



# Variable in/ by design

The variable nature of curriculum design and instructional materials in Aotearoa New Zealand schools

DR NINA HOOD



the  
education  
hub

## About The Education Hub

The Education Hub is a not-for-profit with a mission to bridge the gap between research and practice in education in order to improve opportunities and outcomes for young people in New Zealand. Our work involves empowering educators as leaders of change in schools and ECE centres by ensuring they have easy access to the right information, in the right form, at the right time, and have the capacity and support to utilise it to improve practice.

## About the author

Dr Nina Hood is the Founder of The Education Hub. She has a background as a secondary school teacher and alongside her role at The Education Hub is also an academic at The University of Auckland.

## Acknowledgements

Many thanks to Meiyang Hong (University of Auckland PhD candidate) who carried out the statistical tests and data analysis that inform this report.

Thank you also to Dr John Ety who knows much more and thinks more deeply about curriculum theory, curriculum design, and curriculum implementation than I. Our conversations have been invaluable in shaping and challenging my thinking and your suggestions about things I should be reading have deepened my knowledge and expanded the boundaries of my thinking on curriculum.

Thank you also to all the teachers from across New Zealand who participated in the survey. There's much we do not know about what currently happens in New Zealand schools, and it is only by asking those who work and learn in them every day that we will be able to develop a fuller picture. This report is a small piece of this larger picture.

# Variable in/ by design

The variable nature of curriculum design and instructional materials in Aotearoa New Zealand schools

DR NINA HOOD

# Contents

<b>Key Insights</b>	<b>5</b>
<b>Introduction</b>	<b>7</b>
<b>Part 1: Setting the scene</b>	<b>9</b>
A point on terminology in this report	9
What the research suggests about the importance of curriculum	9
The New Zealand Curriculum (NZC) – design, delivery, impact, implications, and the refresh	13
Why it is important to also consider instructional materials	18
<b>Part 2: This study</b>	<b>21</b>
Methodology	21
Findings	21
<b>Part 3: Drawing the threads together; what are the implications of these findings?</b>	<b>38</b>
<b>References</b>	<b>42</b>

**In February 2023, 523 school teachers from across New Zealand completed an online survey asking for their experiences of and perspectives on curriculum design and delivery at their school and their use of instructional materials. The impetus for the research was the current limited visibility of how curriculum design decisions are being made in New Zealand schools or the nature of instructional materials and teaching resources that teachers are using in their practice. This report presents the findings from this survey as well as a brief analysis of what they might mean at both a policy and practice level.**

Key findings include:

- Most schools consider curriculum design to be important, however, there is a significant minority (27%) for which this is not the case.
- There is considerable variability in how schools and teachers approach curriculum design, matched by differences in teachers' understanding of the principles of effective curriculum design, and the opportunities available for reviewing the curriculum in schools.
- There is a lack of consistency within individual schools in the curriculum students receive, the content taught, and to a lesser degree the assessments used.
- Significant differences emerged between primary and intermediate teachers on the one hand and secondary school teachers on the other with respect to how they approach curriculum design and their selection and use of instructional materials. Secondary teachers are more likely to consider progression in their curriculum between year levels, and to carefully sequence the content they are teaching across the year than primary and intermediate teachers. Secondary teachers are also significantly more likely to select content based on (1) what they are interested in; (2) decisions of other people at their school; (3) building students' disciplinary knowledge; (4) supporting students to access learning in future years; (5) the rigour of the content; (6) and the assessments used at their school. Primary and intermediate teachers were significantly more likely to select content based on its relevance to their local area.
- Over 50% of teachers have not received effective professional development related to curriculum design.
- Teachers support the idea of sharing instructional materials and resources, particularly to support beginning teachers, and believe that access to high quality resources would give them the opportunity to focus on other areas of their practice. However, three quarters of teachers report being responsible for locating and developing their own instructional materials, with 53% agreeing that they have access to a comprehensive high quality bank of instructional materials at their school.

## Key Insights

- Teachers most frequently use materials they create themselves followed by materials adapted from online resources, materials provided by their school, and purchased materials. Materials from professional associations and those shared on social media were used least frequently.
- Teachers who consider themselves to have poorer content knowledge and curriculum development expertise are significantly more likely to utilise resources shared on social media and found online, and to rate the quality of resources from these sources more highly than teachers who consider themselves to have stronger content knowledge and curriculum expertise.
- On average, secondary teachers more frequently used materials they created themselves, while primary and intermediate teachers more frequently used materials their school required them to use, materials from the Ministry of Education, materials adapted from online resources, and materials shared on social media.


This report is called *Variable in/by design*. It aptly summarises the processes determining what a child will learn during their 13 years at school in Aotearoa New Zealand.

As the findings of this report will show, the structure and design of the curriculum, the content that is taught, and the selection of tasks and instructional materials not only varies among schools, but also varies among teachers within the same school. This would not necessarily matter (indeed, as this report will argue, the purpose of a school system is not to create carbon-copy children who have experienced identical learning experiences) if the evidence showed that these differences in approach were enabling all children to achieve and succeed. However, data suggest that this is not the case.

The National Monitoring Study of Student Achievement (NMSSA) has found that by Year 8 only 56% of students are at or above the curriculum level in reading, 45% in mathematics and physical education, 37% in social studies, 35% in writing, and only 20% of Year 8 students are working at level at or above the curriculum level in science.<sup>1</sup> Data from the OECD's PISA study has found that New Zealand has among the highest rates of within-school variability of student achievement of all OECD countries, and that within-school variability is substantially higher than between-school variability in New Zealand.<sup>2</sup> That means that there are greater differences in students' academic achievement within the same school than differences in academic achievement between schools. While these differences frequently are attributed to the high levels of ability grouping in New Zealand schools, few have questioned (and there has been minimal research exploring) whether the nature of the current New Zealand Curriculum (NZC) and curriculum design and implementation practices within schools might be contributing to this within-school variability.

In fact, there has been limited research that explores how the curriculum is being interpreted and implemented across New Zealand schools or the impact that this is having on both learning opportunities and outcomes. There has been little investigation of the content that is being taught in schools, despite a growing body of research suggesting that what we know influences what and how effectively we can learn now and in the future. Similarly, there has been limited investigation of the types of resources and materials that teachers are using, or the nature of tasks that they are having their students engage with on a day-to-day basis.

## Introduction



**There has been little investigation of the content that is being taught in schools**

<sup>1</sup> These statistics are drawn from a range of NMSSA reports. You can find these reports on the NMSSA website: <https://nmssa.otago.ac.nz/reports-and-resources/>

<sup>2</sup> Schleicher, A. (2019). PISA 2018; Insights and interpretations. OECD. <https://www.oecd.org/pisa/PISA%202018%20Insights%20and%20Interpretations%20FINAL%20PDF.pdf>

This report is an attempt to find out more about what is happening with respect to curriculum design and instructional material development and use in schools across Aotearoa New Zealand. There are many things that it does not and cannot do. It does not make definitive claims about how the curriculum should look at either a national or individual school level, although it does report on research which makes suggestions about what makes a [national] curriculum effective. It does not specify what knowledge should be taught or what competencies developed over a child's time at school; however, it does integrate high level findings from research on both these areas. Similarly, it does not pass judgement on what instructional materials teachers should be using, who should be developing them, or from where they should be sourced, although it does suggest that they should face some degree of quality control and ensure that they promote rigorous tasks. Furthermore, it does not explicitly deal with how different knowledge systems should be positioned or addressed within the curriculum.<sup>3</sup>



**The report considers whether such a focus on quality might still enable diversity and plurality while decreasing some of the variability in both opportunities and outcomes that affect our schooling system.**

As such, this report does not provide answers to some of the big questions and debates currently swirling in New Zealand about the curriculum. However, it does explore how teachers conceptualise the role and impact of curriculum design, their approach to curriculum sequencing and progressions, teachers' curriculum expertise, and the factors influencing what is taught in schools. The report further examines the practices surrounding instructional materials in schools, the sharing of instructional materials, how teachers approach and perceive quality control, and where teachers source instructional materials. By uncovering these processes and practices around curriculum design and instructional material development and use, the report raises questions about the quality of what is happening in schools and identifies issues that need to be investigated further if our aspiration as a country is an education system that is both excellent and equitable.

This report is not attempting to suggest that there is one "right" way to approach curriculum design and implementation in schools. Rather, it considers whether foregrounding notions of quality (based on what the evidence tells us about the principles of effective curriculum design and what constitutes high quality instructional materials) might be a more helpful lens for exploring questions related to curriculum design and instructional materials in schools. It further considers whether such a focus on quality might still enable diversity and plurality while decreasing some of the variability in both opportunities and outcomes that affect our schooling system.

<sup>3</sup> It is the view of the author and The Education Hub as an organisation that it is critical that the Curriculum in Aotearoa New Zealand (both at a national level and as it is enacted within schools) should incorporate both Mātauranga Māori and Western Knowledge systems. However, it is beyond the scope of this report to explore how these should be positioned and taught relative to one another.



This section explores what the research tells us about the relationship between curriculum design, content selection, instructional materials, and student learning.

## A point on terminology in this report

Curriculum is a contested term, which is used to mean different things in different contexts. For the purposes of this report, curriculum is used to refer to what is taught in schools. As such, it encompasses the directives set out in the current New Zealand Curriculum (NZC) as well as the decisions made by each school about how they choose to enact the NZC in practice. This involves the design and delivery of content (encompassing both subject content knowledge and corresponding skill and competence development) across different knowledge domains and year levels, as well as some judgement as to the standard to which this content is taught and the intended outcomes of the teaching.

The term instructional materials is used in this report to refer to how the content is conveyed within a lesson or series of lessons or learning opportunities. This includes activities and tasks, textbooks and other readings, multimedia components such as videos, apps or other digital programmes, presentations, teacher talk and presentations, class discussions, and specific programmes and initiatives.

## What the research suggests about the importance of curriculum

### Curriculum influences outcomes and equity.

International research routinely finds that those countries or provinces that deliver a comprehensive, content-rich curriculum which ensures that students acquire a broad general knowledge, achieve higher and more equitable student outcomes than countries with skills-based or more open curricula.<sup>4</sup>

OECD analysis has found that school systems that require students to follow the same, sequenced curricula are among the world's most equitable and high-performing.<sup>5</sup> One such country is Estonia, which has implemented "a granular national curriculum with very detailed descriptions of exactly what teachers should teach in their subjects, and assessments directly linked to their curriculum".<sup>6</sup> Since implementing this curriculum, Estonia has seen an increase in achievement in reading and mathematics (Graph 1).<sup>7</sup> Even more important are the strong impacts on equity of achievement. Only 6.2% of variation in reading scores could be explained by students' socio-economic background compared to the OECD average of 12%, and 13% in New Zealand. 7.4% of students with disadvantaged backgrounds reached the top levels of performance compared to the OECD average of 2.9%, and 15.6% of Estonian students from disadvantaged backgrounds are in the top performing 25% of students across all OECD countries.<sup>8</sup>

## PART

# 1

## Setting the scene



**Countries that deliver a comprehensive content-rich curriculum achieve higher and more equitable student outcomes**

4 Ravitch, D. & Cortese, A. (2009). Why we're behind; What top nations teach their students but we don't. *The Education Digest*, 75 (1), pp.35-38.

5 OECD (2013) *PISA 2012 Results: Excellence through Equity* (Vol. II). OECD Publishing. Retrieved from <https://www.oecd-ilibrary.org/docserver/9789264201132-en.pdf?expires=1541371329&id=id&accname=guest&checksum=75358C3D-D797907C3C02CF1100F263F9>

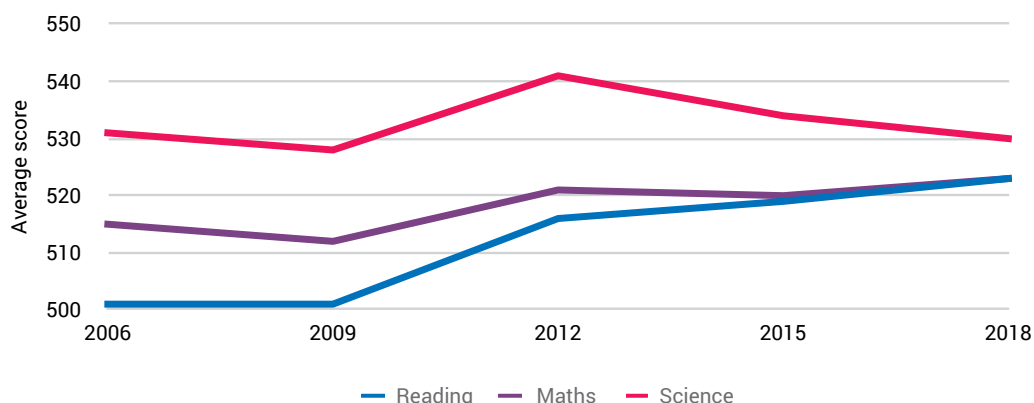
6 Steiner, D., Magee, J. & Jensen, B. (2018). *What we teach matters; How quality curriculum improves student outcomes*. Learning First and the Johns Hopkins Institute for Education Policy.

7 OECD (2013).

8 *Ibid.*



**Graph 1: Estonia's performance in PISA 2006 to 2018**



Portugal similarly has seen significant increases in its achievement following the implementation of a knowledge-rich curriculum (Graph 2).<sup>9</sup> Education and Science Minister of Portugal from 2011-2015 Nuno Crato explained this shift: “without a base in substantive knowledge, students cannot get an appreciation for any subject, cannot develop advanced skills, cannot progress in any career, cannot attain higher-level knowledge and skills in any subject.” It is through specifying in national policy documents what this substantive knowledge base is, that Portugal has ensured that all children gain access to it, something which has not been the case in New Zealand, as will be explored in the next section.



**Graph 2: Portugal's performance in PISA 2000 to 2018**



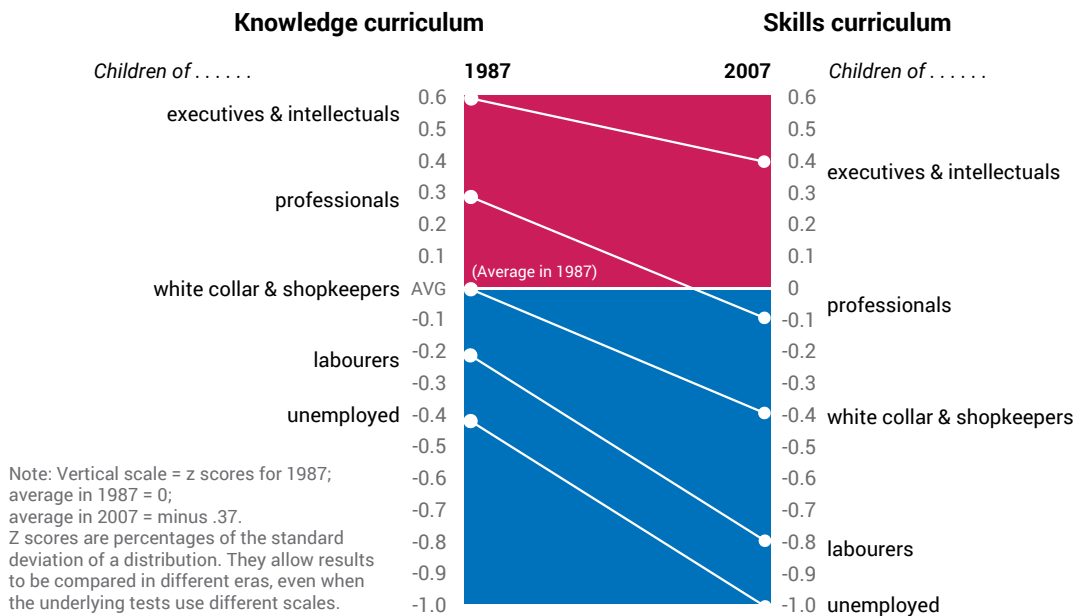
9 Ibid.

An examination of educational policy and outcomes in France provides a counter picture, demonstrating what happens when a country moves away from a knowledge-rich curriculum. As E.D. Hirsch outlined in *Why Knowledge Matters*, in 1987 France moved from a knowledge-rich curriculum to a skills-focused curriculum. In the two decades following this shift, achievement for all students declined. However, the declines were greatest for students from low socio-economic backgrounds, because they were less likely to access and gain broad general knowledge outside of schools (Graph 3).<sup>10</sup>

”  
**What is the knowledge that has the greatest potential to contribute to human power and future development?**



**Graph 3: Combined reading and mathematics performance of fifth grade children in France 1987 and 2007 (adapted from graph in Hirsh, E. D. (2016). *Why knowledge matters; Rescuing our children from failed educational theories*. Harvard Education Press, p. 56.**



While research consistently finds countries or schools with more prescriptive or knowledge-rich curricula on average achieve more highly in academic assessments or tests, it is important to also consider what knowledge is selected to be taught, the types of learning that are sought, and why this knowledge is being taught. Learning should not be reduced to the transmission of information to be memorised or knowledge taught as an end in itself.<sup>11</sup> Zongyi Deng offers an alternative perspective, suggesting that disciplinary knowledge should be positioned in education as a vehicle for developing human powers and supporting the future realisation of the individual.<sup>12</sup> Such a position does not subscribe to the view of a single, fixed canon of knowledge to be learned but rather requires careful consideration of questions such as what is the knowledge that has the greatest potential to contribute to human power and future development? How would this knowledge be selected and organised? And how do teachers interpret the content of a school subject and translate and transform it into tasks and discourses that open up a wealth of possibilities for students, both now and into the future?<sup>13</sup>

10 Hirsh, E. D. (2016). *Why knowledge matters; Rescuing our children from failed educational theories*. Harvard Education Press.

11 It can be argued that this is largely the position of E.D. Hirsch, who focuses on the accumulation (memorisation) of information, from a singular, and relatively unchanging canon of knowledge.

12 Deng, Z. (2022) Powerful knowledge, educational potential and knowledge-rich curriculum: pushing the boundaries. *Journal of Curriculum Studies*, 54 (5), 599-617, DOI: 10.1080/00220272.2022.2089538.

13 Note, that such a positioning of content knowledge in the curriculum moves beyond the conceptualisation of core knowledge as developed by E.D. Hirsch and Michael Young's conceptualisation of powerful knowledge.



**Students' existing knowledge plays a substantial role in their ability to engage in higher order thinking skills and more complex tasks.**

## What we know impacts what and how effectively we learn in the future.

New information is always learned and made sense of in relation to what we already know. The amount of existing knowledge and the extent to which it is interconnected influence the quality of learning. The more information we have on a topic and the more interconnected that knowledge is, the more easily and quickly we can learn new information on or around that topic. This has implications not only for students' time at school but also their ability to engage in diverse learning opportunities across the life course.

Recent research from a longitudinal US-based study found that using a Core Knowledge curriculum, which is designed to build students' general knowledge about the world, in the primary school years had a significant positive impact on students' reading and maths (and for some students science) achievement in Grades 3 and 6. Of particular note, at the one low-income school in the study, the gains were large enough to eliminate altogether the achievement gap associated with income, suggesting a connection between content-rich curriculum and equity.<sup>14</sup> While this study has limitations and it is important not to make undue claims from a single study, it does align with findings from other studies, which have demonstrated a similarly positive relationship between children who received a knowledge-rich curriculum in early primary school and academic results.<sup>15</sup> The findings also align with an earlier US-based study, which found that the strong and more equitable academic achievement of students in Catholic schools was connected to the use of a core curriculum for all students, and a common view about what all students can and should learn.<sup>16</sup>

The science of learning research has also determined that very few general competencies and skills can be learned independently from content domains. For instance, while it is possible to teach general principles or approaches to problem solving, the ability to utilise these in response to a specific problem requires both an understanding of what problem-solving means in a particular discipline or subject as well as relevant content knowledge. Similarly, the ability to critically engage with information found online, and to ascertain its veracity, requires the reader to understand the general principles of critical literacy as well as to have a degree of existing knowledge about the topic so that they are able to make judgements about what they are reading. Consequently, students' existing knowledge plays a substantial role in their ability to engage in higher order thinking skills and more complex tasks.

Research has further demonstrated the importance of executive functioning skills and social emotional learning skills for supporting success in education, employment, and in social situations throughout life. These skills can (and at least within the current structure of the schooling system should) be explicitly taught, practised, and their growth supported while children are at primary and secondary school and form a central component of what students need to know (and be able to do), as well as supporting the ability of students to engage in ongoing learning.<sup>17</sup>

14 Grissmer, D., Buddin, R., Berends, M., Willingham, D., DeCoster, D. et al. (2023). A Kindergarten Lottery Evaluation of Core Knowledge Charter Schools: Should Building General Knowledge Have a Central Role in Educational and Social Science Research and Policy?. (EdWorkingPaper: 23-755). Retrieved from Annenberg Institute at Brown University: <https://doi.org/10.26300/nsbq-hb21>

15 You can read more about the limitations of the study and important caveats around the finding here: <https://www.forbes.com/sites/nataliewexler/2023/04/30/putting-a-new-study-on-building-knowledge-into-perspective/?sh=7d9a4617624d/>. You can also read about further studies of knowledge-rich curricula here: <https://nataliewexler.substack.com/p/new-data-shows-building-knowledge>; <https://fordhaminstitute.org/national/resources/social-studies-instruction-and-reading-comprehension>; <http://www.danielwillingham.com/daniel-willingham-science-and-education-blog/school-time-knowledge-and-reading-comprehension>.

16 Bryk, Anthony S., Valerie E. Lee, and Peter B. Holland. 1993. *Catholic Schools and the Common Good*. Harvard University Press.

17 See for example: <https://theeducationhub.org.nz/executive-function-in-secondary-school/> and <https://theeducationhub.org.nz/executive-function-in-primary-school/>

**There is considerable debate about how to structure curriculum and what knowledge should be included, and research provides few, if any, definitive answers.**

Debates around curriculum are multifaceted, encompassing a number of questions, including, but not limited to: (1) the level of prescription that should be present in a curriculum and where there might be opportunities for localisation; (2) what content knowledge should be included; (3) the place of content knowledge and the role of the disciplines as a curriculum framing device; (4) how knowledge from different world views and knowledge systems should be included in a curriculum; (5) the place of generic competencies and skills; (6) whether to focus on outcomes or progressions; (7) how to determine and specify the standard of learning at each level of the curriculum; (8) whether it is developmentally appropriate to utilise an age-based lockstep approach in a curriculum; (9) whether social-emotional learning and executive functioning skill development deserve a place in a curriculum; and (10) the role schools should play in teaching what might traditionally be labelled “life-skills”. Increasingly, curriculum discussions are also exploring what it is that young people will need to know and be able to do in the second half of the 21<sup>st</sup> century and into the 22<sup>nd</sup> century, during a time of increasing uncertainty and global challenges. While there is research that can help to guide thinking and decision making across all these challenges and questions, there is little that provides a definitive answer about how to implement any of them.



**Increasingly, curriculum discussions are also exploring what it is that young people will need to know and be able to do in the second half of the 21st century and into the 22nd century**

## **The New Zealand Curriculum (NZC) – design, delivery, impact, implications, and the refresh**

**The current NZC contains little specified content, and it is possible that this has contributed to a decline in student achievement over the past 13 years.**

New Zealand currently has an open curriculum, which combines a focus on key competencies with high level learning objectives that are intended to guide learning across eight learning areas. It contains very little specified content and provides minimal guidance as to what constitutes an acceptable standard of achievement at any curriculum level. Instead, it encourages localised approaches to curriculum design and delivery at the individual school level. This enables flexibility in how individual schools and teachers interpret and implement the curriculum and provides opportunities for them to tailor the curriculum to their students.

While there is considerable continuity between the NZC (released in 2007 and mandated for use in schools in 2010) and the 1993 New Zealand Curriculum Framework (NZCF), there was one substantial shift. The 1993 NZCF was accompanied by Curriculum Statements, booklets that set out Achievement Objectives and Indicators for each learning area (and sometimes individual subjects), detailing how the declarative knowledge (know what) and the

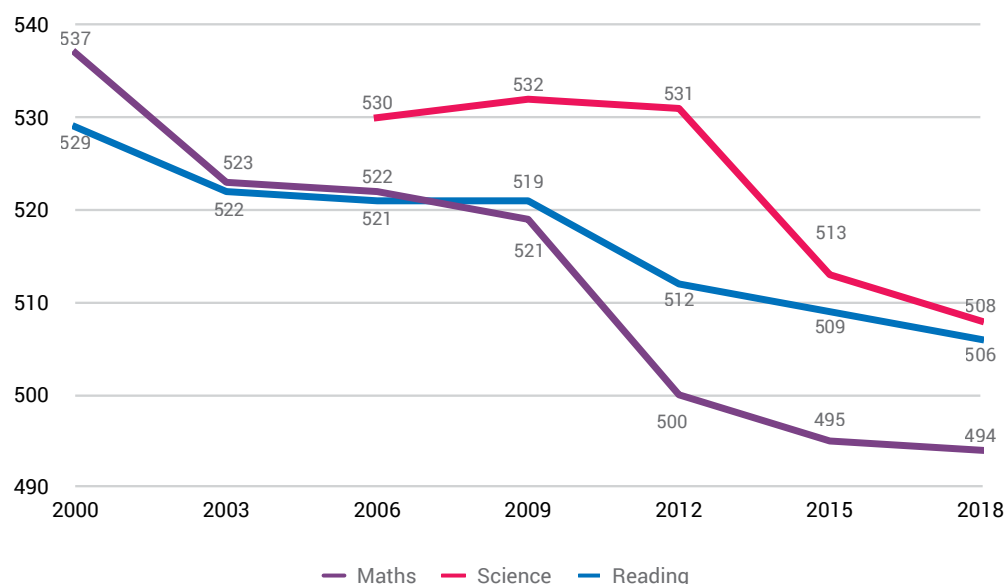
procedural knowledge (know how) would progress over a students' time at school. For some subjects, these documents also included ideas for activities or tasks that could be used to teach particular content. While the documents still left considerable scope for teachers to localise the curriculum (particularly with respect to pedagogy) the Curriculum Statements contained substantially more detail than the current NZC, with booklets ranging from 60 pages in length to close to 150 pages in English, Maths, and Science.<sup>18</sup> In contrast, the achievement objectives for all of the learning areas at each of the eight levels in the 2007 Curriculum are largely confined to two double page spreads.

Similarly to the drop in achievement seen in France after the shift to a skills-based curriculum in the late 1980s, there is some evidence of a decline in the achievement of New Zealand students in some subjects since the curriculum was implemented in 2010.

The most recent round of PISA testing (2018) for which we have data found the average achievement of students had declined across all three subjects – reading, mathematics, and science since 2009 (graph 4).<sup>19</sup>



**Graph 4: Achievement of New Zealand 15 year olds in PISA assessments 2000 - 2018**



<sup>18</sup> You can find the Curriculum Statements here: <https://nzcurriculum.tki.org.nz/Archives/Previous-curriculum-statements>

<sup>19</sup> The PISA 2009 data can be found: [https://www.educationcounts.govt.nz/data-services/international/pisa/pisa\\_2009](https://www.educationcounts.govt.nz/data-services/international/pisa/pisa_2009). The PISA 2018 data can be found: <https://www.educationcounts.govt.nz/publications/series/PISA/pisa-2018>

Furthermore, the proportion of students with significant literacy issues in New Zealand (meaning they did not meet the reading baseline) has grown from 14% in 2009 to 19% by 2018. Simultaneously, the proportion of advanced readers (categorised in PISA as 'Level 5 literacy' and above) has declined from 16% in 2000 to 13% in 2018. Further analysis demonstrates that socio-economic status explains 13% of the variance in reading performance in New Zealand, which is slightly above the OECD average of 12%, while the average difference between advantaged and disadvantaged students in reading is 96 points, compared to an average of 89 in OECD countries.<sup>20</sup>

These figures align with data from the PIRLS assessment, which found a statistically significant drop of 8 points in the average achievement in reading of Year 5 students between the 2010/11 testing round and the 2015/16 testing round.<sup>21</sup>

Interestingly, there was not a similar decline in achievement of Year 5 students in mathematics between the 2010/11 TIMSS testing round and the 2018/19 testing round. However, there was a statistically significant drop in achievement between the 2002 testing round and the 2018/19 testing round.<sup>22</sup> This coincides with the introduction of the Numeracy Project, a Ministry of Education initiative to change the way in which mathematics was taught in primary schools, which was implemented in primary schools between 2000 and 2009. The Ministry of Education website explains that "the NDP knowledge and strategy frameworks (the Number Framework) strongly influenced the development of the mathematics and statistics learning area of the New Zealand Curriculum, and in particular the number and algebra strand", again suggesting that policy changes that influenced the curriculum likely had an impact on student outcomes.<sup>23</sup>

It must be noted that similar declines in student achievement since the implementation of the NZC have not been identified through the National Monitoring Study of Student Achievement (NMSSA).<sup>24</sup> However, as demonstrated in the introduction to this report, NMSSA data does paint a worrying picture of student achievement across all learning areas.

Overall, it is impossible to definitively tie the decline in student outcomes to a change in curriculum, and it is likely that a myriad of factors influenced the decline. However, given similar findings in other countries between curriculum changes and academic attainment, and the research demonstrating connections between what and how much we know and achievement in academic assessments, there is reason to believe that the curriculum has played a role in declining student outcomes in New Zealand.<sup>25</sup>

20 Medina, E. & McGregor, A. (2019). PISA 2018 Reading in New Zealand: *Reading achievement & experiences of 15-year-olds*. Ministry of Education. <https://www.educationcounts.govt.nz/publications/series/2543/pisa-2018/pisa-2018-reading-in-new-zealand>

21 Ministry of Education. (2017). PIRLS 2016: *New Zealand's Achievement*. Ministry of Education. <https://www.educationcounts.govt.nz/publications/series/2539/pirls-201516/pirls-201516>

22 Rendall, S., Medina, E., Sutcliffe, R. & Marshall, N. (2020). TIMSS 2018/19, *Mathematics, Year 5*. Ministry of Education. [https://www.educationcounts.govt.nz/\\_data/assets/pdf\\_file/0003/205707/TIMSS-2018-Year-5-Mathsc.pdf](https://www.educationcounts.govt.nz/_data/assets/pdf_file/0003/205707/TIMSS-2018-Year-5-Mathsc.pdf)

23 Taken from NZMaths, Ministry of Education: <https://nzmaths.co.nz/numeracy-project-pld>.

24 You can find NMSSA data here: <https://nmsa.otago.ac.nz/nmssa-data/>.

25 You can see an analysis of the factors that likely contributed to the decline in reading and writing here: Hughson, T. & Hood, N. (2022). *What's happening with literacy in Aotearoa New Zealand? Building a comprehensive national picture*. The Education Hub: [https://theeducationhub.org.nz/wp-content/uploads/2022/03/Ed-Hub\\_Long-literacy-report\\_v2.pdf](https://theeducationhub.org.nz/wp-content/uploads/2022/03/Ed-Hub_Long-literacy-report_v2.pdf).



**Some students experience a narrow curriculum at school which limits their opportunity to build a broad knowledge base**

**There is evidence indicating that currently children in New Zealand schools experience substantially different opportunities to learn.**

The open nature of the New Zealand curriculum, which requires each school to individually determine what they teach, has resulted in children at different schools, and indeed often children at the same schools, receiving very different educational experiences.

New Zealand lacks large-scale studies examining what is being taught in schools or the rigour and challenge of instruction. However, research has found evidence that some students experience a narrow curriculum at school which limits their opportunity to build a broad knowledge base about both New Zealand and the world.<sup>26</sup> Further research suggests that the NZC and NCEA can potentially disincentivise engagement with rigorous content because their open-ended, outcomes-focused structure can lead to the selection of tasks and texts that are not sufficiently challenging for students.<sup>27</sup> There also is evidence of substantial variation in opportunities to learn at the primary school level, with certain groups of students – often Māori and Pasifika – less likely to be presented with challenging tasks requiring higher order thinking skills or more complex content.<sup>28</sup>

**The current NZC requires all schools, and often many or all teachers within a school, to both design and deliver the curriculum.**

Currently, schools are responsible for determining not only what they teach but also how they sequence the learning and the level of rigour or challenge of the tasks students undertake. Designing a robust and coherent curriculum requires not only considerable knowledge and expertise but also a substantial amount of time and resourcing. Teachers and schools have been provided with minimal support about how to effectively design a curriculum, and the “second tier” or supplementary resources that were promised when the NZC was first introduced have never eventuated.<sup>29</sup> It is unsurprising, therefore, that in a 2020 survey of New Zealand teachers exploring problems of practice in their schools, designing a coherent curriculum was the second highest priority (of 14) for participants.<sup>30</sup> Teachers need greater support to understand and undertake their roles as curriculum makers, a role which Deng suggests sees them responsible for interpreting the educational potential of the content in the curriculum in order to design educational events, tasks, and activities that focus not on the transmission of knowledge but on content-student encounters for the goal of developing human powers.<sup>31</sup>

26 Gómez, C. R. (2021). Recasting the subject: Curriculum, equity, and the educated ideal in secondary English classrooms. Unpublished doctoral thesis. University of Auckland; Ormond, B. (2017). Curriculum decisions: The challenges of teacher autonomy over knowledge selection for history. *Journal of Curriculum Studies*, 49(5), 599-619; Wood, B. E., & Sheehan, M. (2021). Transformative disciplinary learning in history and social studies: Lessons from a high autonomy curriculum in New Zealand. *The Curriculum Journal*, 32(3), 495-509.

27 Wilson, A., Madjar, I., & McNaughton, S. (2016). Opportunity to learn about disciplinary literacy in senior secondary English classrooms in New Zealand. *The Curriculum Journal*, 27(2), 204-228; Wilson, A., & Jesson, R. (2018). A case study of literacy teaching in six middle- and high-school science classes in New Zealand. In K. Tang & K. Danielsson (Eds.), *Global developments in literacy research for science education*, pp. 133-147. Springer; Wilson, A., McNaughton, S., & Zhu, T. (2017). Subject area literacy instruction in low SES secondary schools in New Zealand. *Australian Journal of Language and Literacy*, 40(1), 72-85.

28 See for instance Turner, H., Rubie-Davies, C. M., & Webber, M. (2015). Teacher expectations, ethnicity and the achievement gap. *New Zealand Journal of Educational Studies*, 50(1), 55-69; Bishop, R., & Berryman, M. (2006). *Culture speaks: Cultural relationships and classroom learning*. Huia Publishers.

29 Hood, N. (2020). *Problems of practice: The teaching and learning priorities of New Zealand school teachers*. The Education Hub: <https://theeducationhub.org.nz/problems-of-practice-the-teaching-and-learning-priorities-of-new-zealand-school-teachers/>.

30 *Ibid.*

31 Deng, 2022.



### **Te Mātaiaho: The Refreshed New Zealand Curriculum is currently being developed, and incorporates some changes from the current NZC.**

One factor that prompted the curriculum refresh was the report released from the Curriculum, Progress, and Achievement Ministerial Advisory Group (MAG) in 2019, which suggested that the National Curriculum needed to be clearer about the learning outcomes that all children must reach and cannot be left to chance through local curriculum decision making. The Advisory Group also proposed having progress points built into the curriculum, which would “set out the disciplinary knowledge and competencies that are importance for all ākonga, and that need to be deliberately included in curriculum design and noticed in ākonga learning”.<sup>32</sup> The report further suggested that a new website be developed that would enable teachers to quickly access, use, and adapt quality teaching and learning resources. The findings of the MAG took into consideration curriculum changes that were occurring in countries around the world, which were seeking to include a greater focus on disciplinary knowledge and increased tightness around the content and learning in which all students must engage.

The curriculum refresh is still underway. However, to date there is evidence that *Te Mātaiaho* will include greater specification of the key disciplinary ideas that should be informing each learning area and more guidance around the knowledge that students should access at each curriculum level. The English and Maths learning areas also include progress steps (up to Year 5 in maths and Year 2 in English), which set out the “specific aspects of learning that are essential and time-sensitive as ākonga work towards the progress outcome for this phase”. Localisation remains a key feature, and the curriculum continues to allow considerable flexibility with respect to the content taught. As it stands, it will still take substantial expertise for teachers to interpret and implement the curriculum in their own schools, and to design learning activities and tasks.

”

**As it stands, it will still take substantial expertise for teachers to interpret and implement the curriculum in their own schools, and to design learning activities and tasks.**

<sup>32</sup> Curriculum, Progress, and Achievement Ministerial Advisory Group (2019). *Strengthening curriculum, progress, and achievement in a system that learns, E whakakaha ana I te marautanga, te koke, me te ekeanga taumata I te rangapūe ako ana*. The Ministry of Education. [https://conversation-space.s3-ap-southeast-2.amazonaws.com/ELS+0324+CPA+Final+MAG+report\\_06+includes+Ed+Strategy+vision.pdf](https://conversation-space.s3-ap-southeast-2.amazonaws.com/ELS+0324+CPA+Final+MAG+report_06+includes+Ed+Strategy+vision.pdf) .



**“increases in student learning occur only as a consequence of improvements in the level of content, teachers’ knowledge and skill and student engagement”.**

## Why it is important to also consider instructional materials

### Task predicts performance.

The relationship between the teacher, the student, and the content – what is commonly referred to as the instructional core – is one of the most important factors determining student learning and outcomes. Richard Elmore has contended that it is the tasks or activities that students do on a day-to-day basis at school that determine the nature (breadth, depth, challenge, and rigour) of their learning and that “increases in student learning occur only as a consequence of improvements in the level of content, teachers’ knowledge and skill and student engagement”.<sup>33</sup>

It is essential that teachers are utilising tasks that move students through the learning trajectory<sup>34</sup>, ensuring that students build foundational knowledge and skills but also have opportunities to utilise this knowledge in tasks that require meaning making and higher order thinking. Too frequently, the tasks that students are asked to do at school under-estimate the level of cognitive complexity that students can handle and consequently put a cap on their learning.<sup>35</sup> Without a clear understanding of the level of complexity or challenge that should be reached at each level of the Curriculum and in the absence of high quality exemplar tasks, it is challenging for teachers to know with any degree of certainty at what level they should be pitching the learning.

### Research suggests that the nature and design of instructional materials can impact student learning.

Similarly to curriculum design and delivery, little is known about the instructional materials or nature of tasks that teachers use with their students on a day-to-day basis. As there are few centrally provided resources, and no resources that are required to be used in New Zealand schools, there is substantial variation in materials being used as well as substantial variation in both the content students are being taught and what they are being asked to do with it.

Studies from the US have found that the implementation of high-quality curriculum resources or instructional materials can lead to substantial student-achievement gains for relatively low cost.<sup>36</sup> Some researchers have suggested that instructional materials can have an impact as large as or larger than the impact of teacher quality, and importantly, while improving teacher quality is typically a resource intensive undertaking, involving both substantial costs and time, selecting high quality instructional materials is relatively easy and inexpensive.<sup>37</sup> At a system level, improving curriculum and teaching materials might be the swiftest, most cost-effective way to improve the minimum standard of education experienced by the largest number of students.<sup>38</sup>

However, it is important to note that more recent research has cast some doubt on the impact some types of instructional materials, namely textbooks, actually have.<sup>39</sup>

33 Costante, K. (2010) Leading the instructional core; An interview with Richard Elmore. *In Conversation*. <https://www.sgdsb.on.ca/upload/documents/bls-ic-leading-the-instructional-cor.pdf>

34 You can learn more about what the learning trajectory is by watching this webinar with Dr Jared Cooney Horvath. <https://theeducationhub.org.nz/learning-trajectory-from-shallow-to-deep-to-transfer/>.

35 Costante (2010).

36 Chingos, M., & Whitehurst, G.R. (2012). *Choosing Blindly; Instructional materials, teacher effectiveness, and the Common Core*. Brown Centre for Educational Policy at Brookings; Agodini, R., Harris, B., Thomas, M., Murphy, R., & Gallagher, L. (2010). *Achievement Effects of Four Early Elementary School Math Curricula: Findings for First and Second Graders* (NCEE 2011-4001), National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education. Kane, T. (2016). Never judge a book by its cover – use student achievement instead. Brookings. <https://www.brookings.edu/research/never-judge-a-book-by-its-cover-use-student-achievement-instead/>.

37 Chingos & Whitehurst (2012).

38 Ollie Lovell (host) (2023). Ben Jenson on the importance of curriculum, episode 077, [audio podcast episode]. *Education Research Reading Room*. <https://www.ollielovell.com/errr/benjensen/>.

39 Blazar, D., Heller, B., Kane, T., Polikoff, M., Staiger, D., Carrell, S.,...& Kurlaender, M. (2019). *Learning by the Book: Comparing math achievement growth by textbook in six Common Core states*. Research Report. Center for Education Policy Research, Harvard University.

**International research has found that many teachers rely heavily on materials found on the internet (particularly Google and Pinterest) and that the quality of these materials is highly variable.**

Studies from the US have found that nearly all teachers report using the Internet to source teaching resources, with one study finding 55% of teachers use the website Teachers Pay Teachers at least once a week to locate English materials.<sup>40</sup> Similarly, an Australian study from 2022 found that 86% of teachers utilise resources found online (using search engines or websites like Pinterest, Facebook, and Teachers Pay Teachers to source materials and lesson ideas) at least once a fortnight.<sup>41</sup> NZCER's 2019 survey of New Zealand primary school teachers found that 97% of teachers download resources such as lesson plans and teaching materials from the internet (a higher proportion than the research reports in other countries), although the websites being used were not recorded.<sup>42</sup>

Further research has identified substantial variation in the quality of the materials, the rigour of learning that they promote, and substantial differences in alignment with curriculum.<sup>43</sup> For example, US-based studies of the most used Pinterest posts related to primary school maths found frequent mathematical errors in the materials and a high proportion of tasks that required lower-level cognitive demands on students.<sup>44</sup> Furthermore, it takes considerable time, effort, and expertise for teachers to be able to ensure that materials found from various online sources are brought together in a manner that facilitates curriculum coherence and effective learning.<sup>45</sup> So even if individual materials are of a high quality, their impact will not be as great if they are not part of a carefully sequenced learning experience.

**International research has also found that teachers spend a substantial number of hours each week locating and/or developing instructional materials, and that this is contributing to both overwork and declining wellbeing, and taking away from time that could be spent on high impact activities.**

A 2022 Australian study by the Grattan Institute found that a typical teacher spends six hours a week sourcing and creating materials, and a quarter of teachers spend 10 hours a week or more finding and developing resources.<sup>46</sup> These figures are mirrored in similar studies of teachers in other countries.<sup>47</sup> The Grattan Institute study further found that 88% of teachers agreed that 'using shared high-quality instructional materials would give teachers more time to evaluate and respond to individual student learning needs' and 90% agreed that "using shared high-quality instructional materials would free-up more time for teachers to focus on improving their classroom practice".<sup>48</sup>

Recent New Zealand research has found growing issues with teacher workload, stress, and wellbeing. In NZCER's 2019 survey of primary teachers (the last year for which we have data) found that only 46% of teachers believed that their workload was manageable and fair, and only 38% believed that their level



**Only 46% of teachers believed that their workload was manageable and fair**

40 Kaufman, J., V Opfer, V. D., Bongard, M. & Pane, J. (2018). *Changes in what teachers know and do in the Common Core era: American Teacher Panel findings from 2015 to 2017*. RAND, <https://doi.org/10.7249/RR2658>.

41 Hunter, J., Haywood, A., & Parkinson, N. (2022). *Ending the lesson lottery; How to improve curriculum planning in school*. Grattan Institute

42 Wylie, C., & MacDonald, J. (2020). *What's happening in our English medium primary schools: Findings from the NZCER national survey 2019*. NZCER.

43 Polikoff, M. & Dean, J. (2019). *The Supplemental-Curriculum Bazaar: Is What's Online Any Good?* Thomas B. Fordham Institute

44 Hertel, J.T., Wessman-Enzinger, N.M. (2017). Examining Pinterest as a curriculum resource for negative integers: An initial investigation. *Education Sciences*. 7(2):45. doi: 10.3390/educsci7020045; Sawyer A., Dick L., Shapiro E., Wismer T. (2019). The top 500 mathematics pins: An analysis of elementary mathematics activities on Pinterest. *Journal of Technology and Teacher Education*, 27 (2), pp.235–263.

45 Hood, N. (2018). Personalising and localising knowledge: how teachers reconstruct resources and knowledge shared online in their teaching practice. *Technology, Pedagogy and Education*, 27 (5), pp.589-605

46 Hunter, J. et al. (2022).

47 OECD, (2015). *How much time do teachers spend on teaching and non-teaching activities?* OECD. <https://www.oecd-ilibrary.org/docserver/5js64kndz1f3-en.pdf?expires=1679868028&id=id&accname=guest&checksum=BC929B0909BAD716738FBCB1A97E9D2D>

48 Hunter et al., (2022).

of work-related stress was manageable. Almost all teachers worked beyond their timetabled hours, with almost half working an additional 15 hours a week or more.<sup>49</sup> Among secondary school teachers, 41% believed their workload was fair and 43% believed it was manageable, while 36% thought they could manage the level of work-related stress they encountered. 45% of teachers reported their morale as very good or good, and 23% as poor or very poor. 99% of teachers work outside times when students are required to be on site, with 37% of secondary school teachers working more than 15 hours over.<sup>50</sup>

With questions raised about workload (and also student achievement), it is important to explore the most beneficial tasks for teachers to be spending their time on. With respect to curriculum, arguably, the greatest impact comes from teachers being able to spend more time thinking about and actioning how to most effectively teach the curriculum to their students rather than designing and resourcing the curriculum.

49 Wylie, & MacDonald (2020).

50 Alansari, M., Wylie, C., Hipkins, R., Overbye, S., Tuifagalele, R., & Watson, S. (2022). *Secondary teachers' perspectives from NZCER's 2021 National Survey of Secondary Schools*. NZCER.

This section reports the findings from the survey The Education Hub undertook, accompanied by short commentaries where appropriate.

## Methodology

In February 2023, The Education Hub released an online survey to New Zealand school teachers asking for their experiences of and perspectives on curriculum design and delivery at their school and their use of instructional materials. The impetus for this research was the current limited visibility of how curriculum design decisions are being made in New Zealand schools or the nature of instructional materials and teaching resources that teachers are using in their practice.

523 teachers completed the survey. The surveys were distributed via The Education Hub's mailing list and through social media. Participation in the survey was voluntary. While the teachers who

completed the survey appear to be approximately representative of the population of New Zealand teachers, it remains possible that the views of teachers who chose to participate in this study may be different from a) the views of teachers who knew of the opportunity but decided not

to participate, and/or b) the views of teachers who we missed in our recruitment efforts.

Correlational analysis was undertaken on certain items. Only results that are statistically significant ( $p$  value  $< 0.05$ ) are reported in the following section. You can find more detailed analyses in the appendices. Analysis, in the form of t-tests, was also undertaken to determine if there were any differences between the responses of primary and intermediate teachers on the one hand, and those of secondary school teachers on the other. Only results that were statistically significant ( $p$  value  $< 0.05$ ) are reported.

## Findings

### Curriculum design processes in schools

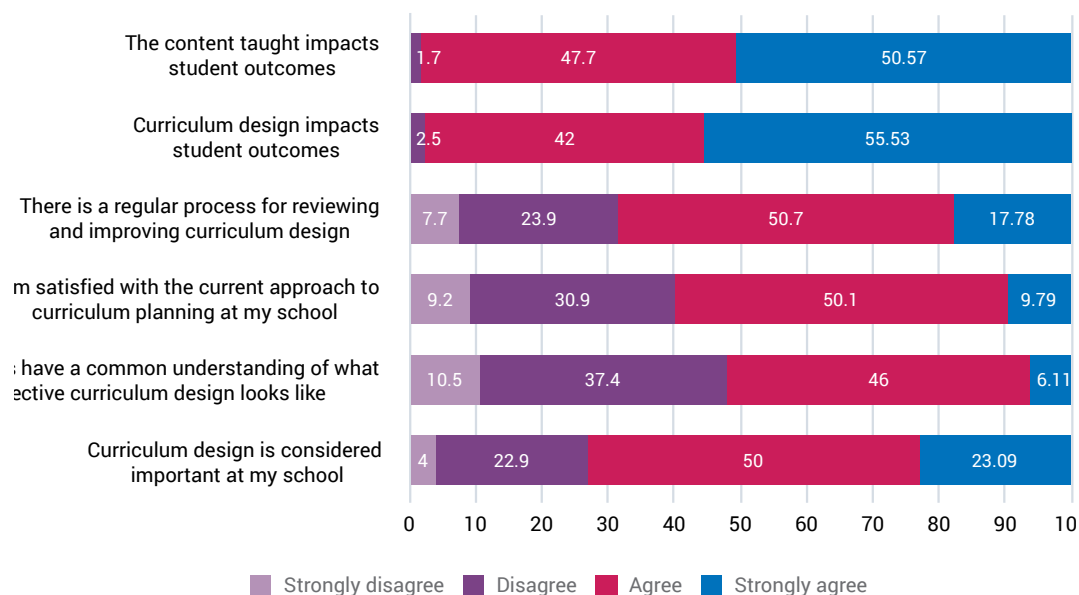
The data show that a majority of teachers think that their school considers curriculum design important but there is a significant minority (26.91% of participants) for whom this not the case. Given what the research suggests about the role that curriculum design plays in student outcomes, this is of concern. 40.11% of teachers are not satisfied with their schools' approach to curriculum design, and 47.9% of participants do not believe that there is a common understanding of effective curriculum design at their school. Many schools have a process for regularly reviewing their curriculum, although, again, a substantial minority – over 30% - of participants indicated that there is not a regular process for curriculum review or curriculum improvement at their school.



# PART 2 This study



**Extent to which teachers agree that the following aspects of curriculum design happen at their school**



While participants overall agree that both curriculum design and the content taught impact student outcomes, further analysis determined that secondary school teachers were significantly more likely to strongly agree with both these statements than primary and intermediate teachers.

### Sequencing and progression in curriculum design

Dylan Wiliam discusses the importance of progression in a curriculum at the overall level – that is across the thirteen years of a student’s schooling journey – as well as within a single year and within an individual unit or series of lessons.<sup>51</sup> This does not mean that there is always linear progression in learning within a subject or that in every subject there is an ideal order in which content should be learned (although in some cases this is likely to be the case). But, as the science of learning research demonstrates, the strength and interconnectedness of existing knowledge plays a role in supporting future learning. Therefore, thinking about how to ensure that all students have the requisite knowledge to engage fully in the curriculum as they move through school is essential.

Wiliam further notes that:

*One of the interesting differences between the curricula of high-performing countries and those that do less well in international comparisons is the high-performing countries tend to teach the same material in fewer years (Schmidt et al., 1997). They wait until the students are ready for the material, and then teach it properly. This brings us on to the need for the curriculum to be appropriate.<sup>52</sup>*

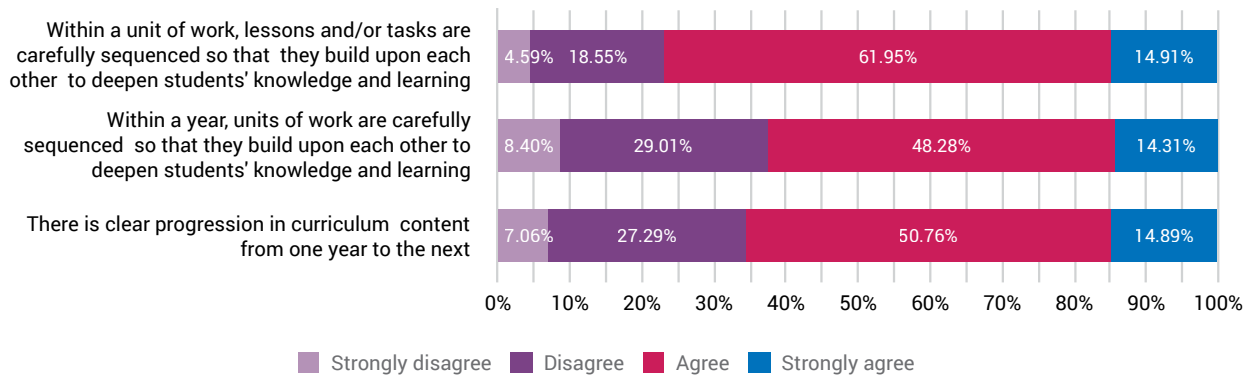
51 Wiliam, D. (2013). Principled curriculum design. SSAT (The Schools Network) Ltd.

52 Ibid., p.32.

This suggests that what is taught when, and where specific learning sits within a students' learning journey, is important to consider.



**Extent to which teachers agree principles of effective curriculum design inform practice at their school**



The survey data found that over one third of respondents disagree that there is clear progression in curriculum content between year levels or within a single year level. A higher proportion (76.5%) agree that within a unit of work, they are able to sequence learning in a way that deepens students' knowledge. This indicates greater perceived challenges with what might be termed high-level curriculum planning, that is, determining what should be taught within any given year or across years at school. This annual or multi-year planning is the type of curriculum design that is the most likely to be supported by national curriculum policy.

Further analysis shows statistically significant differences in the responses of primary and intermediate teachers, and secondary teachers. Secondary teachers were significantly more likely to agree with all three items. While the data does not enable us to determine why these inter-sector differences occur, differences in the structure and operation of primary schools and secondary schools likely provide some insight. Curriculum planning at the secondary school level typically is undertaken at a department level, with most teachers in the department holding degree-level knowledge of the subject. A departmental approach also more easily facilitates planning across the five years of secondary school. At primary school, curriculum planning processes are more variable, often undertaken by syndicates or the teachers of an individual year level, therefore making creating connections across years more challenging.

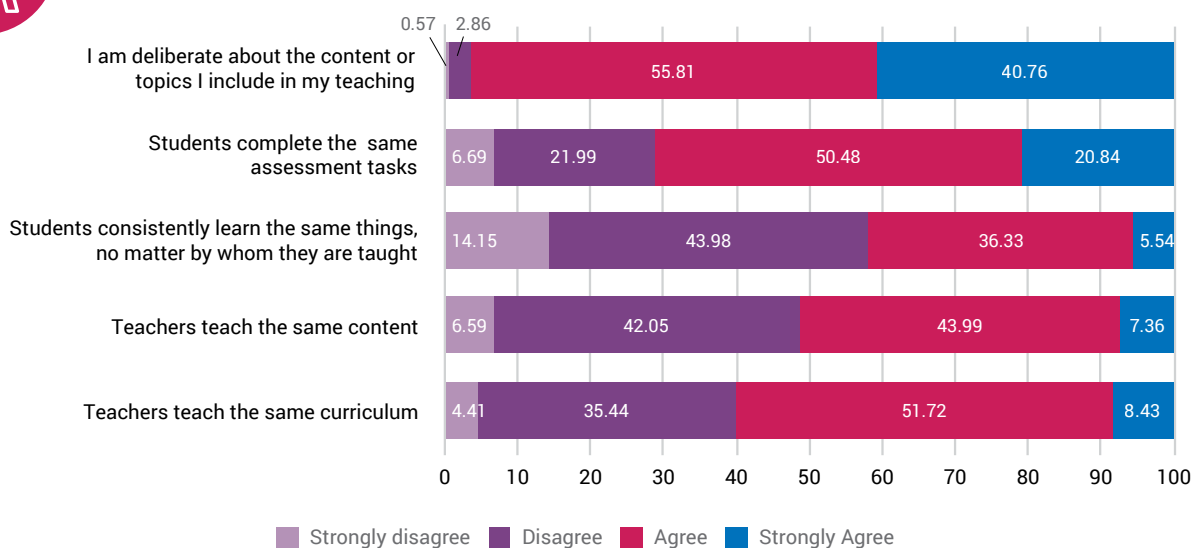
Correlational analysis offers further insight into the connections between different principles of effective curriculum design. The analysis reveals that teachers who more strongly agreed that there is clear progression in curriculum content from one year to the next at their school and that within a unit of work, lessons and/or tasks are carefully sequenced, were also more likely to agree that they selected the content they taught based on: (1) the need to build disciplinary knowledge; (2) to build on students' prior learning; (3) to

support students' to access learning in future years; (4) and the rigour of the content.

Analysis further identified significant negative correlations between teachers who design their curriculum alone and there being clear progression in curriculum content from one year to the next and within a year, and units of work being carefully sequenced so that they build upon each other to deepen students' knowledge and learning. Conversely, analysis found a significant positive relationship between teachers who engage in a collaborative approach to curriculum design at their school and satisfaction with their school's approach to curriculum design, clear progression from one year to the next, and within a year units being sequenced to deepen students' knowledge and learning. This suggests that schools that engage their teachers in collaborative curriculum design and planning are more likely to consider (and hopefully enact) principles of effective curriculum design.



### Curriculum content at my school



### The consistency of what is taught in schools

Just over 60% of teachers indicated that they teach the same curriculum as other teachers at their school and just over 50% teach the same content as others in their school. Interestingly, only 41.87% of teachers agree that students learn the same things no matter by whom they are taught, suggesting that in some schools even when teachers teach the same content or curriculum, student learning differs. This aligns with research by Professor Richard Elmore and colleagues, who found that even when four teachers were meant to be teaching the same lesson (on the same day!) there were substantial differences in how the set tasks were undertaken in each of the four classes and therefore in the learning in which students engaged.<sup>53</sup> Despite differences

53 City, E., Elmore, R., Fiarman, S., & Teitel, L. (2009). *Instructional Rounds in Education; A network approach to improving teaching and learning*. Harvard Education Press.



in curriculum and content, there is greater consistency around assessment, with 71% of teachers reporting that students complete the same assessment tasks.

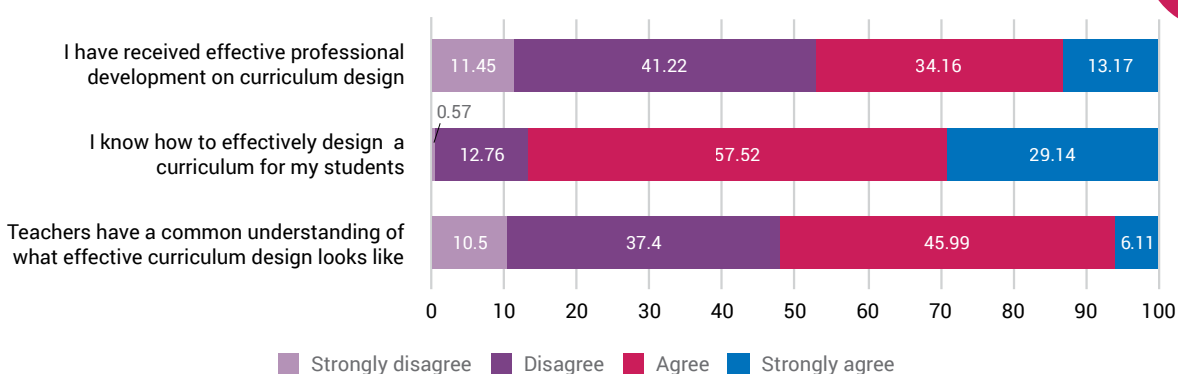
Further analysis found significant differences between the responses of primary and intermediate teachers and those of secondary teachers. Across all items, secondary school teachers on average were more likely to agree with the statements. Analysis also determined significant positive correlations between teachers who took a collaborative approach to curriculum design and those who agree that their students consistently learn the same thing and that students complete the same assessment tasks in their school.

### Teachers' curriculum expertise

87% of teachers agree that they know how to effectively design a curriculum. However, data indicate that notions of what constitutes effective curriculum design vary among teachers, with only 52% of respondents agreeing that teachers at their school have a common understanding of what effective curriculum design looks like. Secondary school teachers were significantly more likely to strongly agree that they know how to effectively design a curriculum for their students than primary or intermediate teachers. 52% of teachers indicated that they have not received effective professional development on curriculum design. This finding is particularly concerning given the research that has found that professional learning is most effective when it is embedded within specific content of the curriculum.<sup>54</sup> It also is interesting to note that despite over half of teachers not having received effective professional learning on effective curriculum design, the majority of teachers believe they know how to effectively design a curriculum.



#### Curriculum expertise

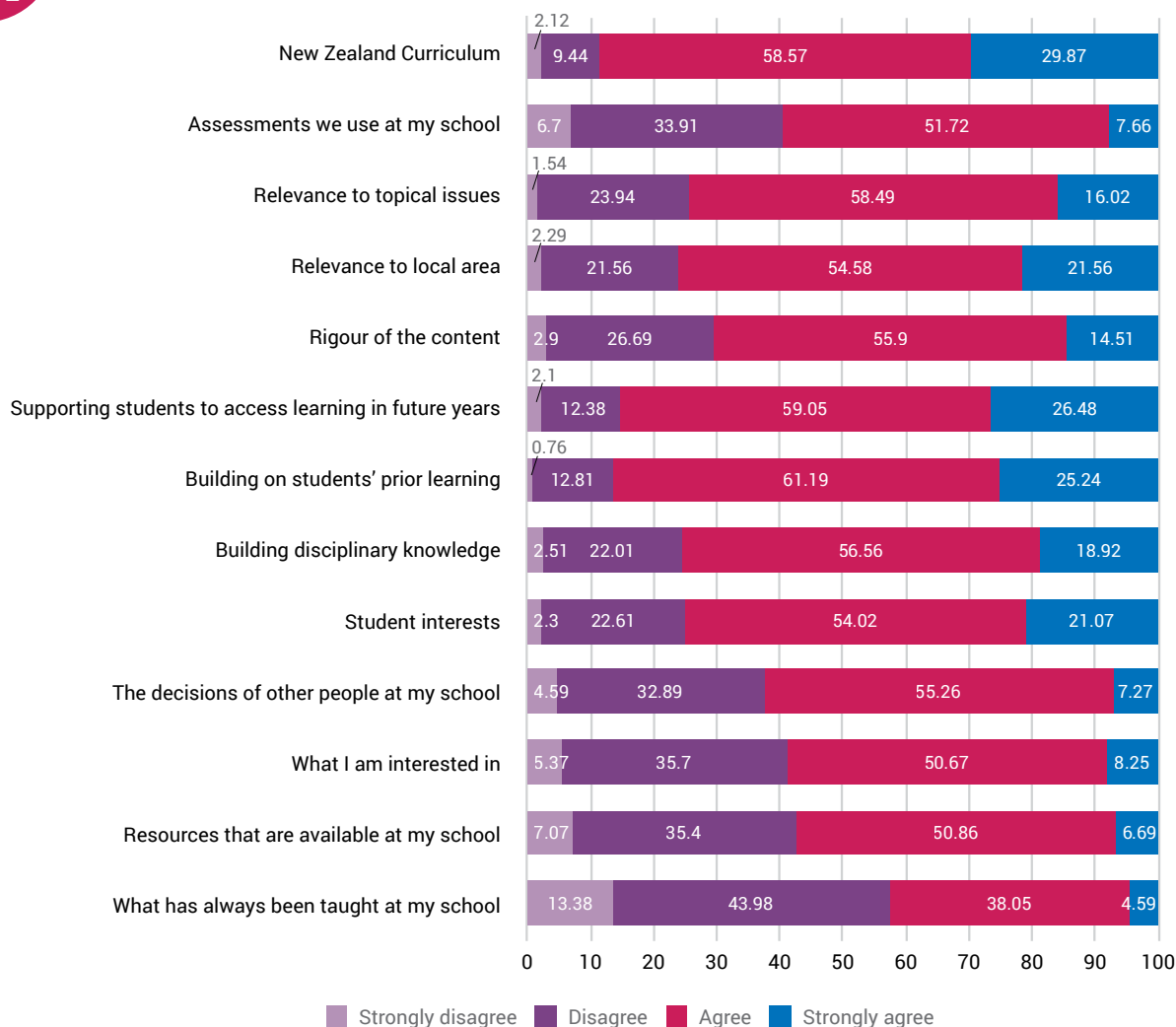


54 Wiener, R. & Pimentel, S. (2017). *Practice what you teach; Connecting curriculum and professional learning in schools*. The Aspen Institute. <https://www.aspeninstitute.org/publications/practice-teach-connecting-curriculum-professional-learning-schools/>

## Decision-making about the content taught at schools



Factors that influence the topics or content that are taught by teachers



A range of factors influence the topics or content that teachers select to teach. Of particular note, 29% of teachers disagree that the rigour of the content that they teach influences their choice, and a quarter of teachers disagree that disciplinary knowledge impacts what they teach. Encouragingly, 86% of teachers are influenced by the need to build on students' prior knowledge, something that the science of learning literature indicates is an important component of effective teaching and learning. In a similar vein, 85% of respondents take into account the need to support students to access future learning. Interestingly, 11.5% are not influenced by the NZC. It is possible that some of the teachers in this category teach in private schools, which are not required to teach the NZC, or in schools that follow the International Baccalaureate (IB) or Cambridge International Assessments.

Analysis shows that on average, secondary school teachers were significantly more likely to agree or strongly agree that the following factors influenced their decision-making: (1) what they are interested in; (2) decisions of other people at their school; (3) building students' disciplinary knowledge; (4) supporting students to access learning in future years; (5) the rigour of the content; (6) and the assessments used at their school. This likely reflects the organisation of teaching in secondary schools into departments by subject specialists and the role that qualifications play in influencing the teaching and learning that occurs. The only factor that primary and intermediate teachers were significantly more likely to agree or strongly agree with was that relevance to local area influences what they teach.

The comments in this section of the survey provide insight into the range of factors influencing what students are taught at school. The comments tended to fall along a spectrum ranging from a fully localised curriculum often dominated by student interests through to schools that described themselves as "knowledge-rich" and were heavily influenced by disciplinary knowledge structures.

For example, one teacher remarked:

*"We observe when the students are learning through play [and this] informs the topics/content we use for explicit teaching and student inquiries".*

Another teacher commented:

*"We start from where the learners are at and what they are interested in and design the learning from there".*

In some instances, teacher interests or expertise were the basis of content development, and students were able to select the learning opportunities that most appealed to them:

*"We offer modules which junior students can choose from based upon interest. The modules being offered comes from teacher interest or skill. Local curriculum is promoted where possible".*

Maintaining student interest was a factor behind one respondent reporting that they change what they teach every year:

*"As a team, we create new projects/contexts every year and for every subject. It keeps students' interests fresh and helps with plagiarism/copying. But it is tiresome for the teacher to develop resources and contexts".*

At the other end of the spectrum, schools were engaged in curriculum design decisions that were focused on disciplinary knowledge and rigour. For one, this mean accessing curriculum resources developed in Australia:

*"I have begun accessing the Australian Curriculum as they are leading the way in creating and sharing resources which align with the science of learning - explicit, systematic, and progressive".*

Several comments also indicated that some schools are in the process of rethinking their curriculum and how they were making curriculum decisions:

*"We are in the process of strengthening curriculum design with a focus on a school curriculum that is knowledge-rich, progressive and has both local and global elements. I hope to be able to answer these questions differently in 6 to 12 months time".*

For several respondents, the question triggered concerns about the current NZC and the support available to teachers around curriculum design:

*"This is a huge area of need in our school. It is the blind leading the blind".*

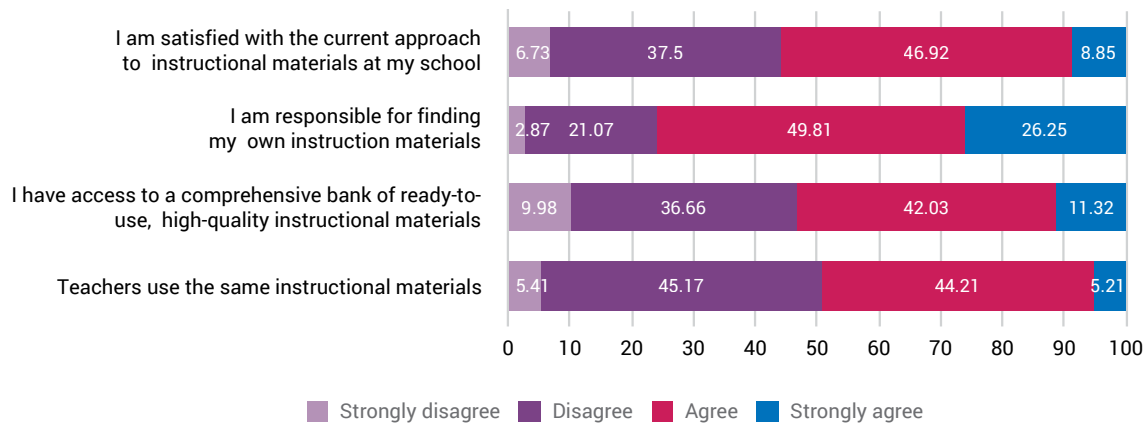
*"The curriculum needs to provide ALL the content teachers need to teach the learning are in the students' phase of learning. Teachers DO NOT search for additional documents to find the content needed. It needs to be contained in one document".*

## The processes surrounding instructional material development in schools

In general, teachers support the idea of sharing instructional materials and resources, particularly to support beginning teachers, and believe that access to high quality resources would give them the opportunity to focus on other areas of their practice. However, despite this, resource sharing and access to high quality shared resources is not as common in schools as one might hope.



### Current practice around instructional materials at schools



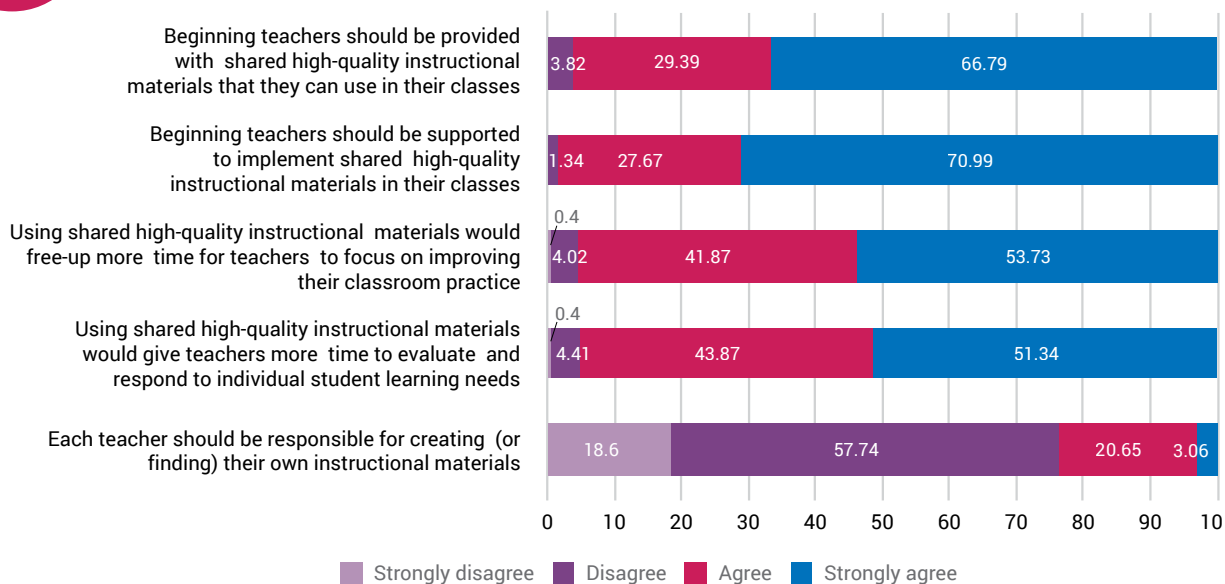
Three-quarters of respondents agreed they were responsible for finding their own instructional materials, despite 53% agreeing that they have access to a comprehensive high quality bank of instructional materials at their school. Comments suggest that while some teachers may have access to shared resources, they do not always consider that these are high quality or well suited to their teaching style or students' needs. As one teacher noted:

*"I don't like the resources shared with me at school as they are all out of date and don't make sense to me-for example the link between learning intentions and activities is not clear. I have to make my own version so that I can teach with confidence."*

Just under 50% of teachers agree that they use the same materials as others at their school and 44% of teachers are dissatisfied with the approach to instructional materials at their school.



### How teachers view the sharing of instructional materials



Only 23.7% of participants agree that teachers should be responsible for finding or creating their own materials. On average secondary school teachers were significantly more likely than primary or intermediate teachers to agree or strongly agree that individual teachers should be responsible for making their own materials.

95% of teachers believe using shared high-quality instructional materials would give teachers more time to evaluate and respond to individual student learning needs and 96% agree that it would free-up more time for teachers to focus on improving their classroom practice. As one teacher noted:

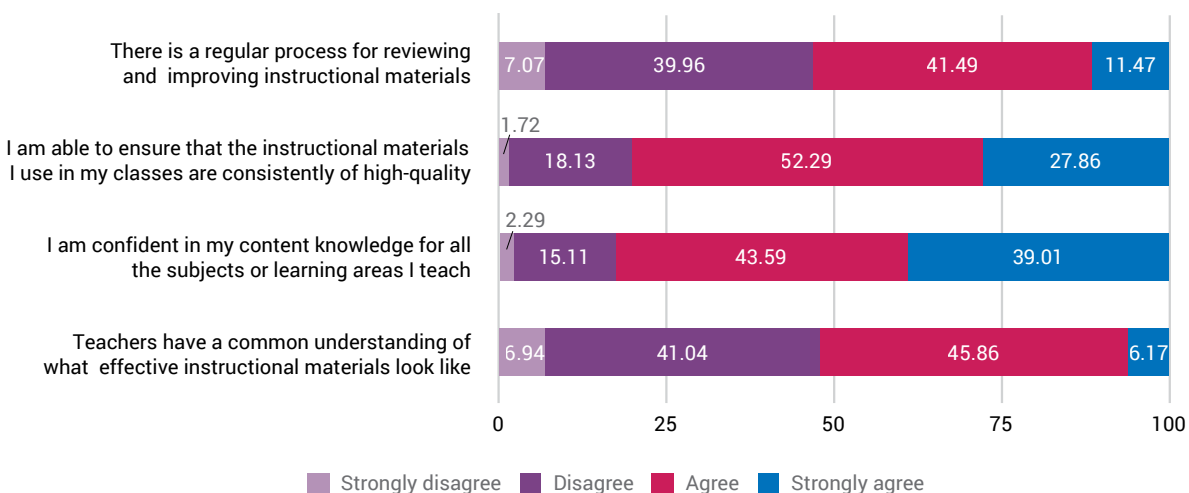
*"I would really love to have more resources freely available to suit the curriculum .... Teachers need a toolbox of ideas that they can develop as too often their own toolbox is empty."*

98% of teachers agree that beginning teachers should be supported to implement shared high quality instructional materials and 96% agreed that beginning teachers should be provided with these materials. One early-career teacher wrote:

*“As a (now 2nd year) primary teaching BT (with a PhD from overseas) I was unbelievably shocked by: the huge lack of easy to use (lesson ready) and clearly explained resources available for teachers on TKI (with the exception of NZ Maths); and by NZ’s grossly underspecified primary school curriculum. Couple this with teachers’ general reluctance to share resources with colleagues (a behaviour I do not subscribe to myself), the effect is a massive burden is placed on teachers for producing all their own materials virtually from scratch. Every day, I work from 7am-9 or 10 pm and much of my weekend, in addition to working most of the school holidays (producing lesson plans and resources, trying to teach myself how to sequence math learning appropriately, trying to compile science lessons, interesting social studies lessons, finding engaging teaching ideas). The workload is so huge that eventually I started to buy resources (which I do on TPT, Top Teaching tasks) as the burden of producing everything oneself (& sometimes for team planning, at my school) is so overwhelming. I am also trying to include subjects not taught at Primary school (science) because our atrocious NMSSA results for maths and science are key reasons I decided to enter teaching.”*



### How teachers approach the quality of instructional materials



87% of teachers are confident in their content knowledge for all the subjects they teach. However, further analysis determined that primary and intermediate teachers were significantly less likely than secondary school teachers to agree or strongly agree with this. This reflects that primary teachers teach across all or most learning areas, while secondary teachers generally (although not always) hold a degree in the subject or subjects that

they teach. 81% of teachers agreed that they were able to ensure the quality of their instructional materials. Secondary teachers were significantly more likely to agree or strongly agree, again likely reflecting their confidence in their content knowledge and pedagogical content knowledge for the subjects they teach.

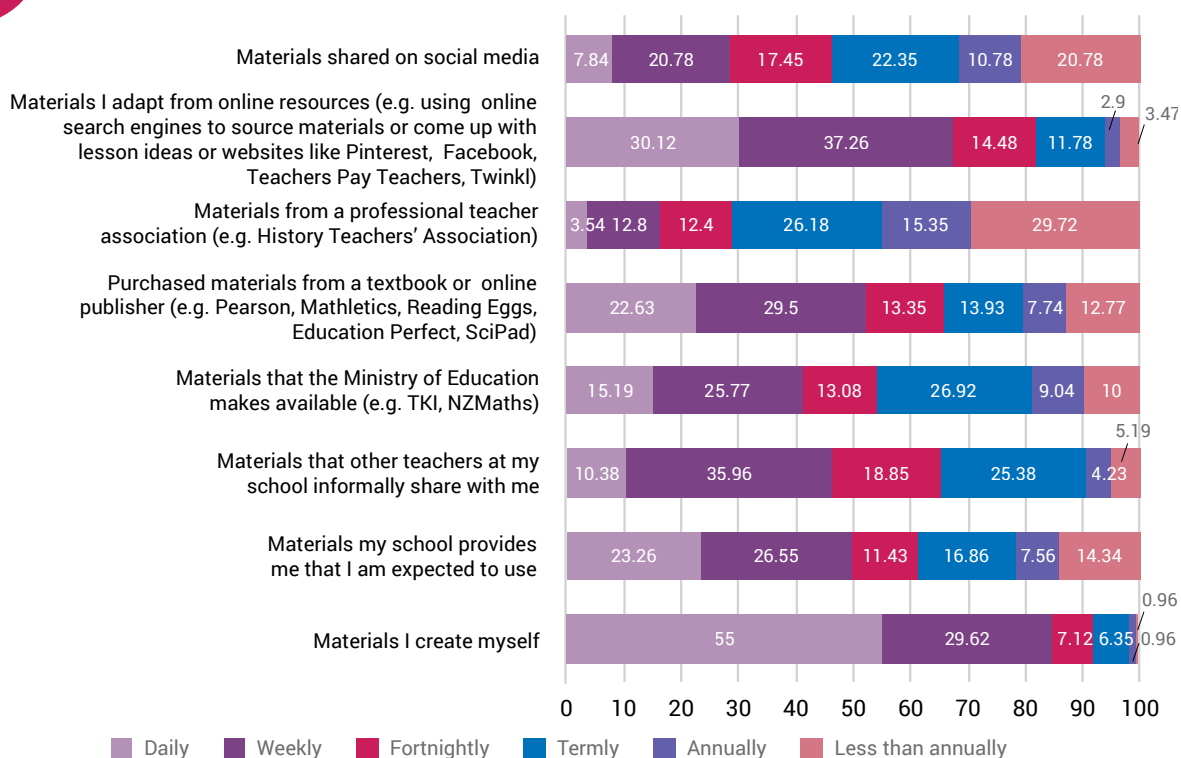
While a majority of teachers believe they can ensure the quality of the resources they use, only 52% of participants agree that teachers at their school have a common understanding of what effective instructional materials look like. While this does not necessarily mean that teachers are not designing and using effective materials, it does raise questions about the potential variation in learning opportunities students receive as a result of differences in conceptualisations of what makes instructional materials effective.

Just over half of teachers reported there being a regular process for reviewing the quality of instructional materials at their school. Analysis found that those teachers who have staff meetings that focus on instructional materials more regularly believe they are better able to ensure that the materials they use are high quality.

### Where teachers source instructional materials and their perceptions of the quality of materials from different sources



From where are teachers sourcing their instructional materials





and purchased materials. Materials from professional associations and those shared on social media were least commonly used.

There were statistically significant differences in the frequency that primary and intermediate teachers, and secondary teachers accessed materials from particularly sources. On average, secondary teachers more frequently used materials they created themselves, while primary and intermediate teachers more frequently used materials their school required them to use, materials from the Ministry of Education, materials adapted from online resources, and materials shared on social media.

The comments provide additional insight into how and why teachers source materials from particular places. They also show that a number of teachers are spending their own money on resources. As one participant shared:

*“As a little school we don’t have the funding to get what we need, so most of our teachers spend a lot of their own money for resources and subscriptions”*

In other cases, schools purchase some materials but teachers still have to spend their own money in order to be able to access the range of resources they require, often because they do not believe that the quality of resources that are currently freely available is high enough:

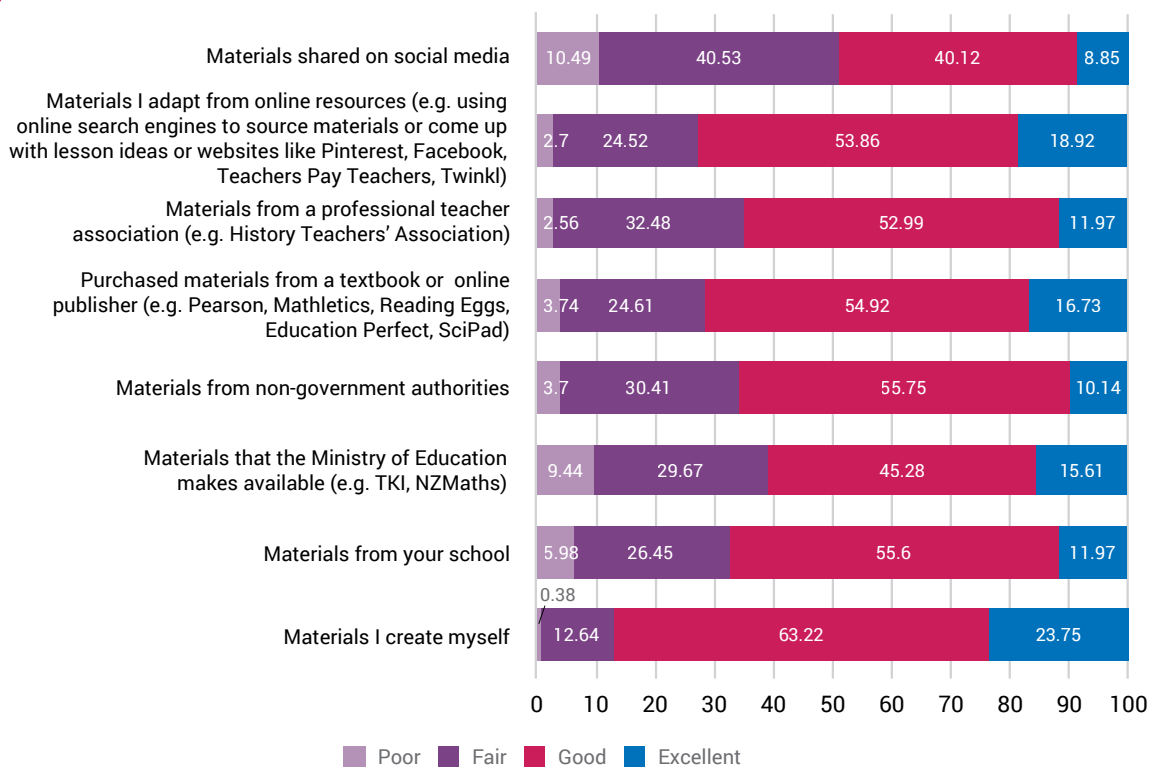
*“Our school has purchased decodable books for reading instruction published by Sunshine. Each year the team leader uses allocated school funds to purchase quality books to support classroom instruction. These are great. Extra resources to support teaching blending/segmenting etc are sourced by the team from online and printed and laminated. Thus these resources vary between classrooms. Other resources I am buying from my own personal funds. I don’t think this is acceptable but has gone on for decades. TKI online resources are not child friendly – there are much better graphics etc that the children find engaging. Our team frequently sources video content from You tube. I teach five year olds and get a limited amount approx. \$150.00 in term 1 only, to purchase things such as containers to store equipment and stickers for rewarding positive behaviours (which the children love).”*

”

**Most of our teachers spend a lot of their own money for resources and subscriptions**



### Quality of resources sourced from different places



**Materials shared on social media, those provided by the Ministry of Education, and materials from professional associations were considered to be the lowest quality.**

Teachers view the quality of the resources they create themselves most highly followed by those they adapt from online sources and those they purchase from a publisher or organisation (non social media or teacher-sharing website) source. Materials shared on social media, those provided by the Ministry of Education, and materials from professional associations were considered to be the lowest quality.

There were statistically significant differences between how favourably primary and intermediate teachers rated the quality of particular resources compared with secondary teachers. Secondary teachers rated the quality of resources they created themselves more favourably than primary teachers, while primary teachers rated the quality of materials from the Ministry of Education and non-government authorities as well as materials adapted from online resources and those shared on social media significantly more highly than secondary school teachers.

Analysis further determined that there were significant positive correlations between teachers who used materials purchased from a publisher or company and materials from a professional association more frequently and teachers having received effective professional learning on curriculum design, and with curriculum design being considered important at their school.

Significant negative correlations were found between the frequency with which materials adapted from online sources were used and teachers' (self-reported) knowledge of how to effectively design curriculum (that is, the more you use online resources, the less certain you are in how to design a curriculum), and between the frequency of using materials shared on social media and being deliberate about the content/topics taught, as well as with knowing how to design an effective curriculum. This suggests that those teachers who consider themselves to be weaker in curriculum design and curriculum thinking are significantly more likely to be using materials from unvalidated sources that lack quality control mechanisms.

Further analysis shows that teachers who use online resources spend more time each week finding resources are less confident in their content knowledge and consider themselves less able to judge if materials are high quality. They are also significantly more likely to positively rate the quality of materials found online and on social media. Teachers who use resources from social media more frequently are significantly less likely to use the same materials as other teachers in their school, are significantly less satisfied with the approach to how instructional materials are developed at their school, are significantly less confident in their content knowledge, and are significantly less likely to think materials from their school are high quality. They are, however, significantly more likely to think that materials from social media and those found online are high quality. Given what the international research suggests about the quality of many of the resources shared online and on social media, it is concerning (though perhaps unsurprising) that teachers who have weaker knowledge and expertise around curriculum design and curriculum making are more likely to be using materials from these sources.

Further correlational analysis shows that teachers who use Ministry of Education materials and purchased materials more frequently are significantly less confident in their content knowledge and less able to ensure materials are high quality.

The comments provide further insight into how teachers are thinking about the quality of the resources they are using. For one, it was their strong knowledge base around effective practice and how we learn that enabled them to create effective resources:

*"The resources I use are good only, I believe, because I have a strong foundational understanding of the theory behind literacy acquisition, so am in the position of choosing and creating high quality resources that support the practical implementation of the theory around the Science of Reading and Writing."*

”

**Teachers who consider themselves to be weaker in curriculum design and curriculum thinking are significantly more likely to be using materials from unvalidated sources**

For a number of participants, it is not just about the resources individually but also about how they are brought together to form a coherent curriculum, something that can be more challenging to achieve when they are being sourced from multiple places:

*"It all depends on what is chosen from these sources. The problem is that it is bits and pieces rather than sequentially and consistently building on what has come before. I can't afford to buy much personally. I trained and taught in another country and am shocked that the MoE does not provide and supply basic, quality and ready to use resources."*

And as another suggested:

*"I see a lot of disconnected busy work available. What we need is an evidence based, cumulative curriculum to build general knowledge"*

For one participant, it was not about the source but rather the individual who is responsible for developing the resources:

*"I continue to collaborate with colleagues from previous schools. It's not so much the specific school's resources that I consider "go-to" material. It's more the specific work designed by a specific individual that I consider to be informed, effective, insightful, knowledgeable."*

A number of teachers reflected on the importance of localisation and personalisation. For some, this was about knowing their students and designing materials that align with their needs:

*"If I make materials myself, I can tailor them to my learners - where they are at and [what] aspects we need to focus on to clarify learning."*

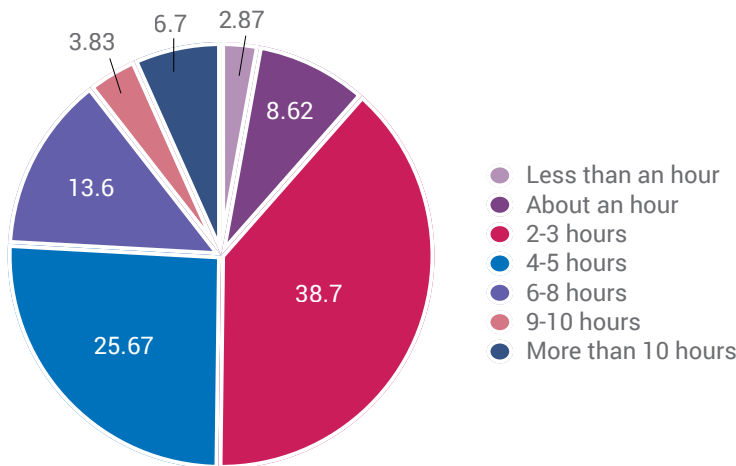
For others, it was about ensuring resources were relevant to the New Zealand context:

*"If they're not new Zealand based then they'll always need to be adapted".*

Existing research has identified the importance of teachers being able to localise and personalise resources to their contexts and students. However, this does not mean that high quality resource banks are not effective or useful. Rather, they can, if well developed, provide a high-quality starting point for teachers, which they can then modify to suit their particular needs.<sup>55</sup>

### Time spent searching for and developing instructional materials at week

Hours spent each week searching for and developing instructional materials



There was considerable variation in the number of hours teachers spend each week during term time finding and creating resources. Nearly 25% of teachers spend 6 or more hours a week creating resources and a further 25% spend nearly an hour a day creating resources. As one participant noted:

*“Some of our team are better at finding ‘good’ ones than others. It takes up a lot of teacher time hunting for, printing and/or laminating and storing in a readily accessible way.”*

55 Hood, N. (2018).

## PART 3

# Drawing the threads together; what are the implications of these findings?

This report is intended to provide initial insight into the processes informing curriculum design and delivery in New Zealand schools. As such, the claims or recommendations it can make are somewhat limited, and merely scratch the surface of the questions or issues surrounding curriculum in New Zealand. However, it does identify areas that require further investigation and thought, at both a national and individual school level. It is hoped that some of the questions or topics covered in the survey could be used by schools or Kāhui Ako as they engage in conversations about how they want to approach curriculum design and implementation, and discussions about the selection of instructional materials.

A central theme throughout this report is one of variability. International data has demonstrated high levels of within-school variability in student outcomes. National and international data has, for years, shown significant variability in achievement outcomes based on ethnicity, socio-economic status, and increasingly gender. Further data has demonstrated substantial variability in the proportion of students achieving NCEA (particularly Levels 2 and 3) and University Entrance at different schools across New Zealand. Small scale studies have found variability in the depth and breadth of topics studied or the complexity and length of texts taught in secondary schools.

This study contributes further data on variability. At a high level, it has shown the variability of how the curriculum is interpreted and implemented by teachers across the country, and variability in the selection and use of instructional materials. It has also unearthed subcurrents of variability, which sit beneath and underpin curriculum design and the use of instructional materials:

- Variability in teachers' access to effective professional learning.
- Variability in the factors shaping what content is taught and therefore what students are learning. Variability in teachers' understanding of the research evidence on the principles of effective curriculum design (or at least variability in how or whether these are implemented these in practice).
- Variability in the resourcing available in schools and therefore teachers' ability to access particular materials.
- Variability in notions of quality and how teachers assess the quality of different resources and materials.
- Variability between the approaches of primary and secondary teachers and the factors that influence their decision making and practice.
- Variability in the practices and approaches of teachers who rate themselves as having greater curriculum expertise and those who have weaker expertise.
- Variability in the curriculum design processes of teachers who engage in collectively planning and decision making and those that largely operate alone.

The issue, however, is not so much that different teachers and different schools are approaching curriculum design and instructional materials in different ways. It is that this variability in approach is coupled with significant variability in educational outcomes. Tom Sherrington provides a useful lens for unpacking this. In his book *The Learning Rainforest*, he suggests that the education system should not be “trying to create carbon-copy children with identical learning experiences. There is value in diversity”. However, he adds a proviso to this: that all students are supported to build a strong core of knowledge and skills that will “help them engage in national and global cultural life at a level of their choosing (not the level defined by the limitation of their education), finding joy and inspiration along the way”. And it is here that strong curriculum design comes to the fore. Currently, the curricular choices being made by teachers and schools are not universally providing equity of learning opportunities or equity of choices and outcomes for students in Aotearoa New Zealand.

The recommendations below, therefore, are not an attempt to severely limit localised approaches or to curtail plurality. Rather, they are focused on how to ensure high quality curriculum processes and practices are in place in all schools and in all classrooms across Aotearoa New Zealand.

**Support teachers and school leaders to better understand the principles of effective curriculum design and how these impact and might be applied both to individual subjects and across the curriculum. They also need support to know how to implement these principles within their local contexts.** The results of the survey indicate that there is considerable variation in approaches to curriculum design among New Zealand schools and differences in how principles of effective curriculum design are being applied. Ensuring that there is strong curriculum thinking and expertise present in every school and that teachers understand the connection between curriculum design and student learning is essential. Teachers are curriculum makers, responsible for interpreting and transforming the national curriculum, and unpacking the meaning and significance of the content into instructional events.<sup>56</sup> The ability to unlock what Deng calls the “educational potential” of the curriculum content requires considerable knowledge and expertise across various domains. Teachers need support to be able to understand the significance of particular curriculum content – at a general level, the level of the individual student, and the future potential and opportunity it offers – and must have the pedagogical knowledge to be able to transform it into learning opportunities that align with their students’ stage of development.

**We need to determine the curriculum non-negotiables (or core knowledge) and ensure that these are effectively taught to all students.** The data identified considerable variation not only in the content students engage in but also the broader learning experiences and learning opportunities they receive. Greater consideration should be given to which parts of the curriculum need to be tight, with greater prescription and direction given, and which parts of the curriculum can be looser, providing opportunities for localisation. This should encompass identifying the core content (including both academic knowledge

”

**The curricular choices being made by teachers and schools are not universally providing equity of learning opportunities or equity of choices and outcomes for students in Aotearoa New Zealand.**

<sup>56</sup> Deng, 2022.

and executive function skills and socio-emotional learning) and disciplinary competencies that all young people are expected to master during their time at school. A scope and sequence should accompany this, which maps out, in those subjects and topics where it is appropriate and needed, the order in which this content should be taught and the developmental stage at which it is most appropriate to teach this content. Accompanying this should also be rationales for the content and structure, and teacher notes to support teachers to understand the why of curriculum decisions but also to act as a pedagogical tool to build teachers' curriculum design knowledge.

However, in suggesting such an approach, it is important that this does not become what David Lambert has described as a vision of education based on "an unchanging canon of facts, even though the rate of knowledge production continues to accelerate relentlessly".<sup>57</sup> Rather, it is a continually revised and revisited exploration of questions related to what knowledge students should be engaging with, and framed by the understanding of knowledge as a vehicle for developing human powers, not something to be taught for its own end.<sup>58</sup> Furthermore, it forms a starting point for teachers to engage in the acts of curriculum making, involving unpacking and interpreting the content and developing rich encounters between the content and students.

**Understand the resourcing that is required to make curriculum design and delivery successful at a local level, and ensure that this resourcing is provided to all schools.** This will involve developing a better understanding of what makes curriculum design and delivery effective in individual schools, and the types of support that schools and teachers require. Given the significant differences that emerged between some of the perspectives and actions of primary and secondary teachers in this research, it is imperative to ensure resourcing is tailored to specific contexts. Connected to this should also be an examination of the content knowledge and pedagogical content knowledge that teachers need to be able to effectively engage in curriculum making and implement rich learning opportunities for their students.

**Ensure all teachers have access to quality instructional materials that map onto the curriculum and provide rich learning opportunities for students, and build teachers' knowledge of what makes high quality instructional materials and rigorous tasks.** These instructional materials should facilitate different pedagogical approaches, and should be adaptable, so as to enable teachers to localise them to their particular contexts and needs. Alongside access to high quality instructional materials, teachers also need to be upskilled around what makes for effective and rigorous tasks at different year levels, and supported to assess students' learning and progress through these tasks and the curriculum.



**Alongside access to high quality instructional materials, teachers also need to be upskilled around what makes for effective and rigorous tasks at different year levels**

57 Lambert, D. (2011). Reviewing the case for geography, and the 'knowledge turn' in the English national curriculum. *Curriculum Journal*, 22(2), 243–264. <https://doi.org/10.1080/09585176.2011.574991>, p.225.

58 Deng, 2022.



**Develop an evaluation process, which enables better insight into how the curriculum is being implemented in schools and analysis of the impact this is having on a broad range of student outcomes.** Too much policy and practice in New Zealand education is happening without access to the range of data that would enable effective and timely decisions to be made or for iterative improvement to be undertaken. As Michael Absolum, Adrienne Carlisle, and Mary Chamberlain recently wrote “If there had been ongoing evaluation and feedback loops in place following the release of the widely acclaimed 2007 curriculum, for example, it would have quickly become clear that teachers needed clearer expectations, more detail about progressions and more focused support to use progressions to ensure more equitable learning opportunities and more equitable learning outcomes”.<sup>59</sup>

**Underpinning all of this must be a common understanding of what it is we are striving for in our curriculum and school-level education system.** All decisions in education relate to how we conceptualise the purpose of school-level education. Much of the current debate in education reflects differences in how individuals answer this question and how this flows into decision making around curriculum and pedagogy in schools. Any curriculum must be future-focused, engaged not only with what student need to know now, but also understanding what students should become and what powers they need to develop in the 21st century and beyond. Such an approach requires action at three levels – national policy, the programmatic or institutional level, and at a classroom level.

### **A few concluding thoughts**

Curriculum has become a hot topic in New Zealand education in 2023. In some ways this is a welcome change. Over the past decade, in New Zealand at least, it has seemed that there has been such a strong focus on pedagogy that curriculum, and the role it plays in education, has been somewhat forgotten or at least marginalised. However, with this greater focus on curriculum comes the risk of education becoming even more polarised and of educators (and the general public) retreating even further into their ideological camps. Discussions and decisions about both the national curriculum and its implementation and enactment in individual schools have profound implications for our rangatahi and for New Zealand as a whole.

While I’m not certain there is one “right” answer to the curriculum questions and issues that are being raised, we have a duty to get this as right as possible. This will require people from different ideological positions, from different roles, and with varying knowledge-bases and expertise to come together in constructive dialogue. It will necessitate a broadening of perspectives and a commitment to not get stuck in old schemas or single bodies of research or evidence. It is not going to be an easy task. But, it will be crucial for Aotearoa New Zealand’s future.

”

**With this greater focus on curriculum comes the risk of education becoming even more polarised and of educators (and the general public) retreating even further into their ideological camps.**

<sup>59</sup> Absolum, M., Carlisle, A., & Chamberlain, M. (2023). Reviving the Flames of Excellence: Igniting a Sytem that Learns. Published on the NZAI website: <https://www.nzai.org.nz/wp-content/uploads/2023/06/Reviving-the-Flames-of-Excellence-Final-20062023.pdf> .

# References

- Absolum, M., Carlisle, A., & Chamberlain, M. (2023). *Reviving the Flames of Excellence: Igniting a System that Learns*. Published on the NZAI website: <https://www.nzai.org.nz/wp-content/uploads/2023/06/Reviving-the-Flames-of-Excellence-Final-20062023.pdf>.
- Agodini, R., Harris, B., Thomas, M., Murphy, R., & Gallagher, L. (2010). *Achievement Effects of Four Early Elementary School Math Curricula: Findings for First and Second Graders (NCEE 2011-4001)*, National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education.
- Alansari, M., Wylie, C., Hipkins, R., Overbye, S., Tuifagalele, R., & Watson, S. (2022). *Secondary teachers' perspectives from NZCER's 2021 National Survey of Secondary Schools*. NZCER.
- Bishop, R., & Berryman, M. (2006). *Culture speaks: Cultural relationships and classroom learning*. Huia Publishers.
- Blazar, D., Heller, B., Kane, T., Polikoff, M., Staiger, D., Carrell, S.,...& Kurlaender, M. (2019). *Learning by the Book: Comparing math achievement growth by textbook in six Common Core states*. Research Report. Center for Education Policy Research, Harvard University.
- Bryk, Anthony S., Valerie E. Lee, and Peter B. Holland. 1993. *Catholic Schools and the Common Good*. Harvard University Press.
- Chingos, M., & Whitehurst, G.R. (2012). *Choosing Blindly; Instructional materials, teacher effectiveness, and the Common Core*. Brown Centre for Educational Policy at Brookings
- Costante, K. (2010) Leading the instructional core; An interview with Richard Elmore. *In Conversation*. <https://www.sgdsb.on.ca/upload/documents/blds-ic-leading-the-instructional-cor.pdf>.
- Curriculum, Progress, and Achievement Ministerial Advisory Group (2019). *Strengthening curriculum, progress, and achievement in a system that learns, E whakakaha ana i te marautanga, te koke, me te ekenga taumata i te rangapūe ako ana*. The Ministry of Education. [https://amazonaws.com/ELS+0324+CPA+Final+MAG+report\\_06+includes+Ed+Strategy+vision.pdf](https://amazonaws.com/ELS+0324+CPA+Final+MAG+report_06+includes+Ed+Strategy+vision.pdf).
- Deng, Z. (2022) Powerful knowledge, educational potential and knowledge-rich curriculum: pushing the boundaries. *Journal of Curriculum Studies*, 54 (5), 599-617, DOI: 10.1080/00220272.2022.2089538.
- Gómez, C. R. (2021). *Recasting the subject: Curriculum, equity, and the educated ideal in secondary English classrooms*. Unpublished doctoral thesis. University of Auckland.
- Grissmer, D., Buddin, R., Berends, M., Willingham, D., DeCoster, D. et al. (2023). *A Kindergarten Lottery Evaluation of Core Knowledge Charter Schools: Should Building General Knowledge Have a Central Role in Educational and Social Science Research and Policy?*. (EdWorkingPaper: 23-755). Retrieved from Annenberg Institute at Brown University: <https://doi.org/10.26300/nsbq-hb21>.
- Hertel, J.T., Wessman-Enzinger, N.M. (2017). Examining Pinterest as a curriculum resource for negative integers: An initial investigation. *Education Sciences*. 7(2):45. doi: 10.3390/educsci7020045.
- Hirsh, E. D. (2016). *Why knowledge matters; Rescuing our children from failed educational theories*. Harvard Education Press.
- Hood, N. (2018). Personalising and localising knowledge: how teachers reconstruct resources and knowledge shared online in their teaching practice. *Technology, Pedagogy and Education*, 27 (5), pp.589-605.
- Hood, N. (2020). *Problems of practice: The teaching and learning priorities of New Zealand school teachers*. The Education Hub: <https://theeducationhub.org.nz/problems-of-practice-the-teaching-and-learning-priorities-of-new-zealand-school-teachers/>.
- Hughson, T. & Hood, N. (2022). *What's happening with literacy in Aotearoa New Zealand? Building a comprehensive national picture*. The Education Hub: [https://theeducationhub.org.nz/wp-content/uploads/2022/03/Ed-Hub\\_Long-literacy-report\\_v2.pdf](https://theeducationhub.org.nz/wp-content/uploads/2022/03/Ed-Hub_Long-literacy-report_v2.pdf).
- Hunter, J., Haywood, A., & Parkinson, N. (2022). *Ending the lesson lottery; How to improve curriculum planning in school*. Grattan Institute.
- Kane, T. (2016). *Never judge a book by its cover – use student achievement instead*. Brookings. <https://www.brookings.edu/research/never-judge-a-book-by-its-cover-use-student-achievement-instead/>.

- Kaufman, J., V Opfer, V. D., Bongard, M. & Pane, J. (2018). *Changes in what teachers know and do in the Common Core era: American Teacher Panel findings from 2015 to 2017*. RAND, <https://doi.org/10.7249/RR2658>.
- Lambert, D. (2011). Reviewing the case for geography, and the 'knowledge turn' in the English national curriculum. *Curriculum Journal*, 22(2), 243–264. <https://doi.org/10.1080/09585176.2011.574991>, p.225.
- Lovell, O. (host) (2023). Ben Jenson on the importance of curriculum, episode 077, [audio podcast episode]. *Education Research Reading Room*. <https://www.ollielovell.com/err/benjensen/>.
- Medina, E. & McGregor, A. (2019). *PISA 2018 Reading in New Zealand: Reading achievement & experiences of 15-year-olds*. Ministry of Education. <https://www.educationcounts.govt.nz/publications/series/2543/pisa-2018/pisa-2018-reading-in-new-zealand>.
- Ministry of Education. (2017). *PIRLS 2016: New Zealand's Achievement*. Ministry of Education. <https://www.educationcounts.govt.nz/publications/series/2539/pirls-201516/pirls-201516>.
- OECD (2013) *PISA 2012 Results: Excellence through Equity* (Vol. II). OECD Publishing. Retrieved from <https://www.oecd-ilibrary.org/docserver/9789264201132-en.pdf?expires=1541371329&id=id&ac-cname=guest&checksum=75358C3D-D797907C3C02CF1100F263F9>
- OECD, (2015). *How much time do teachers spend on teaching and non-teaching activities?* OECD. <https://www.oecd-ilibrary.org/docserver/5js64kndz1f3-en.pdf?expires=1679868028&id=id&ac-cname=guest&checksum=BC929B-0909BAD716738FBCB1A97E9D2D>
- Ormond, B. (2017). Curriculum decisions: The challenges of teacher autonomy over knowledge selection for history. *Journal of Curriculum Studies*, 49(5), 599-619.
- Polikoff, M. & Dean, J. (2019). *The Supplemental-Curriculum Bazaar: Is What's Online Any Good?*. Thomas B. Fordham Institute.
- Ravitch, D. & Cortese, A. (2009). Why we're behind; What top nations teach their students but we don't. *The Education Digest*, 75 (1), pp.35-38.
- Rendall, S., Medina, E., Sutcliffe, R. & Marshall, N. (2020). *TIMSS 2018/19, Mathematics, Year 5*. Ministry of Education. [https://www.educationcounts.govt.nz/\\_data/assets/pdf\\_file/0003/205707/TIMSS-2018-Year-5-Mathsc.pdf](https://www.educationcounts.govt.nz/_data/assets/pdf_file/0003/205707/TIMSS-2018-Year-5-Mathsc.pdf).
- Sawyer A., Dick L., Shapiro E., Wismer T. (2019). The top 500 mathematics pins: An analysis of elementary mathematics activities on Pinterest. *Journal of Technology and Teacher Education*, 27 (2), pp.235–263.
- Schleicher, A. (2019). PISA 2018; Insights and interpretations. OECD. <https://www.oecd.org/pisa/PISA%202018%20Insights%20and%20Interpretations%20FINAL%20PDF.pdf>.
- Sherrington, T. (2017). *The Learning Rainforest; Great teaching in real classrooms*. John Catt Educational Limited, p. 80.
- Steiner, D., Magee, J. & Jensen, B. (2018). *What we teach matters; How quality curriculum improves student outcomes*. Learning First and the Johns Hopkins Institute for Education Policy.
- Turner, H., Rubie-Davies, C. M., & Webber, M. (2015). Teacher expectations, ethnicity and the achievement gap. *New Zealand Journal of Educational Studies*, 50(1), 55-69.
- Wiliam, D. (2013). *Principled curriculum design*. SSAT (The Schools Network) Ltd.
- Wilson, A., Madjar, I., & McNaughton, S. (2016). Opportunity to learn about disciplinary literacy in senior secondary English classrooms in New Zealand. *The Curriculum Journal*, 27(2), pp. 204-228.
- Wilson, A., & Jesson, R. (2018). A case study of literacy teaching in six middle-and high-school science classes in New Zealand. In K. Tang & K. Danielsson (Eds.), *Global developments in literacy research for science education*, pp. 133-147. Springer.
- Wilson, A., McNaughton, S., & Zhu, T. (2017). Subject area literacy instruction in low SES secondary schools in New Zealand. *Australian Journal of Language and Literacy*, 40(1), pp. 72-85.
- Wood, B. E., & Sheehan, M. (2021). Transformative disciplinary learning in history and social studies: Lessons from a high autonomy curriculum in New Zealand. *The Curriculum Journal*, 32(3), pp. 495-509.
- Wylie, C., & MacDonald, J. (2020). *What's happening in our English medium primary schools: Findings from the NZCER national survey 2019*. NZCER.



the  
education  
hub