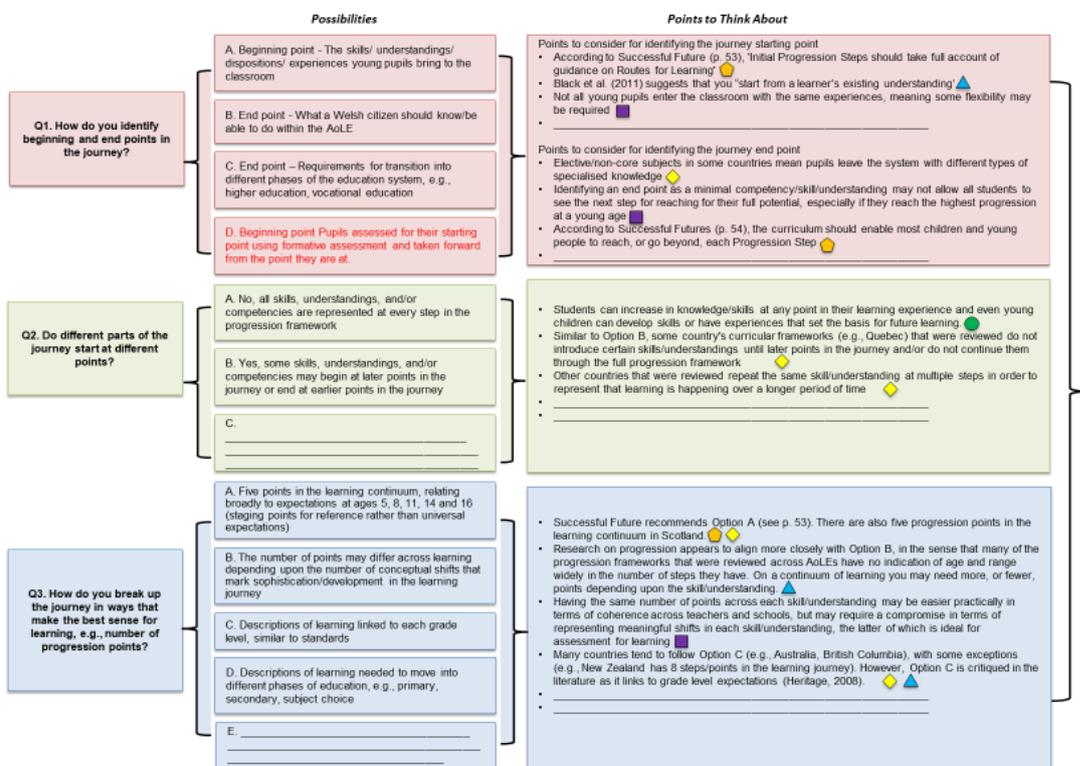
Most of the work is done before writing, through coming up with a list of relevant sources, reading the literature, taking notes, and reflection and synthesis. Our point is not to be comprehensive but to read enough core pieces in each area in order to begin describing with some level of confidence what is known in this area. What we end up writing is a concise critique and summary of the literature in this area. Readers can refer to our cited sources if they want to learn more.

How many sources should I read? Again this depends strongly on each of our topics and what is available in the literature. We may be making several points that need to be justified by sources but the sources are only peripherally related to the main topic in which case we could have dozens that we are drawing upon for each part of the review. Or we may find just 3 or 4 highly relevant sources that cover the topic in great depth that we are focusing on and deem this to be sufficient for the sub-area.

Appendix 3

Mathematics & Numeracy: Points in the Journey

Points in the Journey



Choice and Rationale

Rationale for Choice of Possibilities for Q1
Beginning Point - The teacher needs to use formative assessment to acknowledge what the learner has already achieved/ experienced / dispositions so they can assess the 'readiness' of the learner to continue their journey. (Singapore).
End point - Step achieved / reached towards the Four Core Purposes and the signal for where the next step will be.

Rationale for Choice of Possibilities for Q2
No, all skills, understanding, and/or competencies are represented at every step in the progression framework due to the way maths builds on the previous step. Each step is appropriate to the child's stage of development and introduced through play etc as appropriate. This is true for all 'What Matters' within the Maths and Numeracy AoLE.

Rationale for Choice of Possibilities for Q3
Choose B - Discussion - evidence from practitioners during CAMAU research. We agree.
Point A - Discussion - Why are the ages chosen? 5 allows a child to settle into primary at the end of Reception. 8 acknowledges the infant / junior school situation and allows children to settle in a new school but then 11 when children move from primary to secondary is separating the two stages again. Dislike the clear distinction and not a journey more of a reaching different end points.
Point C - Discussion - Teachers needs guidance children do not need to be labelled and Welsh government label schools.
Point D - Discussion - Different phases of education separating us too much still 'Not our problem' idea.

AoLE proposal

Example: The aspect of the learning journey should be structured as... because...

Question 1 How do you identify beginning and end points in the journey?

The group proposes...

The teacher needs to use formative assessment to acknowledge where the learner is at, at the beginning of the journey. This will need to identify what the learner has already achieved/ experienced and the dispositions they have so they can assess the 'readiness' of the learner to continue their journey. (Singapore).
Step achieved / reached at the end of the journey should be measured against what steps the learner has taken towards the Four Core Purposes and the signal for where the next step will be.

Question 2 Do different parts of the journey start at different points?

The group proposes...

All skills, understanding, and/or competencies are represented at every step in the progression framework due to the way maths builds on the previous step. Each step is appropriate to the child's stage of development eg introduced through play etc as appropriate. This is true for all 'What Matters' within the Maths and Numeracy AoLE.

Question 3 How do you break up the journey in ways that make the best sense for learning eg number of progression points?

The group proposes...

The number of points may differ across learning depending upon the number of conceptual shifts that mark sophistication/development in the learning journey. This is evidenced from practitioners during CAMAU research. This is continuous formative and summative assessment rather than just a point at a certain age for each child.

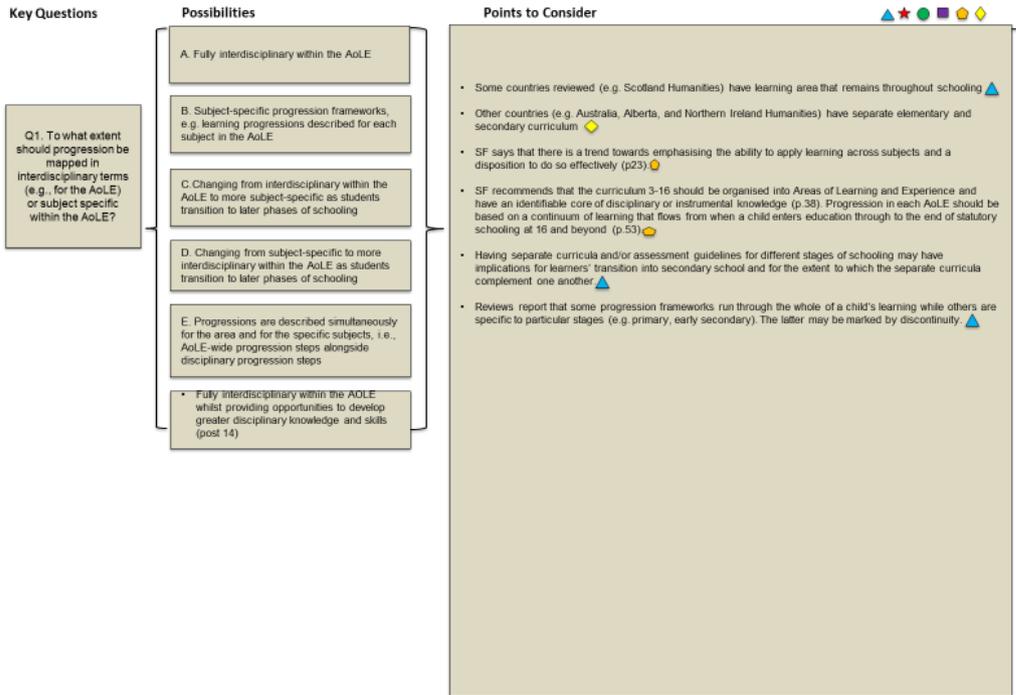
We dislike the clear distinction by age as not a journey more of a reaching different end points. Teachers needs guidance for stages of development. Children do not need to be labelled and Welsh government then measure or label schools at artificial points of time. Support should be given to learners and schools without publicly shaming.

If we only assess different phases of education it is still separating primary and secondary schools too much and becomes the 'Not our problem' idea.

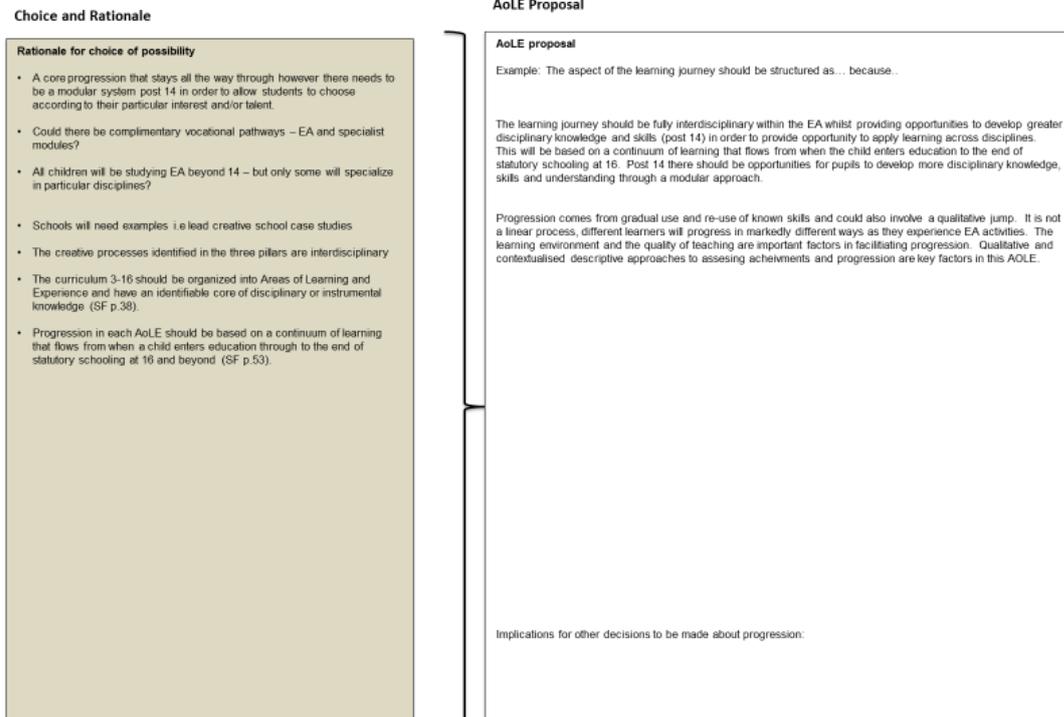
Implications for other decisions to be made about progression:

Expressive Arts: Progression as Interdisciplinary or Disciplinary

Progression as Interdisciplinary or Disciplinary as the Journey Develops

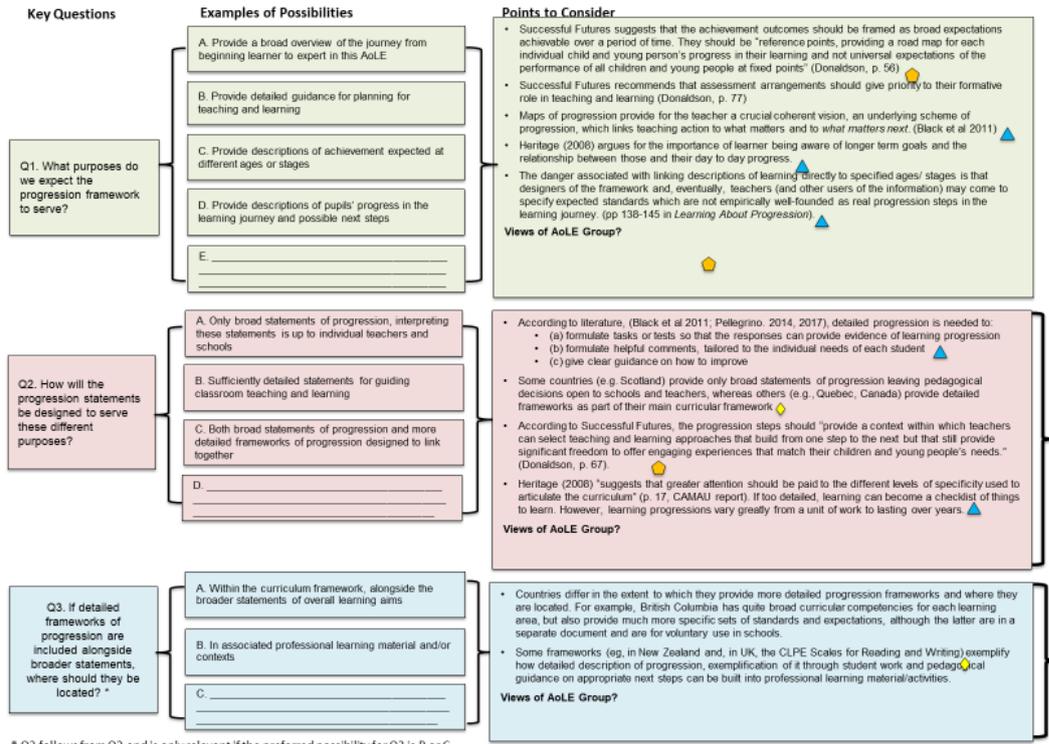


Progression as Interdisciplinary or Disciplinary as the Journey Develops

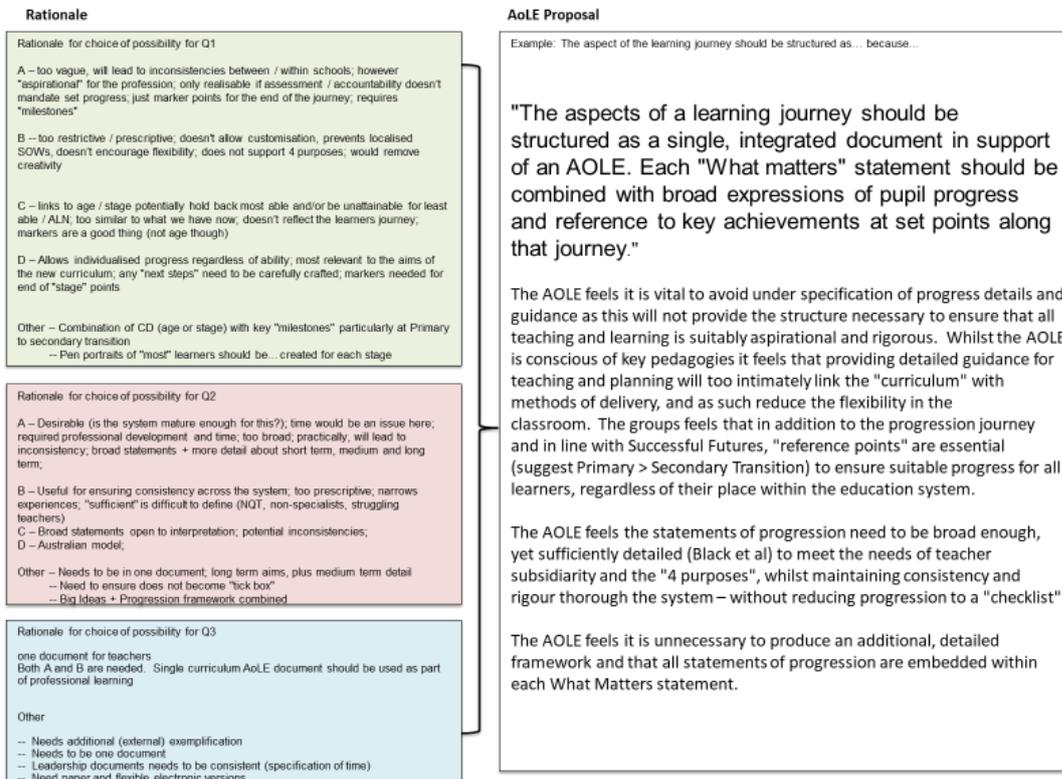


Science and Technology: Purposes of Progression Framework

Purposes of Progression Framework



Purposes of Progression Framework



List of additional documents available online

1. References to 'progression' in *Successful Futures*
2. Health and well-being: links to national curricula
3. Health and well-being: examples of progression statements
4. Humanities: links to national curricula
5. Examples of Religious Education Progression Statements in Scotland

These documents are available at

<https://www.dropbox.com/sh/tgtjidlcuze9zt7/AABP34QNYEPcelJsjwklBrGa?dl=0>

Note also that analyses of individual country frameworks in the various curricular areas are available from the CAMAU project team.