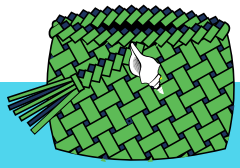
Adult Literacy and Numeracy (ALN) Effective Practice Model

Maximising the performance of ALN practitioners

FULL REPORT



Nā āheitanga ā-mātauranga, ko angitū ā-ākonga
Building educational capability for learner success

Ako AOTEAROA

This resource is part of a wider Adult Literacy, Numeracy and Cultural Capability (ALNACC) package that includes the following:

- Foundation Learning Professional Standards Framework - Tapatoru
- Capability Building Model
- PLD Modules
- ALN Effective Practice Model
- Collaborative Reflective Practice Cycle
- Hallmarks of Excellence for Māori and Pacific Learner Success
- ALN Practices Report
- Practices Self-report Tool
- Practices Checklist and Interview Tool
- Pacific Cultural Centredness Pathway
- Māori Cultural Capability Pathway

Visit www.ako.ac.nz/alnacc for more information and to download all resources.

Tertiary Education Commission
Te Amorangi Mātauranga Matua

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Foreword

Ka pū te ruha, ka hao te rangatahi | As an old net withers, another is woven

Following a review of foundation-level capability building in 2017, the Tertiary Education Commission (TEC) contracted Ako Aotearoa to develop a new model for foundation-level capability building that would create greater cohesion between adult literacy and numeracy tools, resources and professional learning and development offerings, while also building cultural capability to achieve parity in achievement for Māori and Pacific learners.

Work began in early 2018 and involved Ako Aotearoa's Adult Literacy, Numeracy and Cultural Capability (ALNACC) team consulting widely with the foundation sector, and also gaining valuable input from representatives through an Advisory Group and Sector Expert Group. The result is a comprehensive and cohesive package of evidence-based models and frameworks to support the objective.

We are very proud to present this package to you. It incorporates professional standards and the provision of professional learning and development that leads to professional recognition against these standards.

Key features of the new model are the integration of adult literacy and numeracy development with cultural capability, the facilitation of communities of professional learning, and sustained engagement in professional learning and development to enhance capability and provide tangible measures of quality for practitioners and organisations.

Ako Aotearoa is committed to delivering consistently high-quality support for the foundation education sector and building educational capability. We aim to do this by providing you with the best possible professional learning and development opportunities that are targeted to your needs and those of your organisation.

We'd like to introduce you to Ako Aotearoa's ALNACC team responsible for the development of this new model:

- Helen Lomax – Contract Manager
- Annette van Lamoen – Contract and Project Lead, Professional Learning and Development Model
- Dr Joe Te Rito and Graeme Smith – Project Co-Leads, Foundation Learning Professional Standards - Tapatoru
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Introduction

There are many factors that contribute to adult learner success, yet the instructional expertise of the educator working with them is arguably the most important, particularly for adult learners with higher needs. Educators constantly make important decisions about how and what to teach and these decisions have a direct impact on the quality of learning. Well-informed choices lead to learners overcoming personal challenges, developing positive beliefs, feeling ownership and excitement about their futures, achieving, inspiring their families, and developing a desire for further education. Less-informed choices lead to stagnated progress, disengagement, discouragement, and even the onset of negative beliefs about their ability to learn. Teaching decisions matter – even more so when successful learning has the potential to dramatically improve an adult's life outcomes.

The ALN Effective Practice Model endeavours to answer the question: What skills, knowledge, and understandings do effective literacy and numeracy practitioners possess? What pedagogical skills do we, as practitioners, need in order to serve adult learners, and what professional development do we want access to? The model is aspirational, designed to provide direction for the next phase of literacy and numeracy provision and professional development in Aotearoa New Zealand.

The model describes effective pedagogical practice. In the context of this document, 'pedagogies' are the set of teaching and learning practices that shape the interaction between educator and learner (Peterson et al., 2018). Pedagogies also include ways to organise learning, with learners being supported within a process of planning, assessing, and evaluating (Tertiary Education Commission [TEC], 2009).

The ALN Effective Practice Model aligns with Ako Aotearoa's Capability Building Model and shares the principles articulated in this model:

> **Principle 1:** The primary objective is to meet the needs of learners
>
> **Principle 2:** PLD will be evidence-based and research-informed
>
> **Principle 3:** PLD will incorporate Māori and Pacific Peoples' world views, knowledge bases, and values.

Purpose

The purpose of the ALN Effective Practice Model is to inform the pedagogical practices of adult literacy and numeracy practitioners in Aotearoa New Zealand. The model articulates domains of effective pedagogical practice and principles for delivering effective LN provision. The model aims to provide:

1. Guidance for practising educators to identify and develop aspects of their own professional practice

The ALN Effective Practice model outlines the domains of professional practice that contribute to highly effective teaching and learning.

Literacy and numeracy practitioners care deeply about supporting learners and benefit from a research-informed overview of professional knowledge and skills they can develop to meet the needs of learners (Condelli, Kirshstein, Silver-Pacuilla, Reder, & Spruck Wrigley, 2010; Kruidenier, MacArthur, & Wrigley, 2010). Research shows that where practitioners are aware of their needs and engage with targeted professional development they make increasingly informed and effective pedagogical decisions (Le Donné, Fraser, & Bousquet, 2016; National Research Council, 2012). Furthermore, practitioners who attend regular targeted professional development provide higher-quality instruction to learners and improve learner outcomes (Coben, 2003; Desimone, Porter, Garet, Yoon, & Birman, 2002; Green, 2010).

The model provides literacy and numeracy practitioners with research-informed literacy and numeracy professional practices, thereby enabling them to identify their strengths and the domains they can develop to become more effective practitioners.

2. Guidance for content designers of professional learning and development (PLD) programmes

The model is designed to inform the development of the most up-to-date, effective, and targeted PLD for educators. It is essential that practitioners are served by high-quality, updated professional development opportunities in order to meet the needs of less-skilled adult learners (Kruidenier et al., 2010).

The model also enables new research for each component to be identified and, along with sector feedback, to be continuously incorporated into PLD content. This approach ensures that PLD offerings are not static bodies of content, but rather reflect the continuous developments in practitioners and the ALN sector.

The model supports a process of continuous professional development. That is, effective professional practice is presented as continuous engagement in professional development

across three domains (discussed in-depth below). Access to professional development is supported by Ako Aotearoa's professional development infrastructure (see Figure 1). This infrastructure is underpinned by the Foundation Learning Professional Standards Framework - Tapatoru.

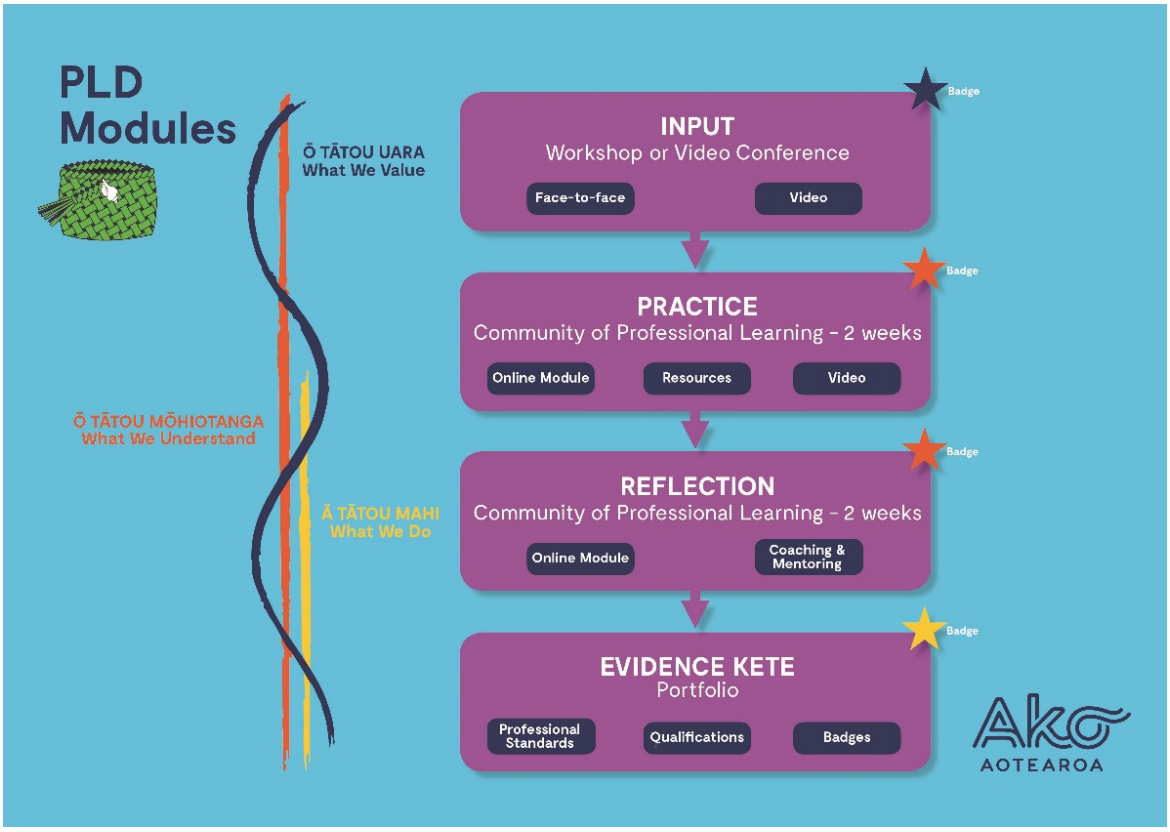

Figure 1: PLD modules

3. Indicators of quality LN tuition and delivery for all levels

The ALN Effective Practice model can be used to promote and evaluate quality literacy and numeracy pedagogical practice. While quality adult literacy and numeracy instruction is difficult to always articulate precisely, there are clear principles and practices that have been shown to be associated with improved outcomes for learners. The model lays out pedagogical areas and practices that result in improved outcomes for learners. Therefore, educators' implementation of these practices and their continued growth in these areas can be viewed as an indication of quality.

Design of the model

The model's purpose is to enhance the pedagogical capability of educators to improve adult learners' literacy and numeracy skills. The model is conceptualised as a triadic process of interaction between recognising contextual demands, understanding learner skills and needs, and implementing targeted strategies to develop learner skills. Thus, the model's scope extends beyond merely instructional strategies. It includes identifying broad learning objectives; analysing LN needs through the use of assessment; managing the learning environment, relationships and interaction between educators and learners; implementing strategies and activities; and evaluating their effectiveness.

It is not designed to promote any one 'silver bullet' type of pedagogy, nor should it, as highly skilled practitioners are able to select from a range of approaches based on desired outcomes, the needs of learners, the dynamics of groups, and environmental constraints (Torgerson, Porthouse, & Brooks, 2005).

Additionally, pedagogical approaches can reflect various paradigms which, given the diverse target audience, should not be dictated (Yasukawa & Black, 2016). It is not the intention of the model to promote one approach over another, but rather to inform how various approaches might best be implemented and outline professional development options for practitioners to develop such skills.

The model has been developed with a view to capitalising on broad areas of LN research that are increasingly providing actionable findings to practitioners. These areas include adult numeracy, reading, writing, speaking, and listening. The importance of raising the expertise of literacy and numeracy practitioners by providing them access to high-quality research-informed PLD cannot be overstated (Condelli et al., 2010).

The most effective way to develop the literacy and numeracy skills of adults, including priority learners, is to equip educators with high-quality pedagogical skills to inform their decision making, and then to continue to engage them in professional development (Kruidenier et al., 2010).

Foundations of the new ALN Effective Practice Model

The Adult Literacy and Numeracy Learning Progressions were introduced to the sector in 2008 (TEC, 2008a, 2008b). The supporting professional learning and development content utilised a pedagogical model designed around three domains:

- **Know the learner**
- **Know the demands**
- **Know what to do**

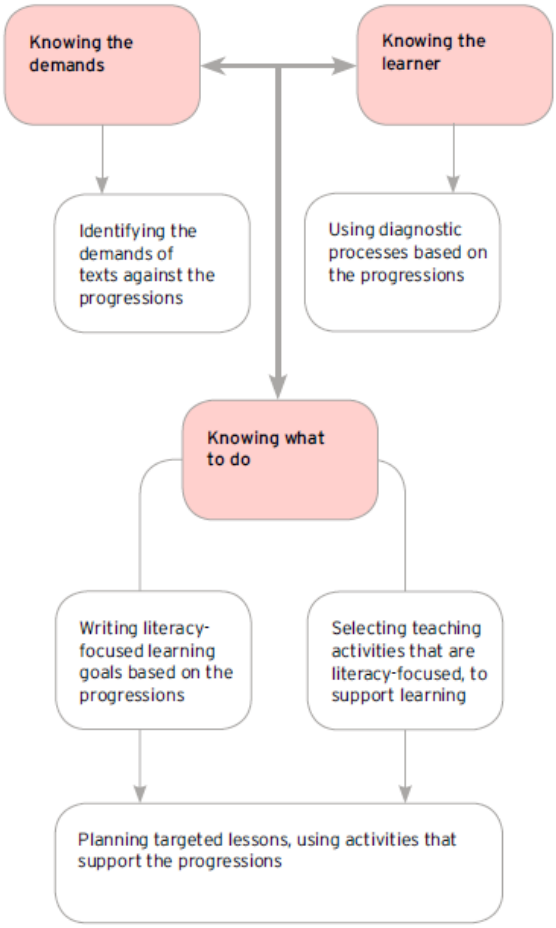

Figure 2: Pedagogical model in the Learning Progressions

The three aspects provided a structure to identify needs and strengths, plan, and deliver literacy and numeracy content (see Figure 2). The model was part of an infrastructure of supporting

resources, such as resource books, online content, and a range of assessment options. Good practice was reflected in competent integration of each aspect.

The sector has evolved considerably since the Learning Progressions were developed and since the pedagogical model was used to embed LN provision into practice. The three domains of knowledge remain a solid structure for building professional capability. However, a more fine-grained and sophisticated approach to pedagogical competence would serve to further improve the capability of the sector: one that expands and describes domains of expertise to a greater degree, includes cultural competencies, and promotes continued improvement in each domain.

The new model maintains the structure of the previous one, leveraging professional development already undertaken in the sector and existing resources, but expands professional practice into new dimensions (see Figure 3).

The model presents the continual development of each domain as movement toward professional practice. Effective practice is described as progression in the development of the internal three domains: 'Know the learner', 'Know the demands', and 'Know what to do'. Additionally, educators can access PLD on various aspects of the outer layers to meet their specific needs or preferences.

The following section describes the three domains of the model in detail.

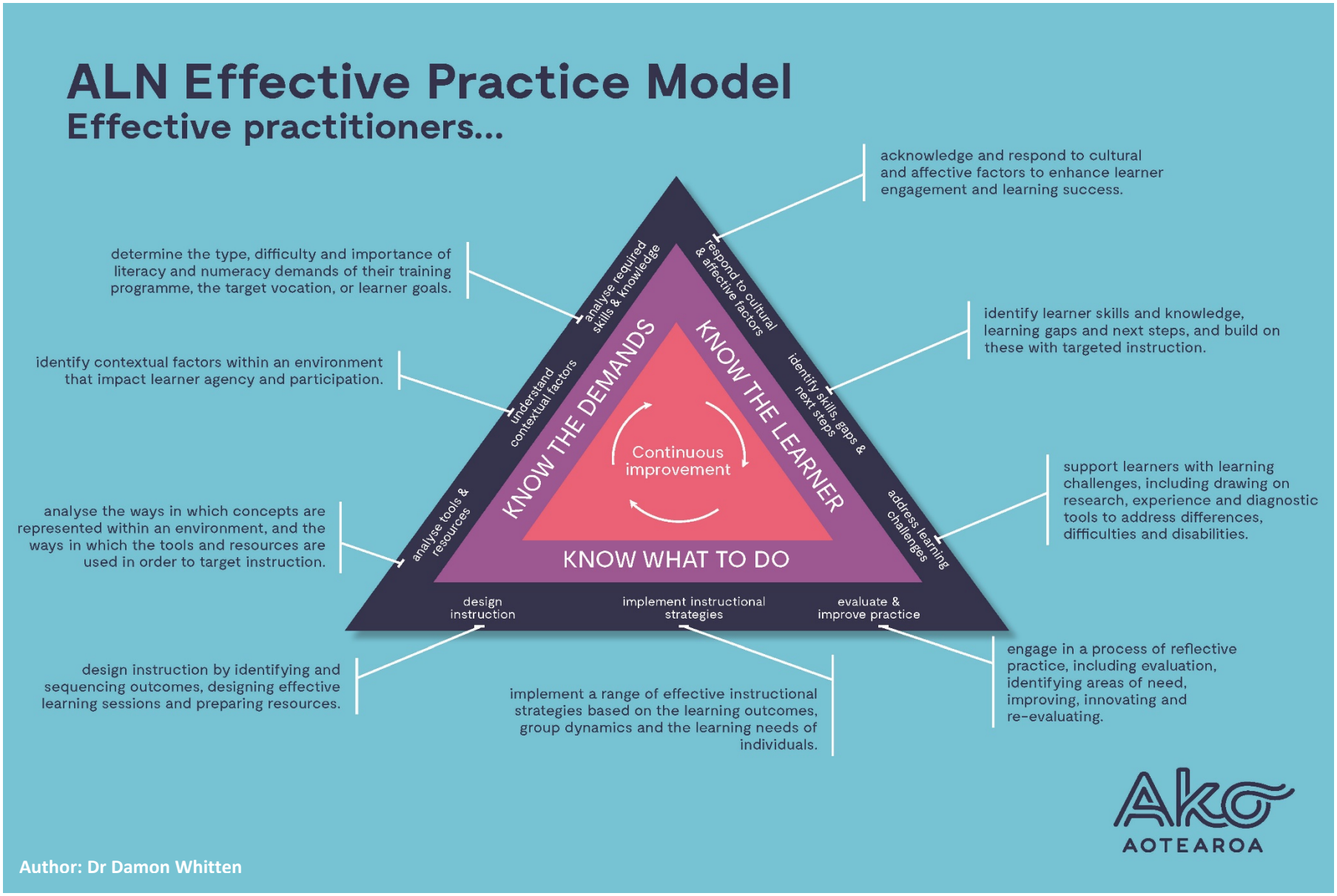

Figure 3: Overview of components

Know the learner

ALN practitioners meet the needs of a diverse and high-need audience. Learners come from a range of cultural, socio-economic, language, and educational backgrounds. They also have a range of learning experiences leading to a diverse range of skills and knowledge, beliefs and identities, affective responses, motivational differences, insecurities, and reasons for learning. The ability of practitioners to understand and respond positively to the breadth of these factors is essential. As with the Foundation Learning Professional Standards Framework - Tapatoru, the learner is the central consideration of the ALN Effective Practice model. 'Know the learner' occupies the central position in the Foundation Learning Professional Standards Framework - Tapatoru, as is the case with the ALN Effective Practice model.

'Know the learner' is expanded into three distinct aspects:

- Respond to cultural and affective factors
- Identify skills, gaps, and next steps
- Address learning challenges.

Each of these aspects is important to understanding a learner's background, barriers, and skills in order to address their learning needs, plan and cultivate effective learning environments, and deliver appropriate instruction.

Aspect 1: Respond to cultural and affective factors

Learners bring diverse cultural, social, and affective backgrounds and experiences with them to learning situations. Effective practitioners acknowledge these factors, address them, and cultivate positive environments and/or relationships in which effective learning can occur. Additionally, some adult learners present with 'learning baggage', experiences, and anxieties toward learning that can act as barriers to learning.

Cultural considerations and hallmarks of Māori and Pacific excellence

Much of the pedagogical research as it relates to Māori and Pacific learners has emerged from school or formal tertiary contexts and has drawn heavily on self-report data from learners. However, these studies strongly indicate that mis-alignments between a learner's culture and the learning environment can perpetuate existing barriers and undermine the effectiveness of provision (Bishop & Glynn, 1999). Several studies show that responding to learners in a culturally appropriate manner makes a substantial difference for learners (Alkema, 2014). Culturally responsive pedagogies promote educators cultivating an environment and relationship with Māori and Pacific learners that reflect appropriate values, understandings and knowledge, and that ensure learner success for all (Macfarlane, 2004). While these practices are framed in the context of cultural responsiveness here, similar strands are found throughout the

pedagogical literature that indicate that adult learners learn best when they feel valued, connected, and supported to develop their own forms of success and agency.

Pedagogical approaches for Māori

Research shows that Māori outcomes are improved when practitioners adopt culturally responsive practices (Bishop, 2001; Ministry of Education [MoE], 2009).

These practices include:

- creating caring relationships
- cultivating positive, cooperative environments
- recognising and building on prior knowledge and experiences
- using feedback, and sharing power (Bishop et al., 2001; MoE, 2009; Potter, Taupo, Hutchings, McDowall, & Isaacs, 2011).
- Using meaningful Māori contexts and resources within curriculum and lesson design
- an insistence on high standards
- appropriate learning spaces
- opportunities for learners to discuss unsatisfactory school experiences (Greenwood & Te Aika, 2008).

Research also indicates that increased practitioner knowledge of Māori culture and protocols leads to greater engagement and outcomes (Chauvel, 2014). Māori learners tend to give positive feedback about teachers or tutors who are positive, committed and supportive, are approachable, and who encourage collaboration with other learners (MoE, 2009). Research indicates that many adult Māori learners are motivated to engage with literacy and numeracy to contribute to whānau, such as supporting tamariki or mokopuna, rather than solely focusing on programme outcomes (Potter et al., 2011).

These recommendations, in addition to those in Ako Aotearoa's Māori Cultural Capability Pathway, have been drawn on to identify hallmarks of excellence for Māori learner success, which can be found in Appendix A.

Pedagogical approaches for Pacific Peoples

A key point to note is that Pacific learners come from a range of ethnicities and backgrounds and therefore no one approach is suitable for all, and no distinct 'Pacific pedagogy' is appropriate for all (Alkema, 2014). However, some broad pedagogical insights are available.

Pacific learners benefit from highly trained tutors who:

- make informed pedagogical decisions
- use engaging approaches

- develop meaningful and trusting relationships
- make connections to Pacific contexts
- cultivate group support systems
- create 'Pacific'-friendly spaces were possible
- are culturally responsive, such as upholding Pacific values (Chu, Samala Abella, & Paurini, 2013; Fiso & Huthnance, 2012).

Learner feedback suggests that a conventional transmissional pedagogical approach, such as individual work, is less engaging and learners report benefiting more from group work and shared study opportunities. Learners also note that including Pacific contexts increases relevance, and this element seems reflected in an ongoing request for the inclusion of Pacific content in curriculum and resources (Luafutu-Simpson, Moltchanova, O'Halloran, Petelo, Schischka, & Uta'I, 2015; Mara & Marsters, 2010). Likewise, Pacific success is seen as broader than programme completion, being strongly related to identity, family, and community (Luafutu-Simpson et al., 2015; Tuia 2013.)

Effective literacy and numeracy practitioners can enhance Pacific success by:

- aligning success outcomes with learners' own broader goals and success perspectives
- developing authentic and supportive relationships with learners
- connecting learners to learning support groups
- cultivating positive social learning opportunities and providing engaging instructional sessions.

In contrast, less effective practice might be characterised as insisting on narrow achievement outcomes, maintaining an impersonal relational distance from learners, limiting opportunities for learner social interaction and sharing, failing to include Pacific contexts or resources, and a general lack of cultural awareness, such as sitting on tables or swearing, which clashes with learners' values. The research shows that Pacific learners are highly appreciative and supportive of practitioners who make a personal connection, are culturally aware, and provide quality tuition.

These recommendations, in addition to those in Ako Aotearoa's Pacific Cultural Centredness Pathway, have been drawn on to identify hallmarks of excellence for Pacific learner success, which can be found in Appendix A.

Hallmarks of excellence for Māori and Pacific learner success

Hallmarks of pedagogical excellence for educators working with Māori and Pacific learners have been identified (Appendix A). The hallmarks refer to evidence-based practices promoting quality educational performance, service or support when working with Māori, Pacific, and other

learners.

The hallmarks define how tutors, learning advisors, and those in support roles can:

- work effectively with Māori, Pacific, and other learners to meet learning needs
- provide a culturally safe environment
- help identify educational and other aspirations where appropriate.

These hallmarks focus particularly on Māori and Pacific learners to address disparities in educational outcomes for Māori and Pacific learners relative to non-Māori and non-Pacific learners. However, increased success for Māori and Pacific learners is not a zero-sum game. That is, it does not occur at the expense of other learners' success.

The hallmarks of excellence described in Appendix A will also apply to other learner groups, such as migrants or other priority groups. Equally, a focus on better relationships, more holistic pastoral care and support, as well as more culturally responsive education, is likely to result in increased success for all. Simply put, all learners learn best when they feel valued and secure and with the right level of connectedness with their tutor and others.

Affective responses

Many adult learners have negative personal learning histories that influence how they approach learning in adult contexts (Evans, 2000; McDonald, 2016; Whitten, 2018). Research indicates that these experiences lead to negative beliefs, emotions, and attitudes, and influence their identities as learners. These negative affective responses manifest in a variety of ways, including anxiety, fear, a lack of engagement, or avoidance strategies (Hannula et al., 2016; Whitten, 2018). Most concerning is that, left unaddressed, such responses can significantly interfere with an adult learner's performance, in some cases more so than a learning disability (Ralston, Benner, Tsai, Riccomini, & Nelson, 2014). Effective practitioners recognise and address affective responses and work to cultivate positive beliefs, agency, attitudes, and emotions.

Aspect 2: Identify skills, gaps, and next steps

Effective tuition is built upon understanding a learner's current skills and knowledge to provide targeted tuition, particularly for adults with literacy and numeracy needs (Miller, McCardle, & Hernandez, 2010). The use of diagnostic, formative, and summative assessment is essential to understanding a learner's skills and knowledge, identifying strengths and needs, and tracking development as it occurs. Effective literacy and numeracy practitioners identify learners' skills and knowledge, learning gaps, and next steps, and build on these components with targeted instruction.

The use of diagnostic assessment is a key component of effective practice. A body of research shows that where reading, writing, and numeracy difficulties persist, instruction must be

informed by diagnostic information (Cumming & Gal, 2000; National Research Council, 2012). Therefore, developing educators' use of assessment tools, such as the Literacy and Numeracy for Adults Assessment Tool (LNAAT), is important, but it is equally important to extend practitioners' capability to use the LNAAT and other diagnostic assessments to make more specific diagnoses of learner needs, and, even more importantly, to transfer these findings into specific teaching strategies.

Formative assessment practices inform in-the-moment decision making, which leads directly to appropriately targeted instruction and modifying teaching strategies as needed (Black et al., 2005; Hodgen, Coben, & Rhodes, 2010; Hodgen & Wiliam, 2006). Formative assessment, commonly referred to as 'assessing for learning', is cited as the most effective return on investment for professional development in the adult LN domain (Derrick & Ecclestone, 2006). While this may be variable, it does underpin the importance of practitioners developing and incorporating sound formative assessment techniques into their practice.

Summative assessment informs organisational practice, pedagogical approaches, quality control measures, and learner goal-setting and tracking of their own progress (Swain, Brown, Coben, Rhodes, Ananiadou, & Brown, 2008). Effective practitioners use summative assessment to identify skill levels and measure progress. Summative assessment is commonly required by funding bodies and is the most readily identified form of assessment**.**

Aspect 3: Address learning challenges

Many adult learners who have low literacy or numeracy skills have learning challenges within specific domains, such as reading, spelling, numeracy, or number skills (Mellard & Becker Patterson, 2008; National Research Council, 2012). Other learners may have more general learning difficulties that have an impact on their performance across all aspects of learning. In all cases, these learners need high quality and specific instructional support, targeted to their specific needs (Chapman, Greaney, & Prochnow, 2015; Tunmer, Chapman, Greaney, Prochnow, & Arrow, 2013).

Although specialist skills are warranted, less specialised practitioners can implement a range of practical responses that address learners' needs. Research indicates that there are several common characteristics demonstrated by learners who struggle to learn (Allsop, Kyger, & Lovin, 2007). While some of these characteristics require specialist remediation, a portion can be improved within the parameters of good practice. For example, the characteristics include:

1. **Learned helplessness:** Learners do not believe they can be successful because of past experiences and give up before engaging to a degree to develop new learning.
2. **Passive learning:** Learners do not actively engage with content, use strategies or make connections between what they know and new content.

3. **Poor use of metacognitive approaches,** such as evaluating whether they are learning, implementing strategies, attending to whether the strategy is effective, and making changes when needed.

Note that approaches to supporting these types of behaviours in the reading context are included within the Learning Progressions (TEC, 2008c, p. 26). Practitioners are encouraged to develop their ability to respond to such needs (National Research Council, 2012) and strategies and approaches will be included within professional development offerings.

Where the learner needs are greater than can be catered for in the classroom, practitioners are encouraged to connect learners to appropriately specialised educators. Therefore, practitioners are effective when they identify learners' learning challenges and provide effective instruction within the confines of their practice, and *also* connect learners to appropriate sources of specialist support.

Effective *specialist* practitioners draw on international expertise, research, diagnostic assessment, tools, and resources to provide instructional support that directly addresses learner needs. The sector would greatly benefit from extending capability in these domains by providing training for specialist LN educators.

Know the demands

In contrast to the compulsory sector there are no curriculum documents outlining the required literacy or numeracy skills learners require to competently perform in a context. This is because ALN educators support learners to function in diverse, complex, and dynamic environments, such as workplaces, workplace training programmes, vocational programmes, and one-to-one tuition. A key challenge for ALN educators is how to identify the literacy and numeracy requirements of a role, task, or vocation, unpack the underpinning skills, identify constraints and opportunities for learning, and develop a hierarchy of goals and outcomes. Thus, knowing the demands goes beyond traditional compulsory teacher requirements of curriculum knowledge into analysis of literacy and numeracy demands.

The Learning Progression resource books include specific instructional material on how to analyse demands across each of the strands, as does the NZCALNE. However, this practice is arguably the bedrock of effective practice and therefore the sector, and learners, would benefit from raising this capability substantially.

'Know the demands' is represented by three aspects:

- Skills and knowledge
- Concepts, tools, and resources
- Contextual factors.

Aspect 1: Analyse required skills and knowledge

Effective LN practitioners determine the nature, complexity, and importance of literacy and numeracy demands of their training programme, the target vocation, or learners' self-identified goals. The LN demands of a training programme are identified to support learners to complete the programme, *and* the LN demands of the target vocation are identified so that appropriate LN content can be included to equip the learner to function competently in the workforce. This understanding facilitates the prioritising of outcomes and the design and resourcing of effectively targeted LN provision.

The Learning Progressions framework enables the user to prioritise skills and knowledge, identify their complexity, and plan an appropriate learning sequence. The Progressions enable most subskills of LN to be identified, such as vocabulary, reading comprehension, critical thinking skills, measurement, number skills, and writing. The model seeks to improve the capability of practitioners to use the Learning Progressions to identify LN demands and use this information to inform practicable and effective instruction.

Aspect 2: Analyse concepts, tools and resources

Adults use their literacy and numeracy skills in conjunction with tools and resources that act as supports or constraints to their success. For example, units used across vocations differ, as do the measurement tools, how measurements are derived, tolerances, and preferences for fraction or decimal use, and these differences can make non-complex tasks very difficult (Keogh, Maguire, & O'Donoghue, 2014). Effective practitioners analyse the ways in which concepts are represented within an environment, the ways in which the tools are used, and how resources are used to support learner understanding.

Aspect 3: Understand contextual factors

Contextual factors include aspects of an environment that impact the learner's agency and participation with tasks that involve literacy and numeracy, and cultural factors. Contextual factors include other workers or learners, their attitudes, skill sets and behaviours (Bandura, 1999), formal and informal hierarchies, norms, 'the way things are done', traditions, languages or vernacular, timeframes to complete tasks, the ramifications of completing or not completing a task, and the tolerance for accuracy. They also include cultural characteristics such as Māori or Pacific world views and traditions.

Contextual factors have a strong bearing on how adults are able to draw on their own skills, participate, and implement learning that results from instruction. For example, a skilled employee may inadvertently disadvantage a lesser-skilled employee by taking responsibility for completing a complex task on their behalf. Although intended to be helpful, such arrangements inhibit the opportunities of the lower-skilled employee to practise or acquire the skills required to complete the task.

Effective practitioners are able to recognise these contextual factors and to identify the opportunities, challenges, and dynamics that impact learner participation and development.

Know what to do

Effective practitioners plan their instruction, implement evidence-informed approaches where possible, select and apply engaging instructional strategies, innovate, and evaluate and improve their practice. 'Know what to do' is represented by three aspects:

- Design effective learning
- Implement instructional strategies
- Evaluate and improve.

Aspect 1: Design instruction

Broad international research demonstrates that effective practitioners plan their instruction by identifying and sequencing outcomes, designing engaging and effective learning sessions, and preparing supporting resources where necessary. They plan the timeframe of their outcomes, whether they will be achieved suitably within a single lesson, several lessons, or across several months or more, and they act as effective designers of learning by selecting pedagogical strategies with a clear sense of the intended impact of their actions (Echazarra, Salinas, Méndez, Denis, Rech, 2016; National Research Council, 2012).

Effective practitioners design individual lessons to achieve clear outcomes (identified through an analysis of the contextual demands and learner goals, learner assessment results, and the Learning Progressions framework). They also use assessment practices to determine and build on what learners already know about a topic (Black & Wiliam, 1998; Gal, Ginsburg, Stoudt, Rethemeyer, & Ebby, 1994; Ofsted, 2011; Swan, 2005; Swain & Swan, 2007).

Effective practitioners act as designers of learning by selecting pedagogical approaches with a clear sense of the intended impact rather than applying ad hoc responses. They possess a repertoire of teaching and learning strategies that can be selected based on clear goals and objectives (National Research Council, 2012; Schoenfeld, 2011). Decision-making regarding these approaches is undertaken with knowledge of effective, research-based pedagogical practices (Binder, Snyder, Ardoin, & Morris, 2011). Ideally, practitioners are able to locate and review accessible research-based findings that detail practical implications for practice. An example of research-based pedagogical practices recommended for delivering numeracy is provided in Appendix B.

Highly effective practitioners design learning with further learning considerations in mind, such as developing learners' self-regulated learning skills, critical thinking skills, and health, financial, and digital literacy skills. While these other outcomes may not be the primary aims of the lessons, pedagogical choices can influence them for the better (Black, Balatti, & Falk, 2013). The conclusion for the New Zealand context is that, where possible, professional development of

these domains should be made available to practitioners, so that they are able to make effective pedagogical choices.

Aspect 2: Implement instructional strategies

Effective practitioners should be aware of and possess a broad repertoire of effective instructional strategies that they can select based on the learning outcomes, group dynamics, and learning needs of individuals (Arrow, Chapman, & Greaney, 2015; Coben et al., 2007; National Research Council, 2012). There is strong evidence to indicate that the practitioner's selection and use of instructional strategies relates directly to the quality of literacy and/or numeracy instruction (Chapman, Greaney, & Prochnow 2015; Swain & Swan, 2007). The use of appropriate instructional strategies may be even more important in the adult literacy and numeracy domain because of the number of learners with high needs, negative learning experiences, and potential learning difficulties (Benseman, 2013; McHardy & Chapman, 2016; Whitten, 2018).

There is also research to suggest that in the absence of professional training, many literacy and numeracy educators end up employing only a narrow range of strategies and make their pedagogical decisions based on their observations of other teachers, their beliefs, or simply as a response to classroom pressures (Coben et al., 2007; Kendall & McGrath, 2014; McHardy & Chapman, 2016; Van Kan, Ponte, & Verloop, 2013; Whitten, 2018). The concern here is that these practices are often based on hearsay and may not be compatible with research (Kendall & McGrath, 2014; National Research Council, 2012) or sufficiently targeted to meet the needs of adults requiring literacy and numeracy support (Kruidenier, 2002; Kruidenier, MacArthur, & Wrigley, 2010; Mesa, 2010). Encouragingly, other research shows that as educators engage with appropriate professional development, their awareness and use of instructional strategies improves (Barrera-Pedemonte, 2016; Zengler, 2017). By including this aspect of a practitioner's professional practice within the model, practitioners can focus on developing a broader range of instructional strategies and improve learner outcomes, particularly for priority groups such as Māori, Pacific, and youth.

There is a wide variety of instructional strategies, and it is not the purpose of this document to attempt to list them. Arguably, subskills such as decoding, comprehension, critical reading, measurement, place value, and proportional reasoning all have a different range of optimal strategies, hence the reason why a research-informed approach is necessary. However, there are broad categorisations that are useful to begin discussions about what content fits the domain (Beder, Lipnevich, & Robinson-Geller, 2007; Le Donné et al., 2016).

The first are **active learning strategies**, instructional strategies practitioners use to engage learners in their own learning. Examples include learners working in groups, using technology such as online modules, and self-assessing.

The second are **strategies that motivate learners to engage in higher-order thinking**, such as critical thinking, problem-solving, and decision-making. These types of instructional approaches emphasise meaning-making rather than learning discrete skills (Beder et al., 2007). In both mathematics and numeracy education research this approach is associated with higher performance. This difference is largely credited to practices such as requiring learners to solve problems in more than one way, to explain their thinking and to be innovative in their work (Echazarra et al., 2016; Le Donné et al., 2016). It is worth noting that international research finds that cognitively demanding strategies, such as elaboration and meaning-making strategies, tend to result in better learning outcomes than less demanding strategies, such as memorisation (Echazarra et al, 2016).

The third type of instructional strategies are **teacher-directed activities** such as those in which the practitioner plays a direct role in the transmission of information, such as explaining ideas or modelling skills. This mode of instructional strategy appears less effective for learning, yet is frequently identified as the most common of the three (Benseman et al., 2005; Coben et al., 2007; Whitten, 2018). However, there are ways to improve this approach by utilising and integrating other types of instructional strategies (Coben et al., 2007).

A further component of instructional skill is the ability of practitioners to make the most of spontaneous learning opportunities that occur within group or one-to-one instruction. Effective practitioners make informed decisions about whether to pause a planned lesson and pursue an opportunity to engage in other beneficial content or to stay on task and come back to the topic later, or even to address the topic privately with a learner at another time (Schoenfeld, 2011). Examples of such opportunities include exploring errors or misunderstandings with the class, discussing financial or health issues that might arise out of a discussion, or to explore a learner question about a particular topic or situation. The ability to make informed decisions in such situations is a product of an educators' pedagogical and content knowledge (Lin & Rowland, 2016).

Aspect 3: Evaluate and improve practice

Practitioners *become* effective by engaging consistently in a process of reflective practice, comprised of evaluation, the identification of areas of need, informed innovation, re-evaluation, and further improvements. This process is described in different ways across the literature, but is widely considered an essential process by which new learning is integrated into practice and therefore enhanced (Usher & Bryant, 2012). Dennison and Kirk (1990) described the adult learning process as a cyclical one of 'do, review, learn/modify, apply, do, review, learn/modify, apply'. In fact, continued engagement in professional practice is a better predictor of an adult numeracy educator's effectiveness than high levels of qualifications (Coben, 2003).

Progression in the practice of evaluation and improvement requires adopting and engaging in evaluation processes. For example, the Collaborative Reflective Practice process (Timperley, Kasar, & Halbert, 2014) guides practitioners through a process of reflecting, identifying needs, creating and implementing a plan, and then reflecting again.

Action research methodologies are also recommended as mechanisms to improve educators' performance. These are designed to maintain balance between practical experience, professional knowledge, and academic research.

The evaluation of personal practice and the identification of professional development needs can be undertaken in conjunction with the ALN Effective Practice model. This aspect will be tied into professional development opportunities and pathways that practitioners can engage with.

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Appendix A: Hallmarks of Excellence for Māori and Pacific learner success

How can I, as a practitioner, demonstrate hallmarks of excellence for Māori and Pacific learner success?

1. Believe you can make a difference
Effective practitioners believe they can make a positive difference to educational achievement for all learners, including Māori and Pacific learners, accept this as a professional responsibility, and then act on that responsibility.

2. Build on strengths and address needs
Effective practitioners build on strengths and address needs, avoiding attributing difficulties to learner attitudes, focusing instead on developing confidence, motivation, and excitement toward learning.

3. Recognise it's the quality of your relationships that matters
Effective practitioners recognise that the quality of their relationships and interactions with their Māori and Pacific learners play a vital role in their learners' educational achievement.

4. Reflect on your own cultural identity
Effective practitioners reflect on their own cultural identity in Aotearoa New Zealand and work to enhance the cultural identity and well-being of Māori and Pacific learners.

5. Be culturally responsive
Effective practitioners develop ways of teaching and/or supporting Māori and Pacific learners that are culturally responsive and embedded in relationships of mutual trust and respect.

6. Reflect on holistic Māori and Pacific practices
Effective practitioners reflect on their own Māori and Pacific holistic cultural teaching and/or pastoral care practices.

7. Set high expectations
Effective practitioners set high expectations for Māori and Pacific learners.

8. Identify Māori and Pacific learners' education aspirations
Effective practitioners identify and address the educational and other aspirations of Māori and Pacific learners.

9. Modify teaching and support based on learner outcomes

Effective practitioners promote, monitor, and reflect upon learner outcomes so as to modify their teaching and/or support in ways that lead to improvements in Māori and Pacific learners' achievement.

10. Take an integrated approach

Effective practitioners demonstrate practices underpinned by appropriate and relevant professional values, knowledge, and ongoing professional learning and development.

Appendix B: Research-based pedagogical practices for teaching numeracy

It is recommended[1] that adult numeracy educators will:

- determine, and build on, what learners already know about a topic (Black & Wiliam, 1998; Gal, Ginsburg, Stoudt, Rethemeyer, & Ebby, 1994; Ofsted, 2011; Swan, 2005; Swain & Swan, 2007)
- develop a community of discourse engaged in activity, reflection and conversation (Gal et al., 1994; Glass & Wallace, 2001; Mercer, 2000)
- use rich collaborative tasks and provide opportunities for group work (Askew & Wiliam, 1995; Gal et al., 1994; Swan, 2005; Swain & Swan, 2007)
- expose and discuss common misconceptions (Askew & Wiliam, 1995; Condelli et al., 2006; Swain & Swan, 2007; Swan, 2005)
- encourage reasoning, sense-making, and demonstrating the interconnected nature of mathematics rather than emphasising rote learning and getting the answer (Swain & Swan, 2007; Swan, 2005)
- use effective questioning to generate deep thinking (Askew & Wiliam, 1995; Hodgen, Coben, & Rhodes, 2009 Swain & Swan, 2007; Swan, 2005)
- address and evaluate attitudes and beliefs regarding both learning mathematics and using mathematics (Gal et al., 1994)
- situate problem-solving tasks within familiar, meaningful, realistic contexts (Gal et al., 1994; Ofsted, 2011; Swain & Swan, 2007)
- develop understanding by providing opportunities to explore mathematical ideas with concrete manipulatives or visual representations and hands-on activities (Gal et al., 1994; Glass & Wallace, 2001; Hodgen et al., 2010; Ofsted, 2011)
- Select tools and representations to support learner thinking (Zevenbergen & Lerman, 2008).

[1] Cited in Whitten, 2018

Appendix C: Notes on Tools and Resources

Resources can act as benefits to learners or as interference. An example of a resource interference is a petrol-to-oil ratio chart expressing quantities in different units. This calculation is not a problem with some employees, however for those with poor conceptual understanding, the representation will interfere with the development of further understanding. Checking how resources represent concepts is an important process when working with learners with lower literacy and numeracy skills.