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# Upskilling Māori Construction Practitioners

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A Framework for Development in New Zealand



APRIL 24, 2024

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Funded by the ConCOVE Project Fund

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# **Development of a Framework for Upskilling Māori Construction Practitioners in New Zealand**

## **Abstract**

The New Zealand construction industry faces challenges such as low productivity, innovation gaps, high unemployment, skill shortages, and suboptimal output, despite being a pivotal sector in the country's infrastructure. This study investigated the essential skills needed in the construction industry. The research involved analysing the construction labour market in New Zealand and identifying urgently needed skills based on current industry trends. The study utilized a systematic literature review in the first stage to elucidate the existing issues of skill shortages in the construction industry. The second stage employed a qualitative approach through semi-structured interviews to identify critical skill shortages and their causes. Specific skills demanded by the construction industry were determined through interviews with industry participants and analysed using ATLAS.ti 9 software. In the third stage, a focus group interview was conducted to evaluate and clarify skill gaps identified from the initial interviews with construction experts. The study's findings provide valuable insights for stakeholders, define skill requirements for the workforce, enhance employability, suggest academic qualifications, and offer opportunities for collaboration between industry and academia.

**Keywords:** Skills shortage, upskills, Māori, construction industry, ATLAS.ti 9 software and New Zealand

## 1. The Project Team

The lead investigator, Don Samarasinghe, and the co-lead investigator, Marama Tepania, conducted this research. The research assistant Taofeeq D. Moshood helped the research lead and the co-lead. The lead and co-lead investigators worked collaboratively to complete the comprehensive literature review, primary data collection, data analysis, conducted a focus group workshop and producing research output. The research project co-lead, Professor Regan Potangaroa, acted as a guide when connecting with industry bodies, and reviewed and provided feedback on the outcomes of the key stages of this study.

**Table 1:** Details of Research Team Member

Research Team Member	Role	Expertise
Don Samarasinghe, SBE, Massey University	lead investigator	Skill development for productivity improvement in the construction industry
Marama Tepania, SBE, Massey University	Co-lead investigator	Curriculum development in construction programmes
Taofeeq D Moshood, SBE, Massey University	Research assistant	Organizational sustainability and policy management for construction industry

Don Samarasinghe and Marama Tepania managed a research team to conduct this research, including collaborators and research assistants. This project can offer significant capability development (e.g., research project management skills, team leadership, data handling, problem-solving skills, advanced technology, networking, and multidisciplinary research skills) for Don Samarasinghe and Marama Tepania, who have recently joined the School of Built Environment (SBE) at Massey University. They are early career researchers who have personal research plans on improving the productivity and overall performance of the New Zealand construction industry. In addition, the lead researchers have career objectives of improving the delivery of construction programmes in terms of course content, formative and summative assessments, and industry-focused course designs in order to minimise the skill gaps in the New Zealand construction industry. Taofeeq Durojaye Moshood is currently undertaking a Doctor of Philosophy (Ph.D.) in the School of Built Environment at Massey University. He serves as a research assistant, and supported this project through tasks such as conducting literature searches, data management, and analysis.

## 2. Introduction

The construction industry in New Zealand is the fifth-largest industry in terms of employment; 10% of the labour force works in the construction industry and related construction services (PWC, 2020). The construction industry is a significant employer of Māori. With over 19,000 Māori working in the industry, construction is the fourth largest employer of Māori, following manufacturing, health care and social service, and education and training. Roughly one in five Māori who are self-employed work in the construction industry (MBIE, 2022b).

The construction industry in New Zealand is marked by low productivity, a dearth of innovation, a significant number of unfilled vacancies, shortages in skilled labour, and subpar quality of output (MBIE, 2022b). It is the largest sector of New Zealand's infrastructure and continues to boom (Statista, 2020). Due to skill shortages and a lack of innovation in construction, New Zealand still uses traditional methods to build houses, which increases house prices (Samarasinghe & Wood, 2021). The construction skill shortage issues have also significantly lowered construction work quality, workmanship, and productivity (Chang-Richards et al., 2017; Samarasinghe, 2021).

Many Māori working in construction already hold high-skilled positions as managers, technicians, and trades workers. These skills are in high demand, and there is the opportunity to support more Māori into high-skill and high-earning roles in the sector (Paenga-whāwhā, 2020). However, Māori also makes up a large proportion of the lower-skilled end of the workforce. In addition to earning less, these labourers and other low-skilled workers have lesser job security and are most vulnerable to business cycle effects (Haar, 2022; Rotimi et al., 2023).

The high skills include design skills (Building codes, Measurements, Developing blueprints, Environmental regulations, Safe worksite development and Computer-aided drafting (CAD)) (The Crown-Māori Economic Growth Partnership, 2015; Workforce Development Plan, 2022), communication skills (Leadership, Teamwork, Quality control, Emotional intelligence and Conflict resolution) (Commerce Commission NZ, 2021a; Paenga-whāwhā, 2020), cognitive skills (Critical thinking, Problem-solving, Organization and Documentation), technology skills (Construction management software, Mobile apps, Building information modelling, Virtual reality, Augmented reality, Estimating software and Drones) (The & Zealand, 2021; Wellington Region Workforce Development Plan, 2019) and growth and developmental skills (Coachability, Willingness to learn, Growth mindset, Vocational training, Apprenticeship engagement, Independence, Self-motivation and Time management) (Kāpiti coast district, 2022; MBIE, 2022b).

### **3. Literature Review**

This chapter identifies earlier conceptual and experimental work and provides a solid basis for successfully implementing the study. This chapter also supports a theoretical outline for improving the research goal. The literature review focuses on the causes of the skill shortages, solutions to overcome the skill shortages, skill shortages in Māori, and the research gap related to this study.

### **3.1 The Causes of the Skill Shortages**

The skill shortage in New Zealand can be attributed to several factors, including limited competition in trades and products (The Crown-Māori Economic Growth Partnership, 2015;). Given the intense competition, enterprises face challenges in locating skilled workers, while there's a scarcity of incentives to foster inventive solutions or technologies that might alleviate the shortage of skills. (Workforce Development Plan, 2022). Furthermore, the industry culture that resists having apprentices due to high training costs is also a major factor. The reluctance to invest in apprenticeships has led to a reduction in the number of traineeships available, which further exacerbates the skill shortage problem (Bryson et al., 2018).

Another cause of the skill shortage is the lack of direction and support for trainees to upskill in areas that have shortages (Kāpiti coast district, 2022). There is a mismatch between the skills that employers need and those that graduates possess, leading to an unmet demand for skilled labor. This lack of direction and support makes it difficult for trainees to acquire the necessary skills and knowledge to excel in their chosen fields.

Additionally, the lack of practical skills among recent graduates is also a cause of the skill shortage (Downes & Lansley, 2018). Employers report that graduates lack practical knowledge and experience, making it challenging for them to integrate into the workforce (Partners, 2016). Moreover, New Zealand's border restrictions due to Covid19 have resulted in a significant decrease in migrant workers, who were once a valuable source of skilled labor (MBIE, 2021a).

Furthermore, the industry's poor ability to forecast talent pools, predict future skills needed and where talent may reside is a significant factor contributing to the skill shortage (Commerce Commission NZ, 2021a). As a result, there is a limited supply of skilled workers in certain industries, making it difficult for employers to fill positions. High demand and increased market size also contribute to the skill shortage, as competition for skilled workers has become intense (MBIE, 2022b).

The limited market and resources for attracting skilled workers to stay also contribute to the skill shortage. Furthermore, the lack of opportunities and incentives to remain in a particular field can lead to a brain drain, where skilled workers leave to find better opportunities elsewhere (Paenga-whāwhā, 2020). Low efficiency of industry training programs, poor working conditions, and the construction industry's less attractive nature than other industries are additional causes of the skill shortage (Haar, 2022). Finally, New Zealand's conservative mindset of reluctance to change/adapt is a contributing factor, as the country struggles to adjust to changes in the labour market and technological advancements.



### **3.2 Solutions to Overcome the Skill Shortages**

In order to address the current skill shortage in the construction industry, it's crucial for construction companies to work closely with academic providers and the government to promote apprenticeship programmes (Workforce Development Plan, 2022). By doing so, young people can learn the necessary skills and knowledge needed to work in the industry. Construction companies should also analyse their current business performance and as accurately as possible forecast future needs to ensure they have enough skilled workers to meet the demand (Williams, 2020). Additionally, on-site learning programmes like professional development courses can help to upskill current employees. It's important for construction practitioners to have a holistic understanding of how the industry works so they can adapt to varying job roles. Construction firms should adeptly implement swift changes, including adjusting roles to align with emerging demands, integrating new technologies and building systems, all aimed at addressing the pressing need for skilled workers (Kerehoma & Ora, 2019). Diversifying the workforce can also help to increase adaptability and cultural understanding, and companies should provide leadership training and on-the-job crash courses to their employees to ensure they have the necessary skills to succeed (Kāpiti coast district, 2022).

The NZ government can also play a role in addressing the skill shortage by providing financial support to construction companies to encourage hiring young people and allowing them to learn and expand their careers within the industry (Wellington Region Workforce Development Plan, 2019). The government should also offer incentives, including training, for new graduates and new workers to go to remote areas or where skilled workers are in high demand. The government should provide more incentives for migrants to enter the construction industry and make labour/employment policies and regulations clear and unequivocal (Bryson et al., 2018). Programmes to train migrants in terms of local standards and regulations can help new workers quickly fit into the NZ construction industry.

Large construction companies can also filter young people through guaranteed job training to become skilled employees (Downes & Lansley, 2018). The industry and government should work together to create a portal and database for employers to seek available skilled people; such co-operation will serve to maximise the number candidates registered within the database (MBIE, 2022b). Finally, product suppliers and manufacturers need to provide more information to make it easier for the public to learn and accept new technologies. By taking these steps, the construction industry can work towards addressing the current skill shortage and ensure they have enough skilled workers to meet the demands of the industry.

### **3.3 Skill Shortages in Māori**

Māori representation in the construction sector is limited at the decision-making and board levels, despite their significant presence in the workforce (Commerce Commission NZ, 2021). Challenges with Māori in construction stem from a lack of education, transparency of opportunities, communication skills, and limited resources, which hamper their representation (Commerce Commission NZ, 2021). As detailed above, the construction industry faces a shortage of skills and people, particularly in leadership positions and among underpaid, low-skilled laborers (MBIE, 2022a; Paenga-whāwhā, 2020). In order to address these challenges, government support, greater education for young apprentices, and de-regulation to look at standards more broadly are suggested (Commerce Commission NZ, 2021).

Low levels of literacy and numeracy are an issue across the industry, and Māori make up a large proportion of the lower-skilled end of the workforce (The Crown-Māori Economic Growth Partnership, 2015). Lack of education and training exacerbate the issue, which can be overcome by introducing formalized learning arrangements set in the workplace, specified knowledge and skills that a student will attain, specified assessment methods, a range of pre-trades training to university level qualifications, and vocational training for secondary students (The Crown-Māori Economic Growth Partnership, 2015).

According to MBIE (2021), the shortage of skills in the construction industry is a significant issue, with the skills story being more complex than a mere labor shortage. The industry underpays for skills, provides poor working conditions, and faces a shortage of diverse and skilled workers. To address these issues, the government needs to provide a more skilled and diverse workforce that is future-ready and to develop leadership that can effect change and allow individuals and organizations to flourish (MBIE, 2021).

Māori have a lower incomes compared to all others at every income level due to lack of training and skills, having little formal education, and being in low-paid occupations, such as labourers, (Haar, 2022). Organizational implications include encouraging and developing culturally appropriate individual resources, providing greater understanding of workload issues for Māori professionals, and providing greater cultural safety to aid mental health (Haar, 2022). Moreover, the unskilled and least paid are most vulnerable to job loss and community dislocation due to lack of education, inequality of outcome, and lack of policies and plans by iwi and government, which can be addressed by designing programs for life-long learning, exploring dynamic and agile education systems, addressing the digital divide, and empowering whānau to make the home a place for learning (Paenga-whāwhā, 2020).

According to the Workforce Development Plan, (2022), Māori people are underrepresented in higher-skilled, management, and ownership roles. The negative educational outcomes directly impact their participation in the labor market and employment outcomes due to unequal education, lack of training, and

government support. The right education, training, and career support can create a level playing field for Māori in finding and retaining quality employment (Workforce Development Plan, 2022). Furthermore, industries are struggling to find workers with the correct, job-relevant skills, and school leavers and graduates face difficulty finding jobs in their preferred area of work or specialization due to technology, globalization, demographics, and social values (Wellington Region Workforce Development Plan, 2019).

The issue of shortages in the higher-skilled workforce, such as managers and professionals, is of specific concern, and Māori are underrepresented in leadership roles, with leadership commitment being key (The & Zealand, 2021). Finally, Māori generally experience poorer outcomes in the construction industry during times of higher unemployment. Workers in low-skilled jobs are vulnerable to the expansion and contraction of the labour market. Upskilling workers throughout their working lives, particularly as the working population ages, and mitigating the barriers that lower-skilled workers face in accessing education outside of work can help address this issue. Table 2 provides a summary of the challenges facing Māori in construction.

**Table 1:** Description of Challenges with Māori in Construction

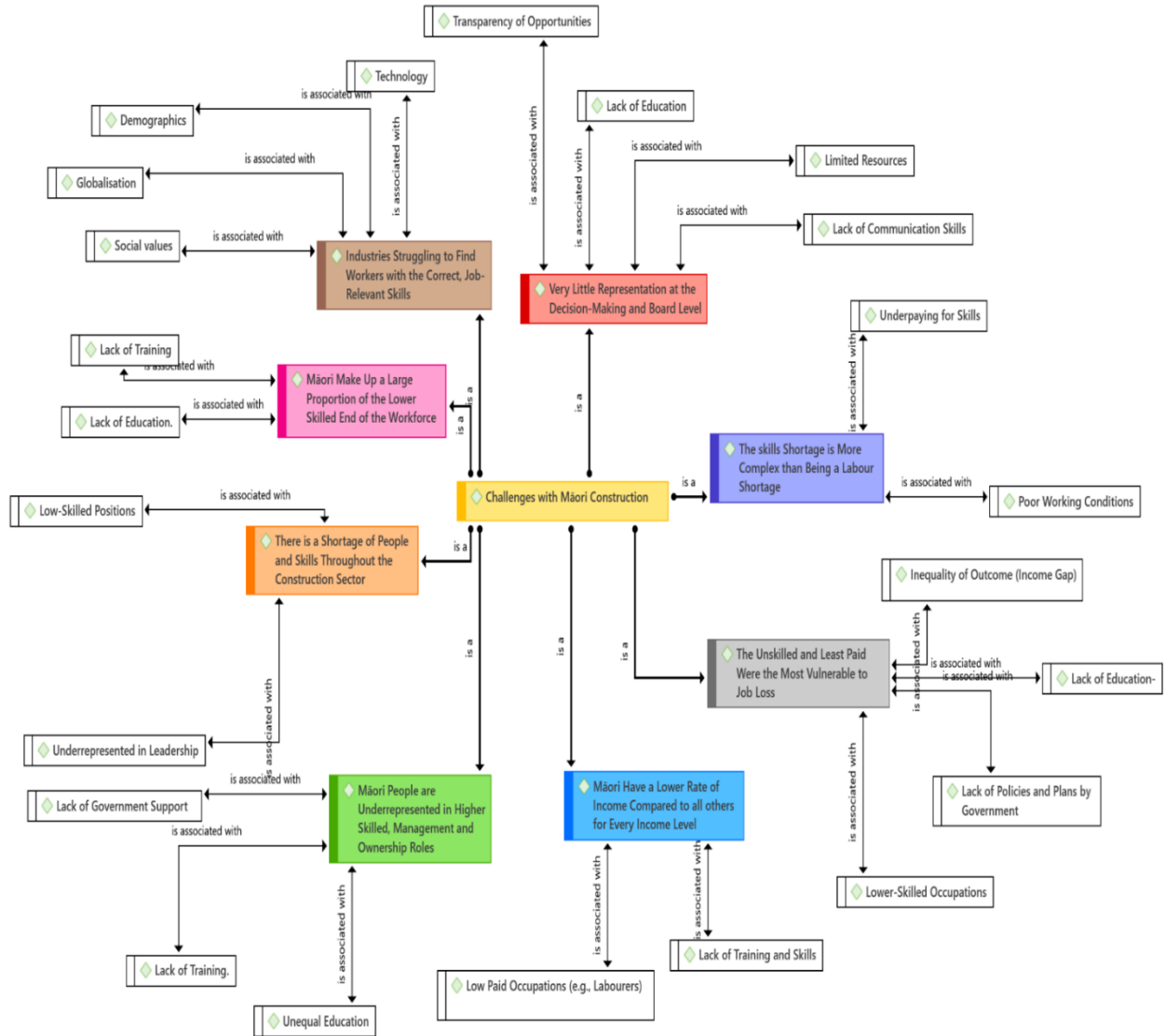
<b>References</b>	<b>Challenges with Māori in Construction</b>	<b>Factors</b>	<b>Recommendations</b>
Commerce Commission NZ, (2021)	Māori represent hugely in the construction sector's labour component but very little representation at the decision-making and board level.	<ul style="list-style-type: none"> <li>• Lack of education</li> <li>• Transparency of opportunities</li> <li>• Lack of communication skills</li> <li>• Limited resources</li> </ul>	<ul style="list-style-type: none"> <li>• Government support</li> <li>• Greater education for young apprentices</li> <li>• De-regulation, by looking at standards more broadly than currently</li> </ul>
The Crown-Māori Economic Growth Partnership, (2015)	Low levels of literacy and numeracy are an issue across the industry. Māori also make up a large proportion of the lower-skilled end of the workforce.	<ul style="list-style-type: none"> <li>• Lack of education</li> <li>• Lack of training</li> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• Formalized learning arrangement set in the Workplace</li> <li>• Specified knowledge and skills that a student will attain</li> <li>• Specified assessment methods (workplace learning).</li> <li>• A range from pre-trades training to university-level qualifications</li> <li>• Vocational training for secondary students</li> </ul>
MBIE, (2022)	There is a shortage of people and skills throughout the sector.	<ul style="list-style-type: none"> <li>• Low-skilled positions</li> <li>• Underrepresented in leadership</li> </ul>	<ul style="list-style-type: none"> <li>• Use the insights from the strategy for government and industry to deliver a range of actions. These actions will ensure that the workforce is developing the skills that the industry needs now and in the future.</li> <li>• The sector needs to find new ways of recruiting and retaining a diverse workforce, including more</li> </ul>

			women, Māori, Pasifika and people with disabilities.
MBIE, (2021)	The shortage of skills in the industry is a significant issue. The skills story is also more complex than being a labour shortage.	<ul style="list-style-type: none"> <li>• Underpaying for skills</li> <li>• Poor working conditions</li> </ul>	<ul style="list-style-type: none"> <li>• Government needs to provide a more skilled and diverse workforce that is future-ready.</li> <li>• Enhanced leadership capacity to effect changes added flourishing individuals and organizations.</li> </ul>
Paenga-whāwhā, (2020)	The unskilled and least paid were most vulnerable to job loss and community dislocation	<ul style="list-style-type: none"> <li>• Lack of education</li> <li>• Inequality of outcome (Income gap)</li> <li>• Lack of policies and plans by iwi and government.</li> <li>• Lower-skilled occupations</li> </ul>	<ul style="list-style-type: none"> <li>• Designing programmes for life-long learning.</li> <li>• Exploring dynamic and agile education systems that keep Māori engaged in learning so that they are always.</li> <li>• Growing to meet emerging opportunities and never being left behind.</li> <li>• New curriculum to teach enterprise skills and creativity.</li> <li>• Addressing the digital divide.</li> <li>• Empowering whānau to make the home a place for learning.</li> </ul>
Haar, (2022)	Māori have lower incomes compared to all others for every income level. Māori are more likely to have no formal education	<ul style="list-style-type: none"> <li>• Low paid occupations (e.g., labourers)</li> <li>• Lack of training and skills</li> </ul>	<ul style="list-style-type: none"> <li>• Organizational implications include encouraging and developing these culturally appropriate individual resources and providing greater understanding of workload issues for Māori professionals and providing greater cultural safety to aid mental health.</li> </ul>
Workforce Development Plan, (2022)	Māori people are underrepresented in higher skilled, management and ownership roles. Māori experience worse educational outcomes than other New Zealand learners. Negative education outcomes have a direct impact on participation in the labour market and employment outcomes.	<ul style="list-style-type: none"> <li>• Unequal education</li> <li>• Lack of training</li> <li>• Lack of government support</li> </ul>	<ul style="list-style-type: none"> <li>• Having the right education, training and career support are key factors in creating a level playing field for Māori in finding and retaining quality employment.</li> </ul>
Williams, (2020)	Due to the shortage of skilled labour in New Zealand, particularly in the construction industry, the sector is currently operating at or close to its maximum capacity. As a result, there is a genuine concern that there may not be enough workers available to carry out the necessary work for planned projects.	<ul style="list-style-type: none"> <li>• Out of date perceptions about the sector</li> <li>• Lack of knowledge</li> </ul>	<ul style="list-style-type: none"> <li>• Developing a framework with a long list of options to meet workforce needs.</li> <li>• Working with key stakeholders to identify a small number of focus areas.</li> </ul>

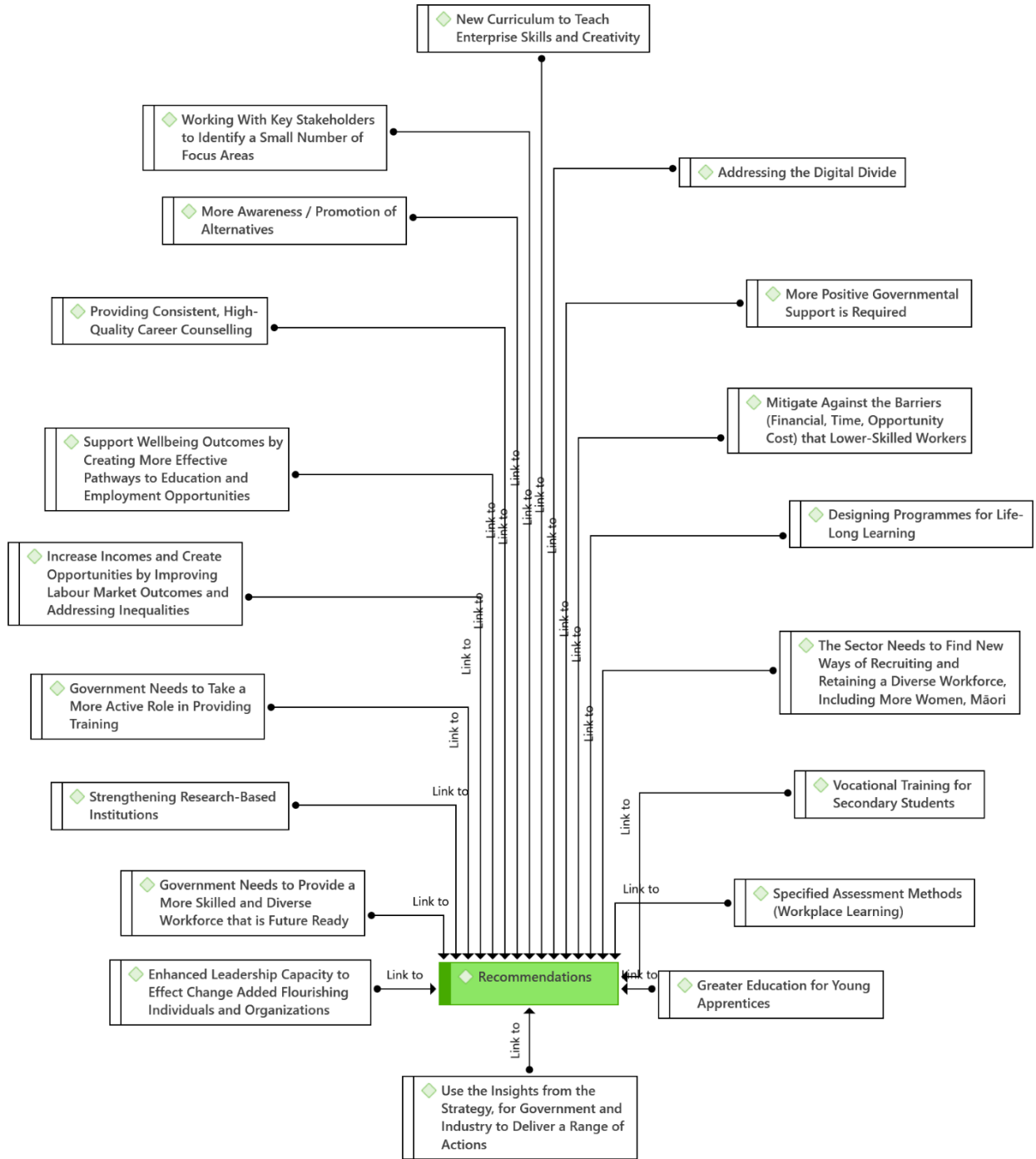
Kerehoma & Ora, (2019)	Despite current levels of high employment, at times of higher unemployment those in low-skilled jobs are vulnerable to the expansion and contraction of the labour market. Many of these workers are unqualified, work long hours and shift work for low pay.	<ul style="list-style-type: none"> <li>• Unequal education</li> <li>• Lack of training</li> <li>• Low literacy</li> <li>• Numeracy skills</li> </ul>	<ul style="list-style-type: none"> <li>• Teaching and learning processes can change ways of working during and after a programme.</li> <li>• Upskill workers throughout their working lives, particularly as the age of the working population increases.</li> <li>• Mitigate against the barriers (financial, time, opportunity cost) that lower-skilled workers face in accessing education outside of work.</li> </ul>
Wellington Region Workforce Development Plan, (2019)	Industries struggling to find workers with the correct, job-relevant skills. School leavers and graduates facing difficulty finding jobs in their preferred area of work or specialization	<ul style="list-style-type: none"> <li>• Technology</li> <li>• Globalization</li> <li>• Demographics</li> <li>• Social values</li> </ul>	<ul style="list-style-type: none"> <li>• Providing consistent, high-quality career counselling that is early enough for students and well-informed by the market.</li> <li>• Providing forums for sharing knowledge, ideas and good practices.</li> <li>• Promoting participation so that more employers and educators seek to be actively involved.</li> </ul>
(Mereho & Tolooei, 2021)	The issue of shortages in the higher-skilled workforce, such as managers and professionals, is of specific concern.	<ul style="list-style-type: none"> <li>• Underrepresented in leadership.</li> <li>• Leadership commitment</li> </ul>	<ul style="list-style-type: none"> <li>• Enhanced leadership capacity to effect change added flourishing individuals and organizations.</li> <li>• Knowledge creation and dissemination for current and future leaders is a priority since curiosity and awareness can only move organizations to a limited point.</li> </ul>
Kāpiti coast district, (2022)	Māori experience generally poorer outcomes in the district, including higher unemployment rates and a higher likelihood of working in low skilled or semi-skilled jobs.	<ul style="list-style-type: none"> <li>• Lack of education and training</li> <li>• Lack of resources</li> </ul>	<ul style="list-style-type: none"> <li>• Support wellbeing outcomes by creating more effective pathways to education and employment opportunities for communities throughout the Kāpiti Coast.</li> <li>• Increase incomes and create opportunities by improving labour market outcomes for residents and addressing inequalities across the Kāpiti Coast.</li> <li>• Create a productive, inclusive and diverse economy and ensuring the Kāpiti Coast's businesses can find the skills they need now and into the future.</li> </ul>
Bryson et al., (2018)	The skills gaps and challenges within building consenting processes, which prevent smaller industry members from being interested in or able to deliver.	<ul style="list-style-type: none"> <li>• Lack of resources</li> <li>• Lack of training</li> </ul>	<ul style="list-style-type: none"> <li>• Government needs to take a more active role in providing training to the building industry on resource consenting if it is to encourage builders and developers to take on projects.</li> </ul>
Partners, (2016)	The construction industry contractors were reporting difficulty finding the right	<ul style="list-style-type: none"> <li>• Lack of skilled labour</li> <li>• Lack of education</li> <li>• Lack of training</li> </ul>	<ul style="list-style-type: none"> <li>• Delivering skills for</li> <li>• Getting at-risk young people into a career industry</li> </ul>

	skills for existing work already underway.		<ul style="list-style-type: none"> <li>• Boosting achievement of Māori and Pasifika</li> <li>• Improving adult literacy and numeracy</li> <li>• Strengthening research-based institutions</li> <li>• Growing international linkages.</li> </ul>
Downes & Lansley, (2018)	There is skills and labour shortages across NZ construction industry.	<ul style="list-style-type: none"> <li>• Skills and labour shortages</li> <li>• Health and safety improvements needed</li> <li>• Poor collaboration and knowledge sharing</li> <li>• Lack of trust</li> </ul>	<ul style="list-style-type: none"> <li>• Undertaking collaborative construction and retrofit partnerships with the construction industry and Māori for better outcomes.</li> </ul>

According to Table 2, having the appropriate education, training, government backing, and career support are critical components in providing an equal playing field for Māori when it comes to resolving the issue of low-skilled labor in the New Zealand construction sector. This is particularly important in the case of the construction industry. Historically, the educational achievements of Māori students in New Zealand have been worse than those of other students. Poor education directly and negatively affects one's chances of finding a meaningful job and overall involvement in the labor market. This has enormous social, cultural, health, and economic implications for individuals, and these repercussions span several generations. Figures 1 and 2 depicts the challenges facing Māori in construction, and the recommendations.



**Figure 1: Challenges Facing Māori in Construction**



**Figure 2: Recommendations**



#### 4. Problem Statement

The urgent need for skilled labour in the New Zealand construction industry highlights the critical importance of addressing the skill shortage-related challenges. By doing so, we can increase collaboration among stakeholders and directly improve the sector's productivity, as recognized by the Commerce Commission NZ, (2021). However, the current industry trends remain unclear, and it is challenging to determine which skills are urgently needed (Kerehoma & Ora, 2019; Workforce Development Plan, 2022). This lack of clarity poses a significant obstacle to effective action. Furthermore, despite our knowledge about the construction industry in New Zealand, there is a glaring gap in our understanding of Māori firms within the sector, creating a vital challenge that must be addressed (Workforce Development Plan, 2022). It is imperative that we prioritise efforts to fill these knowledge gaps and tackle the skill shortages, to ensure a robust and thriving construction sector that benefits all stakeholders.

#### 5. The Significance of the Study

This project honoured and gave effect to the Te Tiriti o Waitangi through the three principles: partnership, Participation and Protection.

- **Partnership** — we worked together with iwi and Māori communities (construction companies) to ensure Māori individual and collective rights were respected and protected during this study. For example, interviews were conducted by Ms Marama Tepania, who is Māori and understands the protocols associated with communicating with Māori.
- **Participation** —involved Māori in all stages across the project's life cycle (the design, governance and management, implementation and analysis). For example, the project was co-designed with Māori co-leads. The initial subject matter interviews included Māori construction practitioners. In the later stages of the project, we included Māori research co-leads and Māori construction companies.
- **Protection** — throughout the research process, we actively protected Māori individuals who participated in our study, including their collective rights to participate in the study, Māori data, Māori culture, cultural concepts, values, norms, practices and language in the research process. The two Māori co-leads played an essential role in protecting Māori in this study.

This project will deliver better outcomes for ConCOVE's Priority Groups (Māori, Pasifika and Women). As described above, this project proposal was co-designed with representatives from the New Zealand construction sector (the phase 1 interviews were conducted with 15 construction practitioners,

including Māori, Pasifika and Women). During the subsequent phases of the study, we engaged with Māori, Pasifika and Women to understand how Māori construction companies could be supported with upskilling programmes. We also communicated with the ConCOVE's Priority Groups to provide recommendations for how construction and infrastructure training could better meet the needs of Māori construction firms.

The study findings significantly contributes to New Zealand's construction industry and education sector. The construction firms will benefit from this study's Māori skill development framework. The educational providers, including Massey University and ConCOVE, will benefit from realigning the research projects delivered to address the skill gaps identified in this study. Moreover, the key outcomes of the study help define the role of stakeholders, skills requirements for the prospective and current Māori workforce to enhance employability, academic involvement in the development of industry-relevant courses and qualifications, and opportunities for industry-academia collaboration. Therefore, the study will improve engagement with the Māori community and national/international audiences, represents high-quality, transformative and impactful research, and will enhance the international reputation of Massey University.

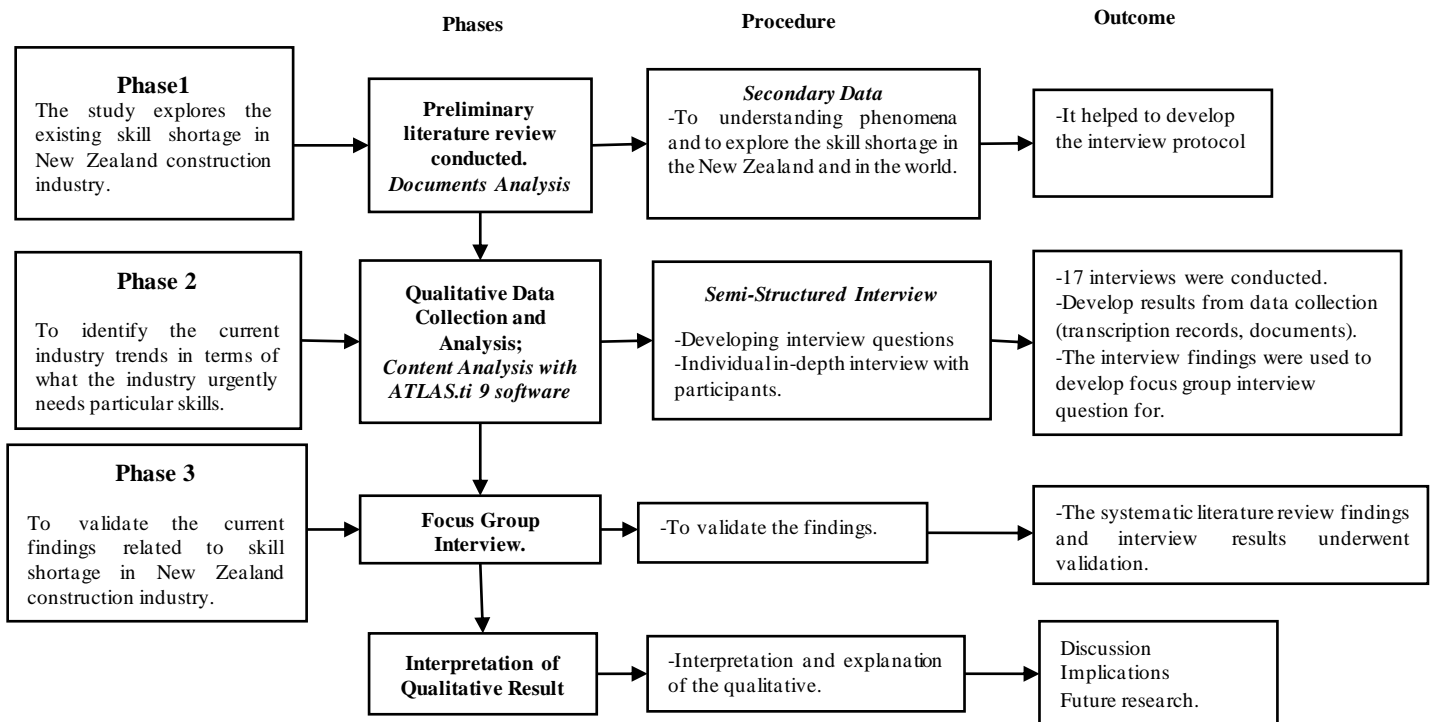
## **6. Aims and Objectives of the Study**

This study explores the skill shortages in the New Zealand construction industry and proposes a framework to support more Māori in high-skill roles. The high skills include design skills (Building codes, Measurements, Developing blueprints, Environmental regulations, Safe worksite development and Computer-aided drafting (CAD)), Communication skills (Leadership, Teamwork, Quality control, Emotional intelligence and Conflict resolution), Cognitive skills (Critical thinking, Problem-solving, Organization and Documentation), Technology skills (Construction management software, Mobile apps, Building information modelling, Virtual reality, Augmented reality, Estimating software and Drones) and Growth and developmental skills (Coachability, Willingness to learn, Growth mindset, Vocational training, Apprenticeship engagement, Independence, Self-motivation and Time management).

Figure 3 shows the research methodology, research strategy, and research design. The key objectives of the study are:

1. To identify the current industry trends in terms of what particular skills the industry urgently needs.
2. To develop a framework for supporting more Māori into high-skill roles in the industry.

Focus group interviews were conducted to confirm and validate the obtained findings.



**Figure 1: Research Methodology**

## 7. Development of the Interview Instrument

Through a literature review, previously conducted interviews, corporate records, and publicly available data sources, this study used a qualitative technique to fulfil the research goals of getting more profound insights into the skill shortages in the New Zealand construction industry, and proposes a framework to support more Māori in high-skill roles. The researchers conducted a literature review and semi-structured interviews to identify the current industry trends regarding what particular skills the industry urgently needs and to develop a framework for supporting more Māori into high-skill roles in the construction sector. According to the objectives of the study, the researchers met with interview participants in informal settings that would encourage reflective thought. All respondents had prior knowledge of New Zealand construction industry skill shortages. Before starting the recording interviews, the researcher briefly summarised the study's background and primary goals.

All interviews were recorded, documented, and subjected to an analysis utilizing content analysis. After reviewing each interview script several times, the researchers identified several themes from the respondents' common ideas and points of view. Based on the replies, the codes used to create the themes were created, enabling analysis and the synthesis of data to create a theme relevant to the given questions. Several participants played various roles, each with varying degrees of experience. The researchers inputted the qualitative data gathered from the participant and the interview into the ATLAS.ti 9 software. The data obtained for this experiment can be stored, interpreted, and evaluated using the ATLAS.ti 9 software (Chang & Hsieh, 2020). Anyone unfamiliar with the software environment would find ATLAS.ti 9's technical jargon (quotation, relations, and network) unintelligible. After doing an initial study of textual data, the researchers used the open coding feature of the ATLAS.ti 9 software package to discover a significant number of words, phrases, and other keywords of interest that are connected to this article or topic of interest (Friese, S., Soratto, J., & Pires, 2018). The number of interviews conducted were strictly limited until the saturation threshold was achieved.

This study is based on an extensive literature review that explores the skill shortages in the New Zealand construction industry and proposes a framework to support the upskilling of Māori in high-skill roles. The study aims to solicit input from industry subject matter experts on the developed framework and to revise the framework based on feedback received. To achieve these objectives, the following interview questions were used in this study:

1. Please share with us your current job title, responsibilities, and your work experience in the construction industry. We are interested in understanding your background and expertise in the field.
2. What motivated you to pursue a career in the construction industry, and what has been your experience so far?
3. Can you describe your understanding of the current state of upskilling opportunities available for Māori construction practitioners in New Zealand, and how would you rate them in terms of accessibility and effectiveness?
4. In your opinion, what are the biggest challenges that Māori construction practitioners face when it comes to accessing upskilling opportunities, and what strategies can be employed to overcome these challenges?
5. How can Māori construction practitioners be better supported to upskill and advance their careers in the industry, and what resources or support do you think are needed to achieve this?

6. What essential skills do you think are necessary for Māori construction practitioners to succeed in the industry, and how can they be developed and improved upon?
7. Could you share any examples of successful upskilling programs or initiatives that have been aimed at Māori construction practitioners in New Zealand, and what made them effective?
8. In your view, how important is cultural competency and understanding for Māori construction practitioners, and how can it be integrated into upskilling programs?
9. What role do you believe industry stakeholders, such as employers, professional organisations, and government agencies, should play in developing and promoting upskilling opportunities for Māori construction practitioners, and what are their responsibilities in this regard?
10. What resources or support do you think Māori construction practitioners need to successfully upskill and advance their careers, both in terms of technical skills and soft skills such as leadership and communication?
11. In your opinion, what should be the top priorities for the development of a framework for upskilling Māori construction practitioners in New Zealand, and how can this framework be effectively implemented and evaluated?
12. How do you think the principles of the Treaty of Waitangi could be incorporated into a framework for upskilling Māori construction practitioners in New Zealand, and what benefits do you think this would have for the industry and the wider community?

## **8. Methodology**

The study's data collection process encompassed diverse sources and aligned with the social constructivist framework, emphasizing ontology, epistemology, and case study attributes. From this perspective, interviews emerged as the preferred method for evidence gathering, given constructivism's core belief in human agency as the determinant of reality. The research adopted a qualitative approach to delve into the significant skill shortage afflicting New Zealand's construction industry. This involved conducting interviews, examining company records, and leveraging publicly available data sources. Employing an inductive case study methodology, we explored the intricate, context-dependent facets of the skill shortage phenomenon within the New Zealand construction sector, drawing insights from the study conducted by Dangelico and Pujari (2010). Case studies were selected for their ability to enhance transferability and to underscore that those events and behaviours, even in well-defined contexts, possess broader applicability. Beyond surface-level exploration, we aspired to identify patterns and outcomes across various scenarios, understand their categorisations, and employ this comprehension to provide extensive justifications and descriptions. Case studies have received scholarly endorsement in diverse contexts, including teaching, middle management, battered women, and taxi drivers, among others.

Moreover, recent decades have witnessed a notable surge in case studies addressing complex situations, often spanning multiple research projects (Creswell, 2009; Creswell & Plano Clark, 2011). The primary objectives of this qualitative exploratory case study were to investigate the root causes of the current skill shortage in the context of engaging Māori practitioners, evaluate strategies for upskilling Māori individuals for high-skill roles, and offer recommendations for educational institutions.

To dissect the prevalent skill shortage afflicting New Zealand's construction industry, we initiated the study with interviews as the foundational research strategy. Our qualitative findings emanate from interviews conducted with sixteen participants from construction sectors within New Zealand. These interviews were facilitated over Microsoft Teams, accommodating flexible scheduling for both researchers and participants. Despite variations in interview duration, each interview adhered to a consistent structure, commencing with a concise introduction to the study's subject matter. Throughout the interviews, probing questions were posed to encourage participants to elaborate on their responses. After each session, inquiries delved into current events and internal challenges. The information gleaned from these interviews was the cornerstone for defining the study's scope. Any obstacles or issues that surfaced during this interview phase were documented, contributing to a more nuanced understanding of the prevailing skill shortage within New Zealand's construction industry. For an overview of the participants, refer to Table 3, Profile of Participants.

**Table 1:** Profile of Participants

No	Pseudonyms	Work Experience (years)	Position/Level
1	Participant 1	30	Managing Director
2	Participant 2	08	CCC Assessor
3	Participant 3	06	Program Coordinator
4	Participant 4	35	Operations Manager
5	Participants	12	Managing Director
6	Participants	18	Construction Recruitment
7	Participants	20	Associate (transport and three waters)
8	Participants	05	Commercial Manager
9	Participants	12	Senior Project Manager
10	Participants	25	Community Leader
11	Participants	08	Site Supervisor
12	Participants	09	Site Engineer

13	Participants	30	Project Controls Manager
14	Participants	09	Civil Engineer
15	Participants	25	Construction Supervisor
16	Participants	10	Construction Business Owner

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As indicated in Table 3, all participants held high-ranking positions within their respective organizations and boasted over five years of tenure with their companies. Moreover, they possessed higher education; thus, they have amassed substantial knowledge and extensive experience within the New Zealand construction industry. This formidable combination of qualifications and practical insights renders them authoritative sources of information regarding the skill shortage plaguing the New Zealand construction sector.

The selection of these organizations was guided by their demonstrated commitment and performance, which is particularly evident in the context of the skill shortage gripping the New Zealand construction sector. In order to gain a comprehensive understanding of this phenomenon, our study adopted the organizations (representing the New Zealand construction sector) as the primary unit of analysis. Although our focus was on assessing the skills shortage at the corporate level concerning the engagement of Māori within the New Zealand construction sector, this examination was undertaken within the broader context of industry advancements.

Each interview session lasted over an hour, which afforded ample time to explore each facet of inquiry. Subsequently, these interviews were transcribed, with the data being subjected to rigorous scrutiny for the purposes of both internal and external case analysis. A diligent translation process was employed to ensure the fidelity and coherence of the respondents' statements. Furthermore, the interview transcripts underwent examination to facilitate data triangulation and to bolster and validate the use of these transcripts as valuable data sources. Additionally, supplementary information resources about the organizations under investigation, including corporate documents, published research papers, descriptions of skills shortage challenges, and updates on organizational activities, were also subjected to thorough analysis.

The data collection method hinged on semi-structured interviews, which were instrumental in extracting rich experiential insights from the participants. These insights, in turn, contributed significantly to a more profound comprehension of the research questions underpinning our study. Through the interviews and responses of these expert participants, we garnered substantial insights into the intricacies surrounding the skill shortage issue, the key factors contributing to the current shortage of Māori experts in the construction sector. The interview responses also served as the basis of our recommendations for

elevating Māori individuals into high-skill roles and suggestions for educational providers aiming to enhance their courses. Following the completion of the second stage in the study, a focus group interview was conducted to confirm and validate the obtained findings. This section addresses and reinforces the study's research inquiries with pertinent participant comments and quotations. In order to facilitate data management and analysis, the qualitative data and interview transcripts were entered into ATLAS.ti 9 software, which streamlined the process of extracting meaningful patterns and insights from the collected information.

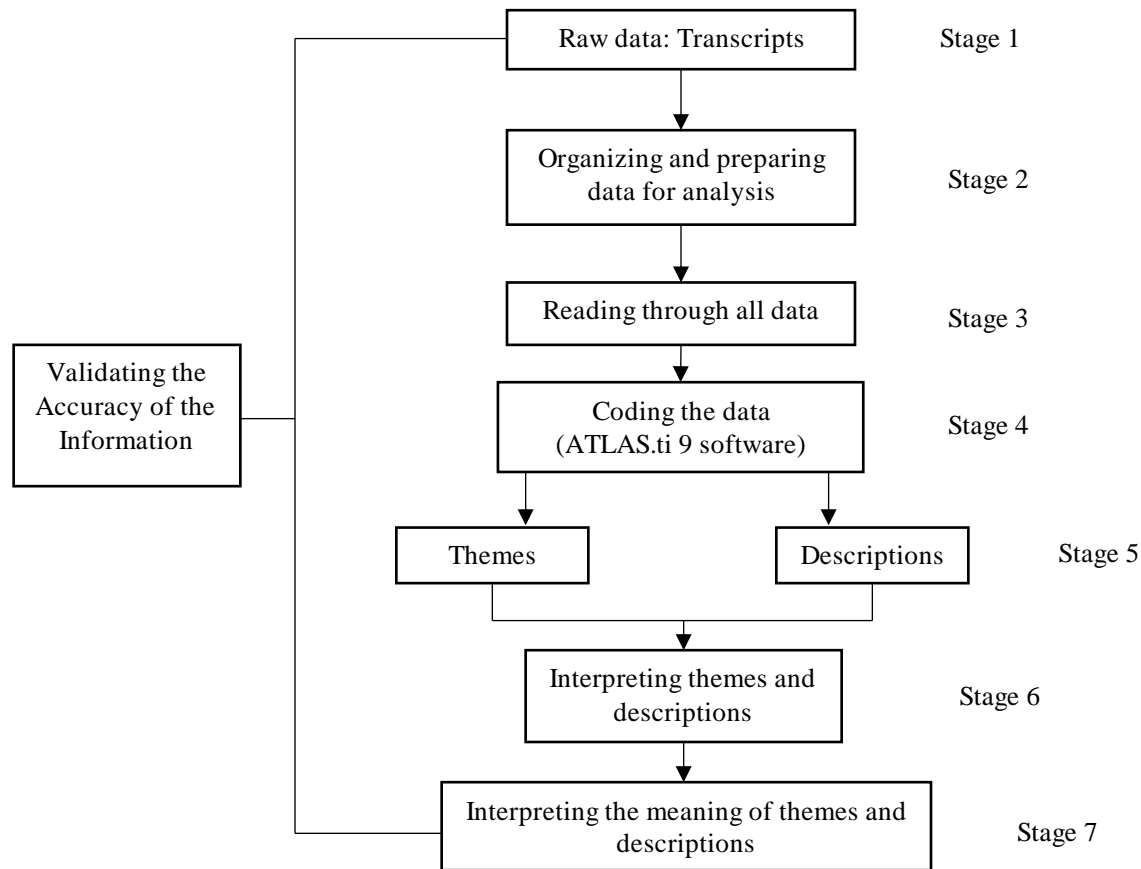
This section provides a detailed account of each phase of the analysis process, following the format established in the methodology section. For the purpose of this investigation, the data was managed and analysed using the ATLAS.ti 9 program, as recommended by Chang & Hsieh (2020). It's worth noting that the technical jargon within ATLAS.ti 9, such as "quotation," "connection," and "relationship," may not be easily understood by individuals unfamiliar with the software.

Following an initial review of textual findings, the researchers employed the open coding function within the ATLAS.ti 9 software package. This approach allowed for identifying various words, phrases, and keywords of interest related to the topic under investigation. Open coding essentially designates a "quotation," which entails using the exact words to extract a point from the same source. Typically, when coding for new concepts, it's common to accumulate several pages of code, as Friese et al. (date) noted.

These codes were subsequently subjected to further scrutiny to unveil connections and were organized into groups based on common characteristics. Additionally, the researchers considered the dimensions of the codes, which describe the property's placement on a continuum or within a set, as Moshood et al., (2021) discussed. Sub-categories were created from the codes and integrated into the overarching categories if necessary. It's worth noting that the category name may differ from the codes to provide a clearer delineation of its scope, as suggested by Moshood et al., (2021). Open coding typically represents the initial phase in the qualitative data analysis process. Depending on their analytical approach, researchers may employ gravitational and selective coding following open coding. These coding strategies facilitate the development of models using an inductive methodology in later stages of the investigation.

The research focused on the significant skill shortage currently affecting the New Zealand construction sector. Each interview lasted more than an hour, allowing for a comprehensive exploration of each research question. Subsequently, the interviews were transcribed, and the data underwent cross-case and within-case analysis assessment. A systematic analysis of qualitative data was imperative to gain a deep understanding of the participants' meanings and experiences as Spiggle, (1994) advocated. This analysis method closely adhered to the guidelines outlined in Creswell (2009), as illustrated in Figure 4.





**Figure 1:** Analysis of Qualitative Study

The processing of each interview transcript involved several stages, starting with organizing the initial data transcripts into folders . Afterwards, the research team meticulously reviewed the interview transcripts and accompanying notes multiple times during each interview session. These reviews allowed the team to gain a thorough understanding of the discussed issue, assess participants' expertise levels, and gauge their comprehension of the urgent skills shortage affecting the construction sector in New Zealand. In the fourth phase, we employed the Cut-and-Paste method, as advocated by Stewart et al., (2015), a time-efficient and cost-effective approach for analysing interview transcripts,. In this phase, the researchers reviewed the interview transcripts, identifying significant points relevant to the study's research questions, including words, phrases, sentences, and paragraphs. In order to enhance clarity and organization, colour-coded symbols were employed within the ATLAS.ti9 software to distinguish between different topics and

networks within the text. Following this initial reading, we formulated categories representing major themes, highlighting points from the transcripts aligning with each theme.

Within stage 4 of the coding process, two distinct sub-phases emerged: the first centred on the critical skill shortage affecting the construction industry, while the second related to the root causes of this skill shortage concerning the engagement of Māori practitioners. This approach followed an inductive methodology, where data was not pre-coded based on its specific context before collection and evaluation. Instead, the researchers closely examined the language employed by study participants in addressing the critical skill shortage plaguing the construction sector, seeking to identify concepts or patterns subjectively.

Subsequently, the aspects discovered were further scrutinised in step 5 and categorised into major themes or groupings, contingent upon their relevance to the significant talent shortage currently gripping the construction industry. To facilitate this categorisation process, the researchers thoroughly reviewed all interview transcripts to identify keywords and phrases used by participants to elucidate the concepts or themes pre-selected. These information's were then segmented and classified using a coded version of the interview transcripts, ensuring that all pertinent information related to each major topic was consolidated.

The relevant transcribed passages were supplementary materials and formed the foundation for the final interpretative analysis. This cut-and-paste method was efficiently executed using the ATLAS.ti 9 program and Microsoft Word. Due to resource constraints and to mitigate inter-coder bias, all interview transcripts and data were thematically evaluated and coded by the researchers. Through engaging in direct and meaningful discussions with the participants during the interviews, the researchers acquired a comprehensive grasp of the recurring themes that surfaced consistently throughout the process.

## **9. Results and Analysis**

### **9.1 The Critical Skill Shortage that Is Currently Affecting the NZ Construction Industry**

The critical skill shortage affecting the New Zealand construction industry relates to how data is collected and the procurement process, according to *Participant 1* during the interview. *Participant 1* highlighted that while there may be a perceived shortage, it is mainly due to skewed information-gathering methods and strict procurement policies. *Participant 1* provided an example where they could have completed a demolition project but were excluded from consideration due to not being on a specific panel.

*Participant 1* argued that if the procurement process was more flexible and inclusive, the skill shortage wouldn't appear as severe as it is. Additionally, *Participant 1* mentioned challenges in investing in workforce growth and training and developing new apprentices because of uncertainty in securing sufficient workflow to. The participant also note specific shortages in professions like their region's plumbing, hazardous materials removal, block laying, and bricklaying.

In the New Zealand construction industry, a critical skill shortage is notable in the field of fire safety and inspections. *Participant 2* highlighted that there is a deficiency of experienced professionals in this specific area. This shortage may stem from the complexity of fire safety or the limited opportunities for individuals to develop their skills in this specialization. *Participant 2* also mentioned a recent meeting where a council sought specialized fire inspectors, underscoring the demand for expertise in this domain.

*Participant 3* mentioned that the industry needs to focus on showcasing its projects and emphasizing the appeal of working in construction to attract more talent. It's essential to highlight that construction offers various roles beyond working on the tools, including digital modelling and other opportunities to earn well. *Participant 3* also mentioned that addressing health and safety concerns is crucial to creating a more appealing and safer work environment. *Participant 4* linked the current skill shortage in the New Zealand construction industry to be the changing attitudes towards work. Some individuals today prioritize a work-life balance with fewer hours, which is not entirely aligned with the demands of the construction industry. Although somewhat archaic in its practices, this industry still promises to deliver on client commitments, often leading to longer working hours and sometimes working in unfavourable weather conditions. *Participant 4* also elaborated that attracting an individual to a discipline that requires early mornings, long hours, physical labour, and exposure to the elements is challenging. This often results in drawing from a demographic with limited educational opportunities and lower socio-economic backgrounds. The distinction between wanting to work and having to work plays a significant role in shaping the workforce in this industry.

*Participant 5* stated that the construction industry faces significant challenges, including a shortage of skilled labour and the need for innovation. Finding skilled workers is difficult but paying them what they're worth to retain them in the industry is essential. Government and organizations have a responsibility to improve the situation. Additionally, tapping into the experience of older workers is valuable. Rather than employing them for their physical strength, their knowledge can be passed on to the next generation of construction workers. This intergenerational transfer of knowledge can contribute to lasting change.

*Participant 6* specializes in recruitment for this industry and highlighted several key factors contributing to the shortage. The participant said that the construction industry is grappling with a

multifaceted skill shortage characterized by a lack of skilled labour, increased labour costs, company closures, project delays, and workers seeking better opportunities overseas. These challenges are having a significant impact on the industry and its ability to meet construction demands efficiently. *Participant 7* discussed two types of skill shortages in the construction industry. The first type is the current skill shortage caused by the government's stimulus packages during the COVID-19 lockdown, which led to a sudden demand for labour. The second type is the future skill shortages, which need to be addressed as the industry evolves, especially with projects like the potential closure of Tiwai Point and the Southern Green hydrogen project. *Participant 7* emphasised the importance of mapping the required skills, developing training programs, and gaining industry and education sector support to prepare for these future skill needs.

Additionally, this participant mentioned the need to rethink success metrics in the industry and address challenges related to workforce diversity and language barriers when recruiting from overseas. *Participant 8* said that the New Zealand construction industry is grappling with a shortage of skilled workers, a gap between practical and academic knowledge, and housing affordability concerns. *Participant 8* mentioned that trade training programs were vital in the early '80s but declined afterwards. This decline has led to a shortage of skilled workers, especially those practising trades. Many of these are now retired. *Participant 8* also mentioned that there is a noticeable gap in skill levels between the older generation of workers who received comprehensive trade training and the younger generation in their 30s, who may have less practical knowledge. The lack of hands-on experience and practical skills among younger workers can create challenges in the construction industry.

*Participant 9* recognised that the inherent difficulty in construction lies not in the nature of the work but instead in the challenges stemming from internal elements within the industry. Identified issues include unfair practices, nepotism, and racially-influenced decision-making, which serve as significant impediments for Māori individuals aspiring to advance into elevated roles, such as industrial commissioners or business owners. These obstacles underscore the need to address systemic inequalities and foster a more inclusive and equitable environment within the construction sector. *Participant 9* noted that the concentration on housing, due to limited opportunities, results in a struggle with overheads, wages, and taxes.

, The company employing *Participant 10* doesn't see itself directly contending with the widespread skill shortages in the construction industry. Although the market indicates difficulty locating qualified individuals, it can still draw in new talent, albeit at a more gradual rate. *Participant 10* also stated that the loss of key personnel has posed a challenge for construction projects, exacerbated by the industry's dynamic nature, which makes staff poaching all too common. The process of replacing these crucial individuals is time-intensive, considering variables such as salary, company culture, and project-specific expertise. The

conversation shifted to the impact of colonization, racism, and inequality on Māori individuals' career progression. There's an explicit acknowledgement of sexism and racism within the construction industry. This raises concerns about the prevalence of such behaviour in her absence and highlights the need for industry-wide initiatives to address diversity, inclusion, and cultural awareness.

According to *Participant 11*, the impact of this skill shortage goes beyond the occasional absence of workers and leadership roles on-site; it significantly affects the overall efficiency, stability, and progress of our construction projects. Consequently, identifying individuals with the necessary skill set and a mindset aligned with our project goals becomes time-consuming. *Participant 11* stated the skill shortage is not limited to a specific skill set but appears to be industry wide. This implies that the demand for skilled construction professionals spans various roles, from entry-level positions to more experienced roles. As a result, companies across the construction industry compete for a limited pool of qualified individuals.

According to *Participant 12*, there are skills shortages of individuals with general construction knowledge and experience. Professionals coming out of universities may lack practical experience, making them "green" in the field. This shortage of hands-on experience can impact the efficiency and effectiveness of construction projects, as practical knowledge is often crucial in navigating real-world challenges. The shortage extends to skilled personnel and resources. *Participant 12* also highlighted that the demand for skilled workers surpasses the available supply, making it challenging for companies to find and retain qualified individuals. This shortage affects the workforce and the overall resource allocation and project management.

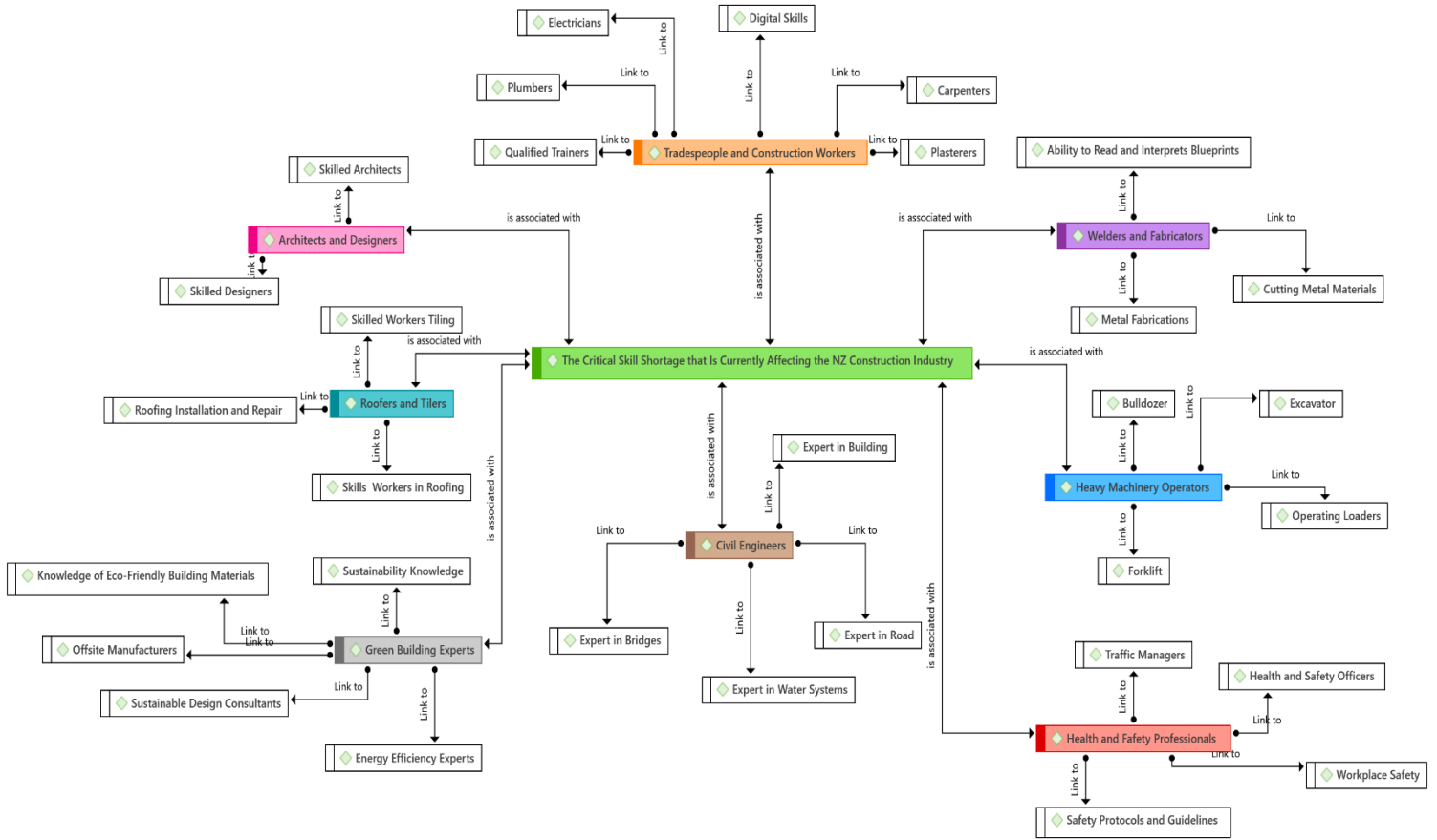
*Participant 13* stated that addressing the current skill shortage in the construction industry is a pressing concern that spans various facets, from trades to management. One significant challenge contributing to this scenario is the evident lack of succession planning and a shortage of young professionals entering the industry, particularly in roles like project management. Recognising this issue, introducing cadetships has emerged as a valuable solution. It is heartening to note that this initiative isn't exclusive to a single company but rather a collaborative effort involving significant players like Fletchers and the broader construction community. While progress has been made through initiatives like cadetships, there is an ongoing need for comprehensive strategies to attract, train, and retain a diverse range of skilled professionals within the construction industry. This involves international recruitment and a concerted focus on developing and harnessing the potential of our local workforce.

According to *Participant 14*, the construction industry is currently grappling with a significant skill shortage, which appears to be evolving into a crisis. This challenge is exacerbated by changes in the business model, particularly the lack of continuity in project work. The absence of a steady stream of

projects from major government agencies and entities like Cotai, Water Care, or Kiwi Rail compels companies to rely on labour-hire firms for a skilled workforce, including tradespeople and labourers. In addition, *Participant 14* also stated that the cyclical nature of hiring and letting go at the end of projects leads to a loss of trained personnel with each cycle.

*Participant 15* expressed a perspective on the skill shortage challenges in the construction industry in New Zealand, attributing the issue to a perceived lack of willingness to work among some individuals. The participant suggested that despite the reported low unemployment rate, there is a higher rate of individuals seeking welfare benefits instead of actively seeking employment. *Participant 15* emphasised a belief that the societal shift towards assisting has created a "vacuum of desire to work." The interviewee drew on personal experiences and observations, noting that some individuals, particularly those under 30, may be disinterested in working and may expect elevated positions without starting at the bottom. Regarding attracting skilled labour, the participant pointed out the difficulty in finding skilled and motivated workers. *Participant 15* acknowledged the use of migrant workers from the Philippines and expressed concern that, over time, similar challenges may arise as faced with workers from Pacific Island nations.

*Participant 16* highlighted a significant skills shortage, particularly in engineering, focusing on roles like site-based engineers and project engineers. The scarcity is particularly notable during the transition phase from a graduate engineer to a site engineer and, subsequently, a project engineer. The typical career trajectory involves accumulating a few years of post-university experience before attaining these crucial roles. Currently, the demand for professionals in these positions surpasses the available talent pool. *Participant 16* identified several factors contributing to the shortage in the engineering sector. The demanding nature of the work, characterized by challenging tasks and extended working hours, is considered a significant factor. Graduates may initially find spending time in the design space more appealing, leading to a delay in their transition to on-site roles.



**Figure 2:** Critical Skill Shortage that is Currently Affecting the NZ Construction Industry

**9.2 The Primary Causes of the Current Skill Shortage in Workforce Regarding Engaging with Māori Practitioners**

During the interview, *Participant 1* highlighted that one of the challenges for Māori construction practitioners reaching high-skilled decision-making roles in the construction industry is balancing working on the tools and transitioning into management or business development roles. This transition can be financially risky, as the most skilled individuals in a company often generate the most income, and stepping away from hands-on work can lead to a drop in earnings. Another challenge is the financial burden of training and upskilling. Many Māori practitioners may have to take time off work, resulting in income loss, to pursue further education or certification in fields such as quantity surveying or project management. *Participant 1* also highlighted that there is a cultural aspect where Māori individuals may hesitate to put themselves forward for advancement. They often wait to be asked or lack the assertiveness to actively seek higher roles. This cultural characteristic can be a barrier to career progression in some cases. On the positive side, some companies, like ours, actively support Māori and Pacifica staff, providing them with the

necessary training and opportunities for career advancement. Some companies understand the importance of investing in their workforce and offering support that may not have been available in previous roles or companies where a "you do it our way, or you don't" mentality prevailed.

According to *Participant 2*, several challenges contribute to the current skill shortage in the New Zealand construction workforce, particularly in engaging Māori practitioners. Māori apprentices in the construction industry often encounter financial difficulties, especially in the initial stages of their careers when their income is typically limited. This financial strain arises as they navigate the delicate balance between fulfilling cultural obligations and meeting work commitments. Additionally, the enduring legacy of historical factors, such as racism and the impact of colonization, continues to influence the experiences and opportunities available to Māori practitioners within the construction sector.

*Participant 3* highlighted that the primary causes of the current skill shortage in the workforce, particularly when engaging with Māori practitioners, include issues related to literacy and communication skills. Some individuals may struggle with reading and writing, affecting their career prospects. Furthermore, low self-confidence and self-doubt are significant factors contributing to the shortage. Many Māori workers may have the skills and capabilities required for high-level decision-making roles but lack the confidence to apply for such positions. Encouraging self-belief and self-assurance in Māori practitioners can help bridge the gap and assist their advancement in the construction industry. Additionally, there's a need to promote diversity in leadership roles, including in the corporate sector, to ensure that Māori voices are heard and represented in various workforce sectors.

*Participant 4* stated that support for Māori filling skill gaps in high-level decision-making roles in the construction industry starts with a foundation at home. Parents play a crucial role in instilling the drive to excel and discussing various opportunities with their children. It's essential to convey that making hard decisions can lead to better outcomes and that one's attitude is critical to success. Academic qualifications, while important, are only part of the equation. Attitude and work ethic are equally significant. Having a degree doesn't guarantee entitlement to a role, and an individual's drive and willingness to work hard matter more. *Participant 4* also highlighted the challenges that Māori individuals may face in achieving high-skill roles are not insurmountable. While socio-economic backgrounds, colonization, and racism have historically created obstacles, a strong work ethic, a positive attitude, and a commitment to excellence can help individuals rise above these challenges. Personal experiences, like growing up in a low-income family, can be powerful motivators for success. The speaker's parents set an example by working hard and emphasizing the importance of education and perseverance. They didn't let socio-economic factors or discrimination deter them from their goals.



*Participant 5*, who hails from Rotorua, doesn't dwell on concepts like colonization and racism, although acknowledging their historical existence. The participant comes from a modest background and emphasizes that their achievements result from hard work and personal drive rather than advantages or privileges, and that while some individuals may face disadvantages due to their family's circumstances, society today offers different opportunities compared to past generations. *Participant 5* encourages a mindset of self-reliance and self-improvement rather than relying on handouts. They acknowledge that finding one's life path can be challenging, but they emphasize the importance of taking initiative and seeking a "hand up" rather than a "handout." They believe that while everyone's circumstances differ, individuals can progress through determination and hard work.

*Participant 6* emphasised the value of Māori workers seeking opportunities with Māori employers and suggested that supporting Māori-owned businesses could help address the skill shortage by creating a more accessible and inviting pathway for Māori workers into the construction industry. *Participant 6* shared their personal experience of Māori workers naturally gravitating toward Māori employers. *Participant 6* also highlighted the importance of creating an environment where Māori workers feel comfortable and encouraged to pursue careers in the construction sector. To address the skill shortage among Māori workers, *Participant 6* suggested providing more support to Māori employers. This support would create a larger platform for Māori workers to access training and employment opportunities, making it easier to put their hands up for roles in the industry.

*Participant 7* highlighted several underlying factors contributing to the construction industry's challenges, especially regarding Māori and Pacifica representation. Firstly, there's resistance to change within many organizations. Additionally, there's a lack of expertise of Te Ao Māori perspectives, even among people of Māori descent. They emphasized the need for greater diversity, particularly in high-skilled roles, as decisions are made around the table, and representation is vital. To address these challenges, they advocated for strategic relationships between companies and local iwi to provide internships and opportunities for young talent to experience high-skilled roles. The goal is to increase the number of individuals from underrepresented backgrounds who can influence project outcomes positively. They are also working on fostering cultural change within their company to encourage diverse perspectives and behaviours at all levels, emphasizing that such changes must start at the top. Furthermore, they mentioned the importance of engaging their own children in their work to expose them to potential career opportunities in the construction industry. Overall, the interviewee acknowledged that progress is slow but is actively working to drive positive change.

*Participant 8* discussed the challenges for Māori in gaining roles in decision-making and leadership within the construction industry, including historical factors, potential discrimination, stereotypes, the role

of motivation, and the need for a more all-inclusive industry approach. *Participant 8* acknowledged that colonization has profoundly impacted the confidence and self-perception of Māori individuals. *Participant 8* believed colonization led to a mentality where Māori people started to put themselves down and question their capabilities. This mindset has led to a lack of confidence and self-doubt among Māori individuals, hindering their progress in the construction industry. *Participant 8* highlighted the importance of motivation and opportunity. They shared their personal experience of working overseas in an environment without the discrimination they might face in New Zealand. This allowed them to build confidence and succeed in their career.

*Participant 9* emphasised the imperative to address crucial issues within the construction industry, particularly in decision-making leadership roles – “*Drawing from personal experience in construction and obtaining supervisory positions in my early twenties, I acknowledge the challenges Māori practitioners face, characterised by persistent stereotypes, especially related to physical attributes*”. *Participant 9* also highlighted that historical discrimination has contributed to a self-perpetuating lack of confidence, particularly over the past two decades. To counteract this, initiatives such as sending individuals abroad for discrimination-free experiences have been implemented. However, the enduring effects of colonial perceptions persist, shaping the perception of Māori individuals in the workforce.

As highlighted by *Participant 10*, tackling challenges through the integration of Māori construction practitioners poses a complex endeavour – “*In my observation, the progression for Māori individuals from site manager to construction manager roles seems challenging. Although Pacifica individuals are visible in construction positions, enhancing upward mobility remains a formidable task*”. Initiatives such as internships and mentorship programs must prioritise cultural sensitivity, ensuring adequate representation, and nurturing a supportive environment conducive to the flourishing of both Māori and Pacifica individuals.

*Participant 11* stated that Māori construction workers face several challenges within the construction industry, particularly when filling skill gaps and pursuing decision-making roles. According to *Participant 11*, the effects of historical factors, including colonization, racism, and discrimination, are evident in the disparities in opportunities for Māori construction workers. The *Participant 11* also recognises the impact of historical influences on mindset, agreeing with the notion that some Māori individuals may feel they have fewer opportunities due to the generational effects of colonisation. Also, there are instances where diversity in leadership roles have been observed. *Participant 11* highlighted that the decision-making processes often occur at higher organisational levels, with limited involvement from those directly engaged in project execution. This underscores the need for more inclusive practices, allowing Māori individuals to play a more significant role in hiring decisions and workforce development.

According to *Participant 12*, there may be societal perceptions that Māori individuals are not destined for university or higher education, leading to potential discouragement from pursuing academic pathways. Breaking through such stereotypes requires proactive efforts to highlight diverse career options and to emphasise that academic excellence is not determined by ethnicity. The lack of mentorship and guidance early in one's educational journey can be a significant hurdle. *Participant 12* also stated that financial considerations often pose challenges for Māori workers who may hesitate to invest in higher education due to potential financial burdens. This dilemma can impact decisions around pursuing further studies, hindering the progression into roles requiring advanced qualifications. Balancing the desire for trade skills with the potential benefits of higher education becomes a critical consideration.

According to *Participant 13*, navigating the challenges and barriers Māori workers face in the construction industry requires a nuanced understanding of both individual experiences and systemic issues. One notable aspect *Participant 13* touched upon is the reluctance among some Māori individuals to pursue career progression actively, often settling into existing roles. This reluctance can stem from various factors, including a desire for work-life balance and a hesitancy to take on increased responsibility and pressure associated with higher roles in construction, such as project management.

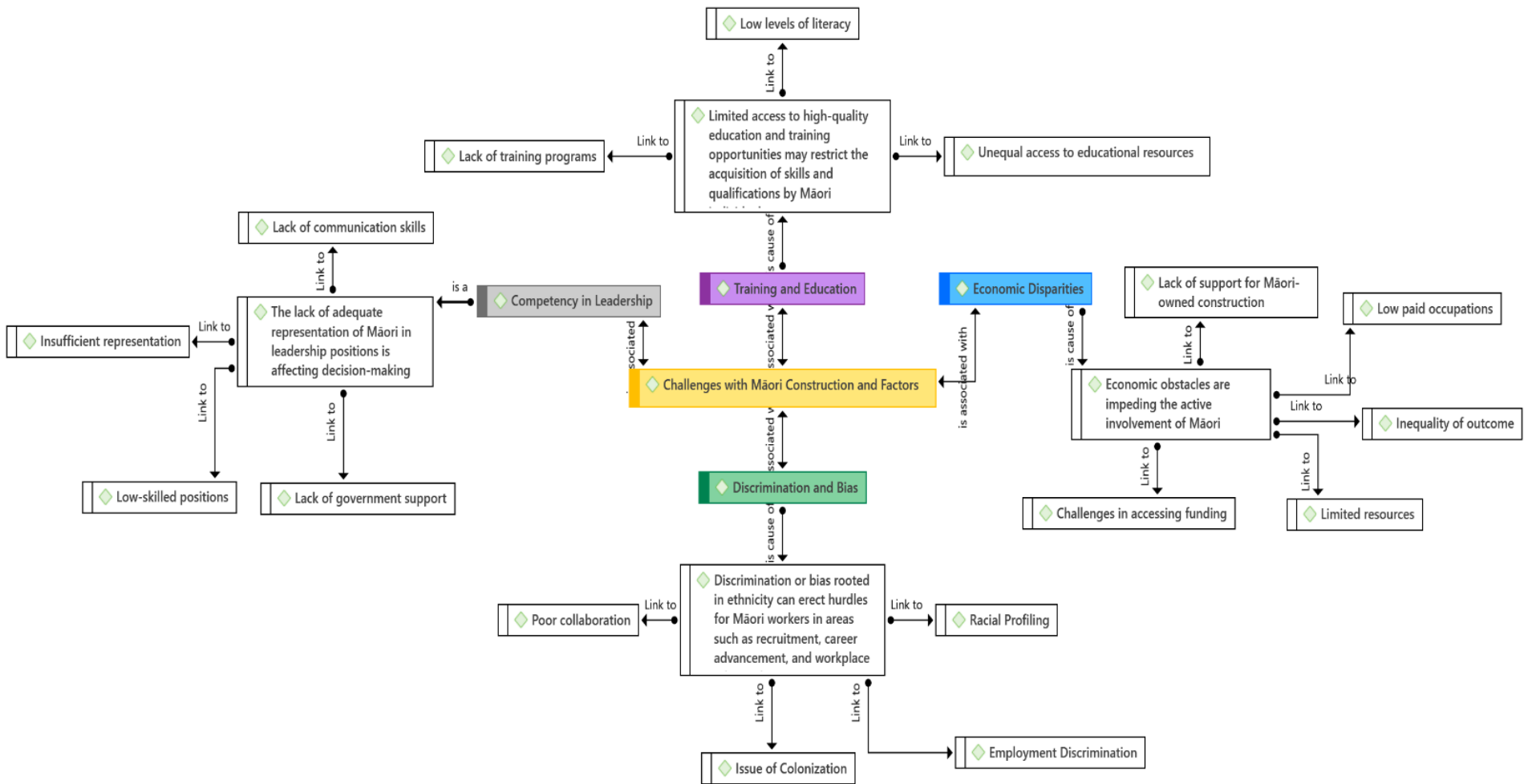
Another challenge highlighted by *Participant 13* is the inclination of some construction companies to prioritize overseas recruitment over tapping into the local Māori talent pool. This practice perpetuates reliance on international workers and raises questions about inclusivity and equal opportunities for Māori workers within their communities. The issue extends to hiring practices, as *Participant 13* highlighted in their personal experience. The need to contemplate using an anglicized name on a CV to increase the chances of being considered indicates a broader concern related to bias in recruitment. This explicit or implicit bias poses a significant barrier for Māori workers seeking employment and career advancement.

*Participant 14* emphasised that the hurdles Māori construction workers face in job retention and career advancement, particularly in comparison to their non-Māori counterparts, stem from various factors. Māori and Pacifica individuals entering construction as unskilled labour are often sourced through labour-hire companies. Despite undergoing training during projects, these workers are frequently released at the project's conclusion, resulting in a lack of continuity in their skill development. Emphasizing the common practice of bringing in Māori and Pacifica workers through labour hire, *Participant 14* highlighted the difficulties in ensuring stable employment and long-term skill enhancement. This approach, characterized by hiring temporary labour without consistent opportunities for training and advancement, contributes to creating a disposable workforce, impeding the growth of skilled Māori practitioners. While acknowledging that some fortunate individuals transition from labour-hire to permanent positions with the company, receiving requisite investment and training, the central issue remains: the broad trend where Māori workers

struggle to sustain continuity in both employment and skill development due to prevailing industry practices. *Participant 15* believes that while acknowledging historical challenges Māori individuals face due to colonization and unequal opportunities, there is a universal potential for anyone to succeed. *Participant 15* touched on societal resilience, parenting, and community support issues. There is a perception that modern society lacks the resilience seen in previous generations, and the participant suggested there is a loss of community values and support.

*Participant 16* addressed the challenges Māori workers face in filling skill gaps in the industry, particularly in roles requiring a university degree. The participant acknowledged the demanding nature of obtaining a degree and its financial challenges, emphasizing the confronting nature of student loans. However, the participant does not attribute these challenges specifically to Māori individuals, suggesting they might be universal experiences.

Regarding the potential impact of long-term colonization effects, particularly in terms of racism and unequal opportunities in the workplace, *Participant 16* shared personal experiences, noting that they have not faced such issues personally. The participant is willing to mentor young graduates, irrespective of their background, and emphasizes the importance of personal attributes, dedication, and integration with a team for career progression in the construction industry. *Participant 16* questioned the significance of mentorship as a specific barrier to career development, emphasizing that tangible outcomes are more closely linked to individual performance and team dynamics in a construction setting. The participant concludes that leadership qualities and characteristics are more pivotal in career progression than specific mentorship tied to ethnicity.



**Figure 3:** Reasons for the Current Skill Shortage, Specifically Concerning the Engagement of Māori Practitioners

### 9.3 Explore the Recommendations for Upskilling Māori into High-Skill Roles

*Participant 1* emphasized that to facilitate the advancement of Māori individuals into high-skilled positions within New Zealand's construction industry, companies must prioritize effective communication and proactive support for their career aspirations. Encouraging Māori employees to articulate their professional goals and ambitions clearly is essential. *Participant 1* recognised that these objectives may vary; some aspire to progress within their trade, others to assume managerial roles, and some may even harbour entrepreneurial ambitions. To achieve this, organizations should cultivate an environment characterized by an open-door policy, wherein employees feel at ease expressing their thoughts and concerns, knowing there will be no negative consequences. *Participants 1* and *2* said establishing trust among employees ensures they believe their voices will be heard and genuinely valued. The key to promoting Māori individuals into high-skilled roles in the construction industry lies in active dialogue, dedicated support for individual aspirations, creating a trust-rich atmosphere, attentive listening, and cultural sensitivity. By adopting this approach, companies can foster a diverse and inclusive workforce that encourages employee career growth. *Participant 2* emphasised that Māori individuals should explore available assistance programs and resources. Many programs, such as those offered by educational institutions or specific multicultural initiatives, provide support in the form of information, financial aid for tools or materials, and other resources tailored to their needs. *Participant 2* emphasized that in order to encourage Māori individuals to reach their high-skill career goals within construction businesses, the key recommendation is to provide them with equal opportunities. Construction businesses should treat Māori workers like any other employee while also taking the time to understand and respect their cultural background. By doing so, companies can best support Māori employees in their career progression within the industry.

*Participant 3* stressed the importance of self-belief and seizing upskilling opportunities whenever they arise. Engaging in courses and acquiring new skills can pave the way for higher-paying roles. Māori workers are encouraged to take a proactive approach in articulating their career aspirations during performance development discussions. Many companies are eager to invest in employees who display ambition and commitment. It's vital for Māori workers not to underestimate their potential based on their backgrounds, and to actively pursue advancement in their careers. Enrolling in programs designed to enhance numeracy and literacy skills can contribute to both personal and professional growth. Māori businesses and individuals find invaluable support and guidance from organizations like Amotai, assisting them in navigating the complexities of the construction industry. Such support ensures access to various processes and opportunities critical for their success. *Participant 4* stated that the construction industry is rich in opportunities, and organizations and educational institutions can promote and support individuals,

including Māori, in reaching high-skilled roles by highlighting the potential for career growth and emphasising the value of education and hard work. *Participant 5* stated that to address these challenges, one approach is to set up a multi-trades training school to provide young people with a pathway into the construction industry. Initiatives like teaching high school students to build transportable houses are commendable, but there needs to be a clear path for these students once they leave school. Creating pipelines and pathways for young people, especially in tight-knit communities, can help develop practical skills and fill the void left by the ageing workforce. *Participant 5* emphasised the need for efficient initiatives, increased government support, and a reliable pipeline of construction projects to facilitate the training and career progression of Māori practitioners in the construction industry.

*Participant 6* suggested that increasing visibility for Māori-owned construction businesses, improving awareness at an earlier stage in the schooling system, and collecting data for identification could contribute to engaging more Māori individuals in high-skilled roles in the construction industry. *Participant 6* also emphasised the importance of effectively understanding the current situation to address future challenges. *Participant 7* emphasised the importance of individual passion and a willingness to put oneself in uncomfortable positions for personal growth and learning. *Participant 7* also shared their experience of volunteering and participating in committees, highlighting the need for individual responsibility and vision. The interviewee also mentioned the significance of having a winning mindset, even in challenging situations, and how this can lead to success. An example is coaching a sports team with a shift from a survival mindset to a winning mindset, drawing parallels to their work.

Regarding training individuals, they believe it's possible to train and develop the necessary skills, especially if young people are engaged early in their education and provided with mentorship and guidance. They also discussed their own efforts to mentor and support a young student pursuing a construction management and HR degree. However, motivation and opportunity can play a crucial role in overcoming these challenges, said *Participant 8*, who also emphasised the need for better engagement and understanding of indigenous communities' needs.

*Participant 9* highlighted the ongoing transformation in the construction industry, which historically has emphasised hands-on skills and trade training. However, the industry faces a challenge in recognizing and leveraging the potential of Māori individuals, whether in leadership roles or as business owners. Drawing insights from successful Māori entrepreneurs in Australia, it becomes apparent that overcoming stereotypes and bureaucratic hurdles is essential for progress. In order to tackle these challenges effectively, *Participant 9* emphasised the need for a holistic construction approach, moving beyond traditional practices. This involves embracing change, particularly in addressing issues like indigenous housing, with a broader perspective that extends beyond the concerns of Māori practitioners. *Participant 9*

also emphasised the importance of navigating the intricacies within the construction industry. While urging young people to view construction as a crucial sector, *Participant 9* underscored the need to raise awareness about the industry's political and governmental complexities, extending beyond the practical aspects of construction.

*Participant 10* emphasised the lack of representation of Māori people in leadership and policy-setting roles within the construction industry. While adjacent industries like engineering and consulting are progressing in diversity agendas, the construction sector seems to lag behind in implementing comprehensive, industry-wide measures. This underscores the need for a concerted effort to bring about positive change and foster a more inclusive and equitable construction industry. Additionally, having leadership that represents the diversity of the workforce is essential for understanding and addressing the specific challenges faced by different cultural groups within the industry.

*Participant 11* stated that Māori people's actions and willingness to step up will speak louder than words. Take charge of your career path, actively seek opportunities, and let decision-makers know you are capable and ready to take on leadership roles within the construction industry. Networking and building relationships within the organization are equally important. *Participant 11* stated that “*career progression may not happen overnight, but consistently demonstrating your skills, taking on challenges, and actively seeking opportunities will contribute to your professional growth. Keep an eye on the long-term goal, stay committed to your development, and continuously strive to enhance your skills and knowledge*”. *Participant 11* stated that “*construction companies are responsible for actively contributing to the career progression of Māori construction workers. This aligns with broader societal goals and makes business sense by ensuring a skilled and diverse workforce that contributes to the success and sustainability of the organisation*”.

According to *Participant 12*, Māori and Pacific Islanders seem to hesitate to speak up and ask for opportunities or promotions. This reluctance might be rooted in a cultural context of humility and not wanting to draw attention to oneself. It could be crucial to encourage open communication and create a supportive environment where individuals feel empowered to express their aspirations. *Participant 12* stated that addressing these challenges requires a comprehensive approach, including mentorship programs. These educational initiatives challenge stereotypes about financial support mechanisms, raise awareness about financial resources, and advocate for the long-term benefits of education and career development. Additionally, creating a more inclusive and supportive environment within the construction industry can contribute to breaking down these barriers and facilitating the advancement of Māori construction workers into leadership roles.



Industry bodies, like Engineering New Zealand, could play a pivotal role in advocating for accurate and transparent job titles within the construction sector. Moreover, as *Participant 12* rightly pointed out, industry bodies should support underrepresented groups, including Māori construction workers. Fostering diversity and inclusivity in the industry involves actively encouraging and facilitating career advancement through mentorship programs, targeted outreach efforts, and providing financial support for certifications.

According to *Participant 13*, the Māori individual journey is a testament to the dedication and resilience required to navigate the construction industry. By expressing their goals, seeking support, and advocating for diversity, Māori individuals can enhance their professional development by cultivating analytical skills, fostering creative thinking, and nurturing self-efficacy. By doing so, they contribute to building a more inclusive and dynamic workplace, thus fostering a positive environment for future generations of Māori construction professionals. Career progression may come with challenges, but persistence is key. Māori individuals must stay positive, continue expressing their ambitions, and be confident in their abilities. Celebrate their achievements and contributions to the construction industry. *Participant 13* underscores the significance of diversity in decision-making forums, highlighting how a diverse leadership team can offer varied perspectives that enrich the decision-making process. It's essential to encourage the inclusion of individuals from diverse backgrounds, including Māori, Pacific Islanders, and other ethnicities.

Moreover, striking a balance in harmony with family values is crucial, as is recognising the expectations that come with leadership positions, and, if necessary, engaging in conversations about adaptable work arrangements. This approach enables Māori individuals to meet their family obligations while progressing in their professional journey.

*Participant 14* highlighted the importance of specific strategies to enhance the upskilling of Māori individuals into high-skill roles. The suggestions include initiating more one-on-one sessions with potential candidates, engaging in heartfelt conversations about leadership roles, and fostering a sense of loyalty through personal investment. Moreover, creating an open dialogue about long-term career aspirations is considered crucial, as is encouraging individuals to voice their goals in leadership and upskilling. This approach, coupled with supportive initiatives, contributes to sustained commitment. *Participant 14* emphasised the significance of regular check-ins outside project settings; these would demonstrate a genuine interest in employees' growth and fostering a culture of continuous development.

Additionally, establishing a structured performance review process with individual development plans is deemed instrumental. This involves setting realistic goals aligned with long-term career aspirations

and identifying necessary training and leadership roles. Proactive follow-ups, such as arranging relevant courses or certifications, are highlighted to showcase the company's commitment to individual growth.

*Participant 15* drew insightful parallels to his experiences in Spain, underscoring the profound history of cultural and societal transformations across diverse regions. Expressing reservations, *Participant 15* critiqued the implementation of specific policies tailored exclusively to Māori workers, deeming such approaches somewhat derogatory. Instead, *Participant 15* passionately advocated for a unified approach, asserting that attitudes, a robust work ethic, and a drive to progress are pivotal elements for career advancement, irrespective of race or ethnicity. Furthermore, *Participant 15* emphasised mentorship's indispensable role in personal and professional development. *Participant 15* contended that mentorship serves as a crucial guide for individuals, irrespective of their background, propelling them toward achieving their career aspirations. Delving into the role of professional bodies like the Civil Contractors Group, *Participant 15* referenced existing programs such as Epic, which is strategically crafted to provide support within the industry. However, *Participant 15* candidly acknowledged the challenge of actively persuading individuals to engage in such initiatives. Additionally, *Participant 15* questioned the work ethic of some young workers, particularly highlighting the struggle to motivate them to participate in these beneficial programs.

*Participant 16* emphasised the significance of delivering successful projects and that gaining experience over time as crucial for career progression. While acknowledging the value of leadership and mentoring courses, the participant believes that actual progress comes from actively engaging in one's role, doing an excellent job, and steadily developing one's expertise. *Participant 16* downplayed the notion that completing specific courses or training programs alone guarantees career advancement, suggesting that a holistic approach focused on hands-on experience and proven success is more meaningful. When asked about participating in industry events or networking, the participant noted time constraints but acknowledged the positive aspects of the construction industry, expressing that it's a 'cool' industry to work in.



**Figure 4:** Recommendations for Upskilling Māori into High-Skill Role

#### **9.4 Providers to Develop More Competitive Courses and Programmes for the Construction Sector**

Several recommendations emerged during the interviews to enhance the competitiveness of courses and programs for the construction sector. *Participant 1* underscored the importance of challenging societal perceptions and biases, emphasising that trade careers hold equal value and significance as academic pursuits. There is a need to recognise that both educational and vocational paths contribute to society, and tradespeople play a critical role in everyday life, from plumbing and painting to household repairs. Also, *Participant 2* stated that educational providers should offer clear career pathways, provide advocacy and guidance, adopt a general educational approach, and promote equal value for trades and academic careers to make their construction courses and programs more competitive and appealing to Māori learners. This will help empower Māori individuals to pursue and excel in high-skilled roles within the construction sector. *Participant 2* highlighted that to support Māori students in the education sector, institutions should consider creating specific multi-assistance areas within their campuses to help Māori students. These institutions can also raise awareness among students about available support services. Moreover, when organizing placements or practical experience, they should ensure that cultural respect is maintained, and the environment is conducive to Māori students. Additionally, incorporating the Māori language and cultural elements into teaching can help foster a sense of belonging among Māori students.

*Participant 3* stated that in order to assist Māori students studying construction in understanding their career pathways, it's crucial to focus on fundamental life skills often overlooked in traditional education. This includes teaching them time and financial management skills essential for managing their earnings effectively. Communication skills also play a vital role, considering that different cultures may have distinct communication styles, and breaking down these barriers is essential. *Participant 4* highlighted that education plays a significant role in achieving high-skilled positions in the industry. Education providers like Massey University and Polytechnics can help young people and students by emphasising the potential for higher earning potential in skilled roles. Encouraging students to pursue education beyond the minimum standard can open up opportunities for lucrative careers in the industry. The construction industry offers a diverse and exciting range of career paths, from working on-site to more strategic roles like those in leadership positions. While the industry demands hard work and dedication, it can be incredibly rewarding, providing opportunities to travel and work on significant projects worldwide. Encouraging young people to explore these opportunities and understand their potential sacrifices and benefits can help them make informed career choices.

*Participant 5* emphasised the importance of helping individuals, especially young Māori construction practitioners, find their career pathways. They highlight the significance of early exposure and experiences in various trades to help individuals discover their interests and strengths. The interviewee mentioned their own journey into carpentry as an example. *Participant 6* emphasized the importance of collaboration and knowledge exchange between educational providers and industry bodies to enhance the support and opportunities available to Māori students pursuing high-skilled roles in the construction industry. *Participant 7* emphasized the importance of continuous learning and mentorship in the workforce, drawing an analogy to sports where even the best athletes have coaches to refine their skills. *Participant 7* also highlighted the need for mentorship and coaching to improve performance and provide valuable feedback. *Participant 7* proposed creating panels of experienced professionals who can periodically meet with university students to help them apply theoretical knowledge to real-world situations. This approach would encourage critical thinking and problem-solving skills early in a student's education, preparing them for future success. *Participant 8* emphasised that we can adopt a holistic approach to help young Māori construction students participate in the industry and decision-making roles. This means considering all aspects of construction, environmental sustainability, waste reduction, and economic benefits. Universities like Massey can invest in researching sustainable materials for housing and supporting programs. An example is a sensor-based study that helps improve home living conditions and health. Such full support contributes positively to the construction sector's development and well-being.

*Participant 9* suggested that institutions like Massey University could play a significant role by investing time in studying and promoting environmentally friendly construction materials. *Participant 9* also shared insights from a study on the environmental aspects of housing, highlighting the health benefits and longevity of homes designed with a holistic perspective. *Participant 9* also emphasised the need for support for creativity, exploring alternatives outside mainstream construction and focusing on material solutions for sustainable, affordable, and accessible construction. *Participant 9* stressed the importance of upskilling Māori individuals in the construction industry by providing them with comprehensive knowledge about the sector, addressing systemic challenges, and promoting environmentally conscious practices for a sustainable future.

*Participant 10* underscored a shift in perspective, emphasising the importance of more than just hard work and individual competence for success. Instead, aspiring individuals are urged to seek mentorship from seasoned professionals in the field actively. Recognising the limitations of relying solely on personal effort, *Participant 10* underscored the pivotal role of networking and fostering positive relationships with senior industry figures as indispensable elements for advancing one's career. Furthermore, *Participant 10* highlighted the critical significance of professional development within construction companies. This

emphasis extends to creating transparent career pathways, mainly focusing on facilitating the progression of employees, including those with Māori backgrounds. Drawing inspiration from successful initiatives like leadership courses tailored for Māori leaders, the suggestion is made for companies to implement structured pathways proactively. This involves investing in specialized courses that impart essential skills and knowledge and providing a platform for employees to showcase their capabilities, thereby fostering holistic professional growth. The conversation also touches upon the role of educational institutions, exploring initiatives to support Māori students in their academic and professional journeys. Drawing from *Participant 10* experience at Auckland University, the mention of programs like "Spies" – designed to offer mentorship and a sense of community to Māori and Pacifica students – underscores the potential impact of such initiatives on student success and retention.

Furthermore, *Participant 10* delved into the importance of incorporating cultural competency into engineering education. *Participant 10* advocated for integrating knowledge about the treaty and cultural sensitivity into the curriculum, emphasising the significance of understanding the cultural context in which engineering projects are situated. The suggestion is made for engineering bodies, such as Engineering New Zealand, to mandate cultural competency training as part of the professional development process, ensuring that engineers possess the necessary skills to work in diverse environments. *Participant 11* highlighted that many students may not be aware of the diverse range of career options available. Universities should play a proactive role in broadening students' awareness of different professions, especially those that may not be commonly discussed or understood. *Participant 11* emphasised the need for universities to go beyond traditional education and actively guide students in understanding and navigating diverse career pathways. By providing practical information, hands-on experiences, and personalised guidance, higher institutions can better equip students for informed decision-making as they transition from education to the workforce.

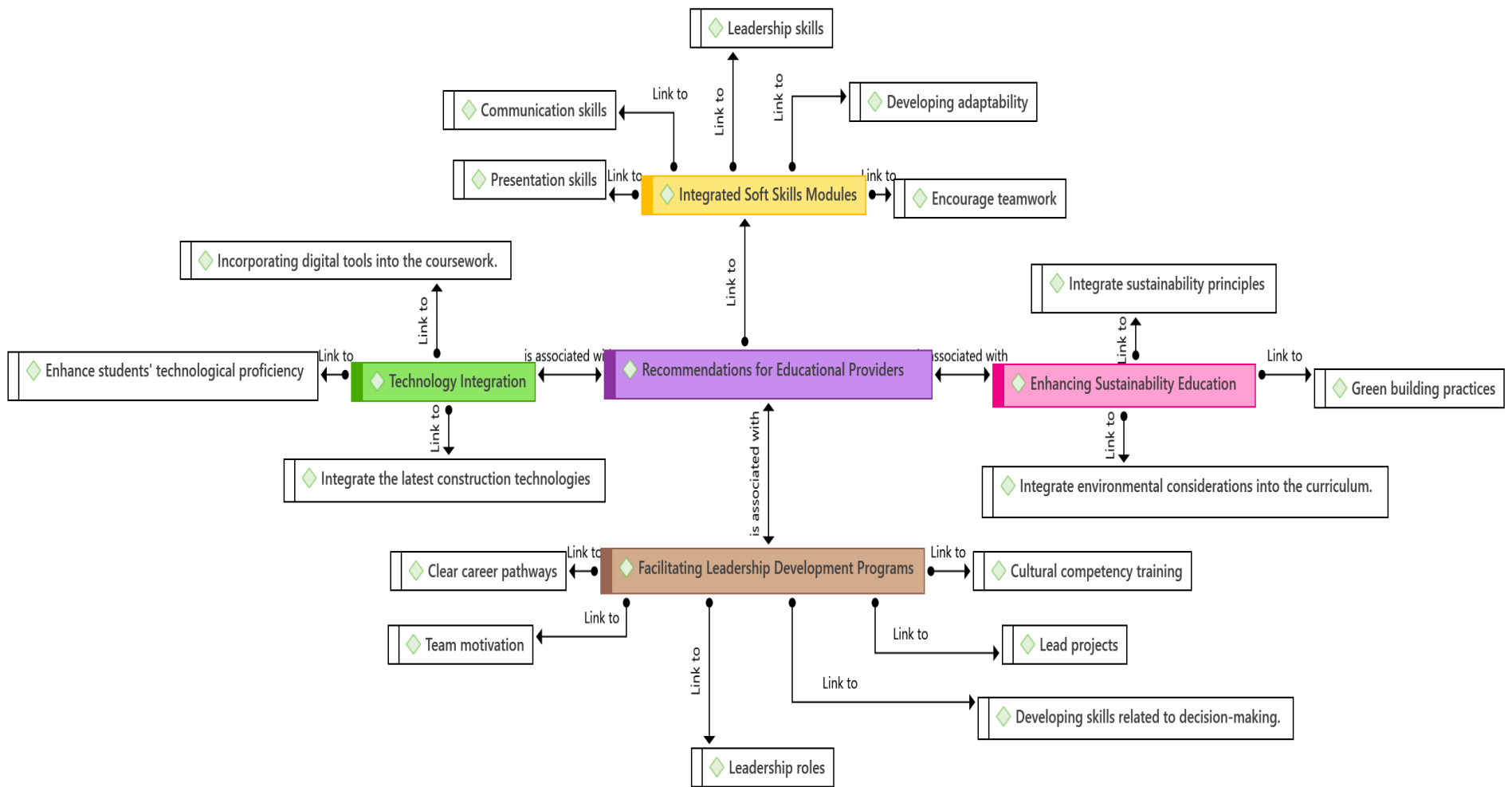
*Participant 12* emphasised collaboration and that dispelling stereotypes during high school interactions could reshape perceptions and encourage more students to consider construction careers. In addition, construction representatives should visit high institutions, and shed light on the diverse opportunities within the industry. While universities often send representatives to work-sites, construction companies could initiate early conversations about potential career trajectories. Sharing real-world experiences can humanise the profession and showcase the multifaceted roles within construction projects. *Participant 12* advocated for the expansion of the Torque and Inspire initiative to be implemented in all universities, and not be just limited to Universities and Polytechnics. Achieving this goal necessitates collaboration among universities, industry partners, and government entities. Implementing awareness campaigns aimed at high schools to educate students about the Torque and Inspire program is essential.

These campaigns may involve hosting informational sessions, distributing promotional materials, and providing online resources to ensure broader outreach.

In terms of expectations from educational providers, *Participant 13* believed that the emphasis should be on promoting effective time management and personal responsibility among students, including Māori construction workers. Rather than advocating for additional study leave, there is a preference for individuals to organise their schedules efficiently. This approach encourages students to balance their work commitments and academic pursuits without necessitating extra time off. The focus is on fostering a proactive and disciplined approach to studying, allowing individuals to integrate their learning seamlessly into their work and personal responsibilities.

*Participant 14* emphasised the importance of flexibility for educational providers like Massey University, especially for Māori and Pasifika individuals who often start at a lower socio-economic level. The interviewee suggested that these students, who may have familial responsibilities and financial constraints, need the flexibility to hold a full-time job while studying part-time. The proposal is to request companies like McDonald's, Fulton Hogan, etc., to allow employees to study during work hours, utilising company resources such as laptops and Wi-Fi. Furthermore, *Participant 14* recommended government subsidies for training and emphasised the significance of flexibility in learning. The suggestion includes live or recorded online lectures to accommodate different learning styles and the ability to revisit content multiple times. As Māori and Pasifika individuals might require more repetition for understanding, accessing recorded lectures could be beneficial. *Participant 14* also stressed the importance of student support groups. Drawing from personal experience with establishing such groups, *Participant 14* recommended that Massey University set up a student-led support group. Such groups, like Pacific Indigenous Engineering Students, have proven effective in providing a sense of community, mentorship, and resources for Māori and Pasifika students.

*Participant 15* emphasised the importance of individual initiative and self-education. *Participant 15* recounted a personal experience where a course on priority management significantly influenced his time management skills. *Participant 15* encourages individuals to take responsibility for their career progression, stressing the significance of skills like time management. *Participant 16* advised graduates to specialise in something they enjoy, emphasising the importance of enjoyment as they will be the ones putting themselves through the challenges. *Participant 16* highlighted the practical aspects of working in the field, noting that job demands often extend beyond theoretical specialisations. The participant stressed that problem-solving, adaptability, and effective teamwork are crucial takeaways from engineering education, as they contribute significantly to career development in the construction sector.



**Figure 5:** Recommendations for Educational Provider



## **9.5 Expectations from the Government to Address this Issue and Do More to Helping Māori Construction Practitioners**

According to *Participant 1*, the primary expectation is that the government takes action on the progressive procurement policies already in place. *Participant 1* also emphasised that many people in the construction industry are not effectively utilising these policies, which could have a significant economic impact on regions and the Māori community. *Participant 1* believes that if the government genuinely enables and enforces these policies, it will benefit Māori practitioners by helping them secure more work, strengthen local capacity, and invest in the Māori community. This, in turn, could alleviate some of the pressure in the construction sector and the housing market, particularly in addressing the cost of living and housing crises. *Participant 1* also suggested that the government should consider alternative approaches to investing in the trade's capacity, such as directing funds towards specific projects with the expectation that contractors employ apprentices. This approach could support the growth of Māori businesses and practitioners within the industry. *Participant 2* stated that in order to help Māori construction practitioners, the government should provide support and connect them with multi-liaison teams, particularly at the council level. These teams can assist Māori practitioners in navigating their careers within the construction industry. *Participant 3* stated that the government and councils should strive to understand and respect Māori cultural requirements, even in mundane tasks like naming elements in applications, to ensure an inclusive and culturally sensitive approach. In addition to these core life skills, it's beneficial to impart soft skills such as social skills, as these are highly transferable and valuable in various work environments. The growing number of construction and infrastructure projects in Auckland present significant opportunities. Providing insights and support to help Māori individuals stay and advance in the industry or even start their businesses is commendable and essential.

*Participant 4* believes that it is evident that the government has a role to play in helping individuals achieve their career goals. Still, the specific approach to achieving this can be challenging. Striking the right balance between a soft and a hard approach is not straightforward. The government's responsibility lies in creating a consistent and fair environment for its citizens. Just as a business leader should treat employees consistently and fairly, the government should do the same to ensure that everyone has equal opportunities to pursue their career goals. While it may be impossible to please everyone, maintaining fairness and consistency is critical to supporting individuals on their career journeys. *Participant 5* stressed the role of the government in providing a consistent and substantial pipeline of work, which is essential if construction businesses are to take on apprentices and invest in training programs. *Participant 5* noted that when the government ensures a steady flow of projects, construction companies can plan for the long term and create opportunities for aspiring tradespeople.

*Participant 6* recommended that individuals become more aware of companies involved in government infrastructure projects, leverage the opportunities presented by increased government spending on infrastructure, and advocated for initiatives that celebrate the success of Māori workers and businesses in the construction industry to inspire others. *Participant 6* also mentioned that there are several initiatives currently in place that seem to be working well to support Māori individuals in the construction industry. *Participant 6* also suggested that the government should consider funding initiatives that promote success stories and achievements of Māori people in the industry. However, they emphasise the importance of ensuring that the funding reaches the right places at the right time to be effective. Regarding government involvement, *Participant 7* suggested that local and national governments can lead by changing procurement rules and policies to include social outcomes and obligations. This approach would encourage the private sector to align with these requirements in their bids and methodologies, driving positive changes in the industry. *Participant 8* called for more inclusive government policies and engagement with indigenous communities.

*Participant 9* highlighted the importance of industry-specific initiatives to address underrepresentation, such as the case of women in construction. Advocating for leadership courses that are not confined to specific companies but instead are accessible to professionals across various organizations is seen as a means to foster a more inclusive environment. *Participant 10* said a government that actively supports equal opportunities and addresses specific challenges faced by Māori construction workers is a significant step towards creating a more equitable and inclusive construction sector. By fostering an environment where ethnic distinctions do not hinder career aspirations, the government can contribute to a more united and prosperous New Zealand. Policies supporting diversity, inclusion, and career development for Māori workers should be sustained and expanded when necessary. This continuity ensures that the positive changes initiated by such policies can have a lasting impact. *Participant 11* highlighted that government initiatives should also incorporate cultural sensitivity and understanding. Recognizing and valuing the cultural aspects of Māori workers within the construction industry can lead to more effective policies and practices that resonate with the community. *Participant 11* also suggested that government can play a pivotal role in ensuring equity in access to opportunities. This might involve targeted programs, mentorship initiatives, or specific policies to address historical imbalances and foster a more inclusive environment within the construction sector.

According to *Participant 12*, offering incentives for both individuals and employers could be a key strategy. This might involve financial incentives for companies hiring and retaining Māori workers and educational incentives for individuals pursuing careers in construction. Reflecting on past efforts in the early 2000s to encourage upskilling, there could be a renewed push for comprehensive skill development

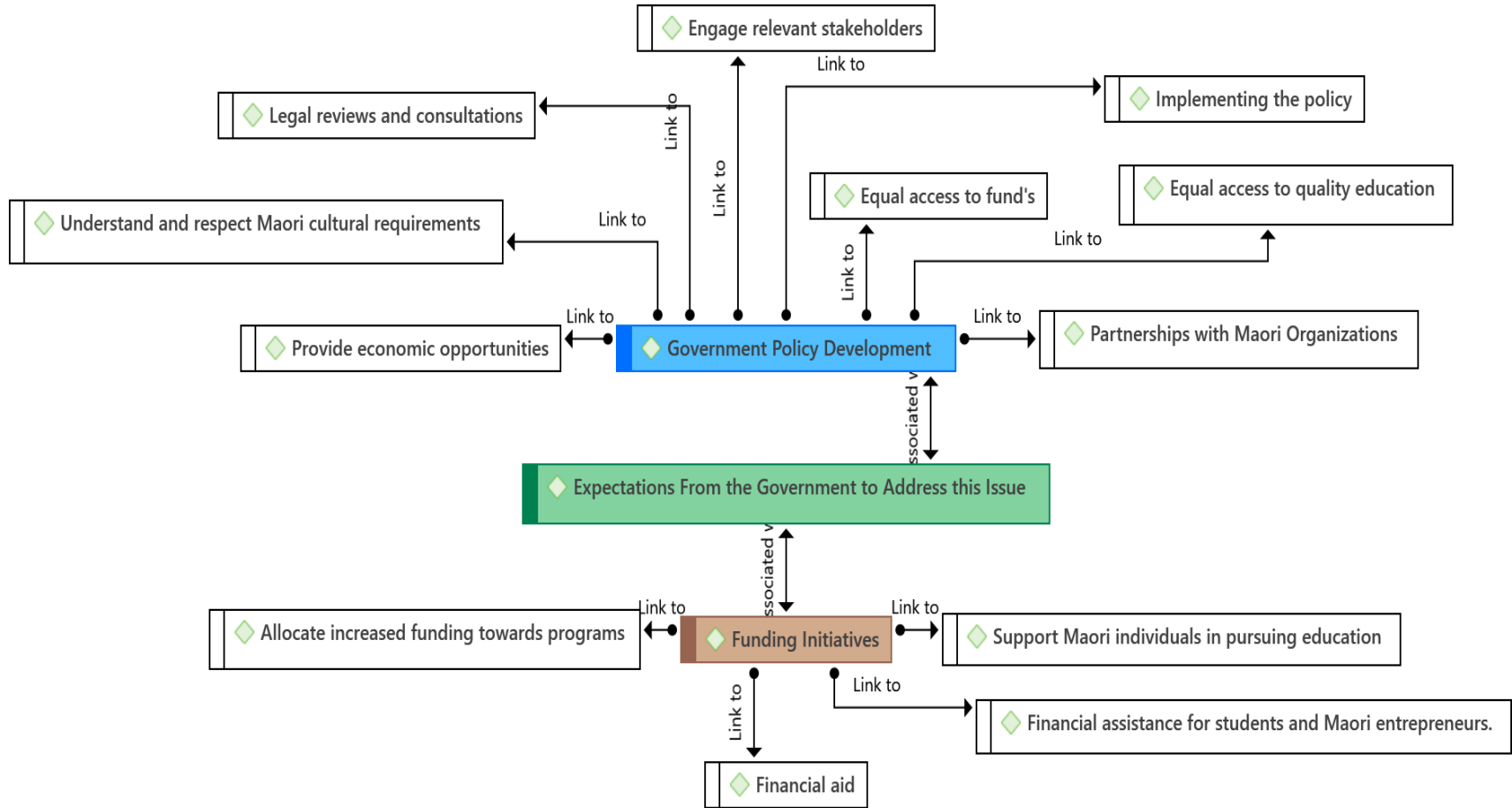
programs. This could involve collaborating with industry leaders, educational institutions, and trade organizations to create targeted training programs. By kickstarting initiatives similar to those of the past, the government can effectively equip Māori individuals with the skills needed for successful careers in construction. Moreover, *Participant 12* stated that the government could explore establishing grants or funding schemes to support Māori individuals pursuing education and training in construction-related fields. This financial assistance could significantly reduce barriers and encourage greater participation by the Māori community in the construction industry.

According to *Participant 13*, there is an expectation for the government to take a more proactive stance in upscaling the construction workers. Looking back, there is a sense of longing for opportunities and resources that could have been available when needed. While some private companies are commendable in their efforts, there is a wish for more leaders to prioritise their workforce, placing the well-being of workers at the forefront rather than solely catering to shareholders. This could involve educational initiatives for company leaders to address unconscious biases and foster a more inclusive environment. The call is for leaders with empathy, compassion, and a commitment to fairness, in order to create a workplace that values and nurtures its diverse workforce.

According to *Participant 14*, expectations from the government regarding Māori construction workers involve addressing the issue of continuity of work. The interviewee highlighted the historical apprenticeship programs and long-term training the Ministry of Works facilitated. However, with the privatisation of such programs, there has been a shift towards short-term project-focused initiatives. The inconsistency in project continuity makes it economically challenging to maintain ongoing training programs. *Participant 14* suggested that maintaining continuity of work is crucial, emphasising the need for a bipartisan agreement to prevent disruption with changes in political parties. A proposed solution involves divorcing politicians from infrastructure agencies, such as KiwiRail. The idea is to establish a visual budget for the next 20 years, agreed upon by all political parties, providing the construction industry with long-term planning stability. *Participant 14* recommended that the government avoid infrastructure decisions and focus on bipartisan, long-term infrastructure planning agreements. This approach aims to prevent the cancellation of projects when political power shifts. The interviewee advocates for a forward workload that spans multiple political terms, providing the industry with consistent planning. Additionally, the interviewee suggested subsidising apprentice training schemes to make them more economically feasible and implementing bonding mechanisms to retain skilled workers within the country.

*Participant 15* provided insights into the government's role in shaping career progression for both Māori and non-Māori individuals. Voicing reservations about excessive government control, *Participant 15* parallels the efficient operation of a business with governing a country. *Participant 15* critiqued the

perceived misuse of public funds, highlighting instances like large-scale projects with uncertain outcomes. *Participant 15* emphasised that successful businesses should possess inherent capabilities to operate effectively and care for their teams without undue government interference. *Participant 15* acknowledged the dual influence of individual effort and company initiatives. *Participant 15* suggested that construction companies can actively contribute to career development by offering guidance mentorship and creating a conducive environment for progression. *Participant 15* underscored the pivotal role of individual initiative in career advancement and proposed that the construction industry, in collaboration with the government, can positively shape the career trajectories of its workforce.



**Figure 6:** Expectations from the Government to Address this Issue

## 10. Focus Group Findings

The primary aim of this focus group interview was to collect insights, perspectives, and expertise from a carefully selected group of participants. The selection of the interview topic was based on the research objectives outlined beforehand. Rather than simply regurgitating information to the moderator, participants actively contributed their opinions, and knowledge throughout the interview process. The data provided here is derived from video recordings of focus group sessions involving experts from various sectors of the New Zealand construction industry. These focus group interviews were initially organized to further explore and validate the findings obtained from the initial interviews. Discussions occurred both in physical settings and online platforms to gather a comprehensive range of opinions on the initial research findings. For a comprehensive overview of this focus group participants involved in this study, please see Table 4, focus group profile of participants.

**Table 4:** Focus Group Profile of Participants

No	Pseudonyms	Work Experience (years)	Position
1	Participant 1	15	Capability Manager
2	Participant 2	05	Portfolio Manager
3	Participant 3	10	Principal Advisor Māori
4	Participant 4	10	General Manager
5	Participant 5	14	Academic Team Lead
6	Participant 6	15	Deputy Director
7	Participant 7	25	General Manager
8	Participant 8	14	Portfolio Manager
9	Participant 9	10	Social Outcomes Manager
10	Participant 10	20	Portfolio Manager

### ➤ Skill Shortage that Is Currently Affecting the NZ Construction Industry

During the earlier interview, we identified several key skill gaps, addressing the critical skill shortage affecting the New Zealand construction industry. These encompassed a spectrum of abilities, ranging from heavy machinery operations to health and safety protocols, civil work, and specialised trades

like roofing, tiling, and welding fabrication. Additionally, entry-level proficiencies and expertise in green building practices were identified as areas requiring attention.

However, during the subsequent focus group discussion, participants made insightful observations regarding potential additional skill gaps not initially identified. For instance, there was a consensus on the importance of proficiency in traffic management systems for construction projects. Likewise, the growing significance of digital skills across various job roles within the construction sector was underscored. Moreover, concerns were raised regarding the scarcity of qualified trainers to impart essential skills to aspiring construction workers. This shortage extends beyond traditional trades, encompassing specialized areas such as line mechanics for elevator and escalator systems, emphasising the need for a comprehensive skills development approach.

Furthermore, participants stressed the importance of considering skills relevant to offsite manufacturing, an area where New Zealand has yet to fully embrace global trends. Incorporating offsite manufacturing skills into the discussion reflects the evolving nature of construction practices and the imperative to stay abreast of technological advancements. Additionally, participants proposed leveraging platforms like the Work Integration Platform to use empirical data to validate and supplement identified skill gaps. This approach would furnish a more comprehensive understanding of the current skill landscape, aiding in prioritising areas for intervention and training. Therefore, while the identified skill gaps cover a broad spectrum of construction work, ranging from traditional trades to specialised areas, it is crucial to maintain adaptability and responsiveness to evolving skill demands driven by technological advancements and industry trends.

### ➤ **Challenges Confronting Māori Construction Workers**

Several challenges were identified during the initial interview discussions on the primary causes of the current skill shortage in the workforce, particularly concerning engagement with Māori practitioners. These challenges encompassed discrimination, bias, economic disparities, lack of training and educational opportunities, and deficiencies in understanding Māori perspectives in leadership.

Throughout the focus group discussions, participants emphasised the need to broaden the understanding of economic disparities beyond basic access to necessities like transportation. They stressed addressing regional disparities and the lack of access to training programs in certain areas. Additionally, concerns were raised about apprentices' difficulties in accessing work sites due to distance and the absence of support for transportation costs. Furthermore, the discussion touched upon challenges in accessing

funding for training programs. While funding may be available, many individuals are unaware of its availability or struggle with the application process. Participants emphasised the importance of educating individuals on accessing funding and providing support with documentation and application procedures.

Regarding discrimination and bias, participants underscored the prevalence of racial profiling and the need to challenge systemic beliefs perpetuating such biases. They emphasised shifting societal attitudes and norms to move beyond tokenism and to normalise Māori representation in all sectors, including construction. Therefore, participants suggested developing training programs that reflect Māori values and learning styles, ensuring accessibility to all individuals, not just Māori. They also stressed the need for more significant support for apprentices, including assistance with transportation and financial support for training. The discussions highlighted the multifaceted nature of the challenges faced by Māori practitioners in the construction industry and underscored the importance of systemic changes to address these issues effectively.

➤ **Recommendations for Upskilling Māori into High-Skill Roles**

Regarding recommendations for upskilling Māori into high-skill roles, several strategies were discussed during the initial interview sessions. These recommendations included creating more training programs tailored to Māori values, incorporating cultural values into existing programs, providing financial support, collaborating with educational institutions, and enhancing mentorship and networking opportunities.

During the focus group discussion, the significance of mentorship in upskilling Māori construction workers was a recurring theme throughout the discussions. Participants emphasised the importance of mentorship in supporting and guiding individuals facing challenges in their career paths. Mentorship was seen as a valuable resource for navigating obstacles and developing essential skills for leadership roles. While traditional one-on-one mentorship relationships were acknowledged, there was also recognition of the effectiveness of group mentoring approaches, particularly within consortiums and educational settings.

Furthermore, there was a call for clearer definitions and frameworks around mentoring within the construction context, particularly concerning Māori cultural values and leadership development. Participants suggested that mentorship programs should be tailored to the specific needs and experiences of Māori individuals, which would foster a sense of belonging and cultural identity within the industry. In addition to mentorship, participants highlighted the role of pastoral care and support services in fostering a supportive learning environment for Māori students. Access to Māori support networks and culturally sensitive guidance was identified as crucial for student success and retention in the construction sector. By



prioritising culturally responsive training programs and fostering strong mentorship relationships, stakeholders can work towards building a more inclusive and resilient workforce.

➤ **Recommendations for Education Providers**

During the initial interview, participants underscored the importance of broadening the educational focus beyond academia to encompass crucial non-academic skills. These skills, including teamwork, adaptability, leadership, effective communication, and negotiation, were essential for success in the construction industry. Additionally, there was a unanimous agreement on prioritising sustainability and leadership development alongside integrating technological advancements into educational curricula. Such recommendations were vital for adequately preparing construction students for the challenges and opportunities they would encounter in their careers.

In the subsequent focus group discussions, while many suggestions aligned with existing strategies such as leadership development and digital skill enhancement, participants proposed supplementary recommendations to further enrich educational offerings. One suggestion involved integrating modules on teaching, training, and coaching alongside soft skills modules. This approach aims to equip students with technical prowess and the ability to disseminate knowledge and mentor others in the future effectively. Despite recognising existing efforts to incorporate soft skills into the curriculum, participants emphasised the need for formal assessment of these skills rather than mere inclusion as part of class activities. A clear definition of learning outcomes was crucial to ensure that soft skills development permeates the educational experience, including assessments and capstone projects.

Moreover, there was a robust discussion on the imperative of embedding Treaty of Waitangi principles into construction curricula, highlighting the necessity for all students to comprehensively grasp indigenous perspectives and values. While some institutions have initiated integration efforts, there was a unanimous call for broader adoption and formal inclusion of these principles in learning outcomes. Addressing the delivery of soft skills and Treaty principles, participants deliberated on the challenges of balancing on-campus and on-the-job training models. While on-campus training offers a comprehensive learning environment, on-the-job training hinges heavily on employer engagement and exhibits varying effectiveness depending on employer practices. Collaboration between educational providers and industry stakeholders was crucial to ensuring that construction programs adeptly prepare students for the workforce's demands.

## ➤ **Expectations of the Government**

During the initial interview regarding recommendations for government intervention, participants pointed out several crucial expectations they have of the government to tackle the prevailing issues. Central to their concerns was the need for funding initiatives to bolster economic opportunities and ensure equitable access to resources. Moreover, there was a unanimous agreement on integrating Māori perspectives into organisational policies through legal reviews, consultations, and stakeholder engagements. Key areas requiring government intervention, as identified by participants, included equal access to funding and education and fostering partnerships with Māori organisations.

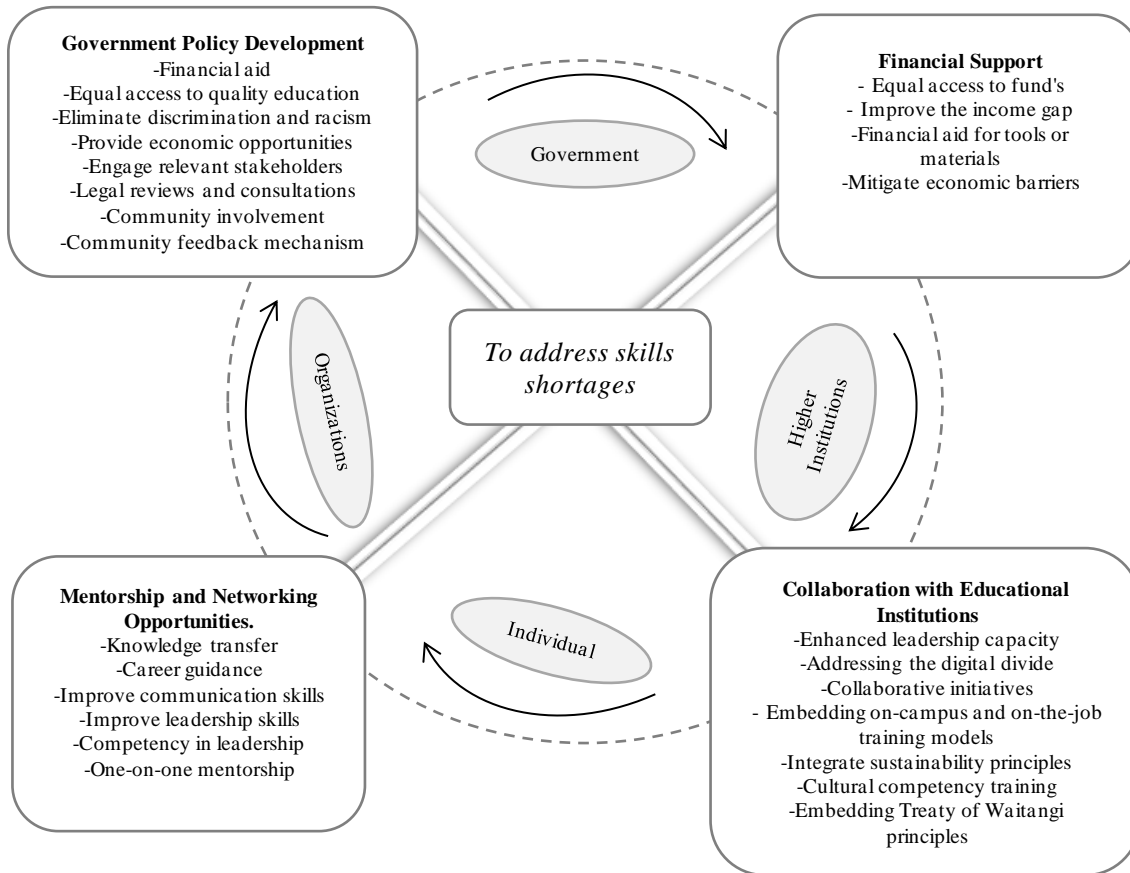
During the focus group discussions, participants emphasised the imperative of crafting policies and frameworks that are inclusive and respectful of Māori values and requirements. Furthermore, there was an extensive dialogue regarding the necessity for clear and effective implementation of existing policies, such as the Treaty of Waitangi principles and the Code of Pastoral Care, particularly within educational and employment realms. Participants voiced frustration over the limited career advancement opportunities for Māori employees in the construction sector, underscoring the urgent need for employers to nurture and promote the development of Māori leadership skills actively. Regarding recommendations for government action, participants advocated for policies and guidelines that address structural issues and empower employers and employees to drive change proactively. They stressed the importance of adopting a cohesive approach involving multiple stakeholders and government sectors to facilitate meaningful action and implementation. Participants expressed gratitude for the opportunity to engage in discussions and learn from diverse perspectives. They emphasised the critical role of ongoing collaboration and support from all stakeholders, including government agencies, educational institutions, employers, and Māori organisations, in effecting positive change in the construction sector.

## **11. Conclusion**

This study endeavours to develop a conceptual framework addressing the prevalent skill shortage within the New Zealand construction industry, specifically focusing on the involvement of Māori practitioners. Employing a qualitative approach, the analysis delves into a comprehensive exploration of the topic, providing a nuanced understanding and qualitative delineation of the study's findings. The qualitative methodology aligns with investigating the initial two research questions, opting for a case study design enhances the applicability of the research to diverse contexts, with participants drawn from the spectrum of construction industry workers.

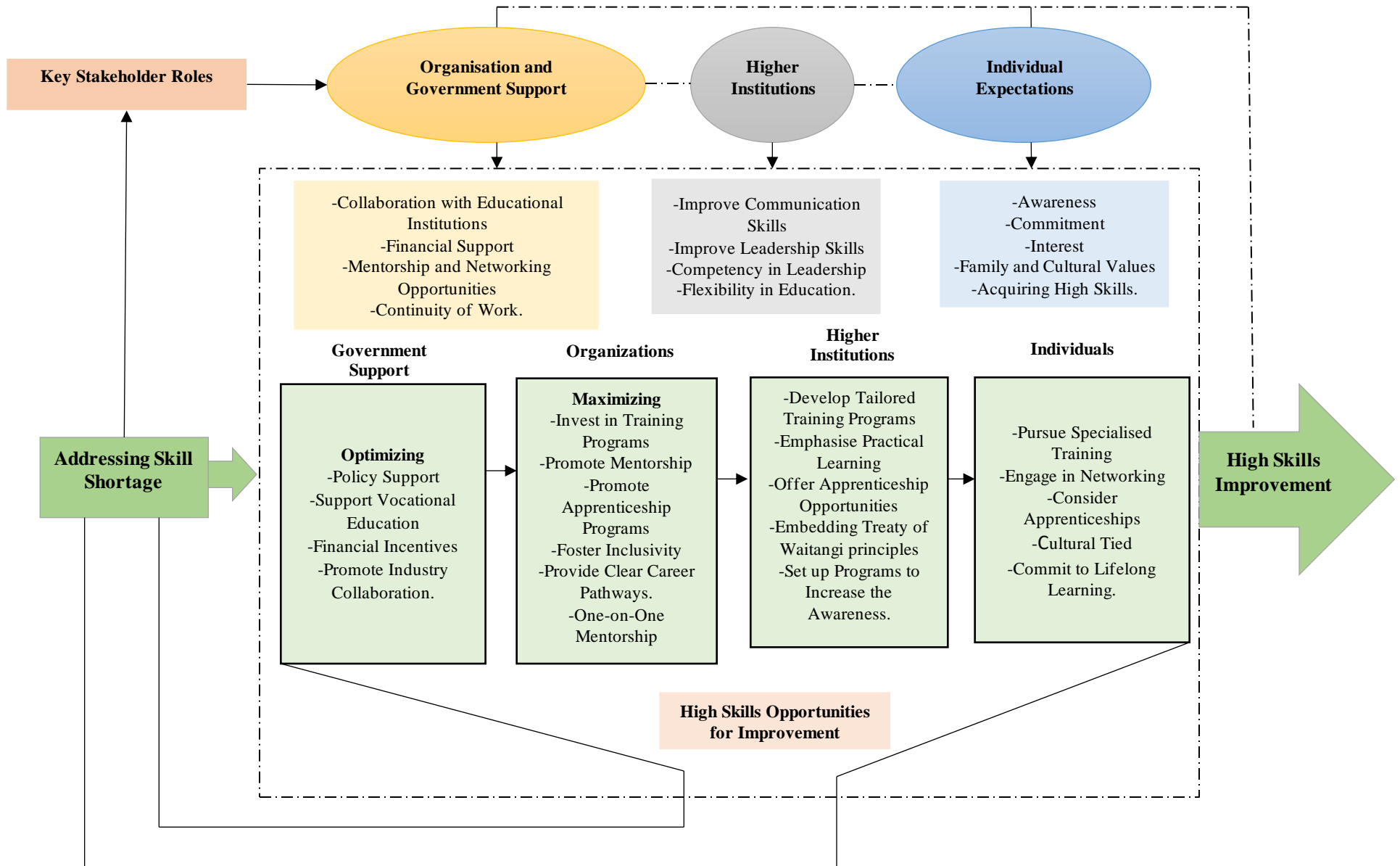
The insights gathered from various participants shed light on the critical skill shortage affecting the New Zealand construction industry, particularly concerning the engagement of Māori practitioners. This multifaceted challenge encompasses issues related to procurement practices, historical legacies of racism, financial barriers, and a need for cultural transformation within the industry. Historical factors, colonization, and socio-economic backgrounds significantly hinder the career progression of Māori individuals. Addressing these issues requires a holistic approach that considers systemic challenges and individual motivation. Upskilling and providing educational pathways are crucial for addressing the skill shortage. The current skill shortage is not merely a quantitative shortfall but is deeply rooted in systemic issues. The participants emphasised the importance of recognising and addressing biases, stereotypes, and discriminatory practices that hinder Māori practitioners from progressing into high-skilled decision-making roles. Financial challenges, reticence due to cultural factors, and inadequate support systems further compound these barriers.

In order to overcome these challenges, the participants proposed a range of recommendations aimed at different stakeholders. Educational providers are urged to create inclusive environments, emphasise the value of trade careers, and offer practical life skills that empower Māori students. The industry itself is encouraged to adopt progressive procurement policies, foster diverse leadership, and provide equal opportunities for skill development. Moreover, the government is expected to play a crucial role by enforcing existing policies, promoting inclusive practices, and supporting initiatives that showcase success stories within the Māori community. Figure 10 depicts the pivotal roles played by key stakeholders, including organisations, government, educational institutions, and individuals, in addressing skill shortages in New Zealand.



**Figure 1: Recommendation to Address Skills Shortages**

The representation in Figure 11 underscores the significance of collaborative efforts among these stakeholders. The figure demonstrates that the effective elimination of skill shortages occurs when all four entities are actively engaged in partnership. Organisations should concentrate on gaining a competitive advantage by simultaneously addressing skill development, enhancing business performance, fostering innovation, and driving sustainable growth. Learning institutions should prioritise providing responsive learning experiences at all levels, ensuring both individuals and organisations derive value from the educational journey. The government should emphasise aligning vocational education and training, employment, inclusive, and industry policies to support a high-skills strategy. Individuals should invest in acquiring high skills, thus unlocking doors to rewarding job and career opportunities, fostering personal and professional growth, and ultimately contributing to individual flourishing. The narratives underscore the need for a holistic and collaborative approach. The construction industry, educational institutions, and the government must work together to dismantle barriers, foster inclusivity, and provide the necessary support for Māori individuals to thrive in high-skilled roles.



**Figure 2: Key Stakeholder Role**

Recommendations include fostering collaboration between educational institutions and industry bodies, promoting equal value for academic and vocational paths, and incorporating cultural elements into teaching. Mentorship and support programs are essential for nurturing the skills and confidence of Māori practitioners. Creating an inclusive and supportive environment within the construction industry can contribute to the career advancement of Māori individuals. There is a shared expectation from participants for the government to play a more active role. Calls for progressive procurement policies, support for Māori-owned businesses, and fostering diversity in leadership positions underscore the government's potential impact on mitigating the skill shortage. Policy reforms are needed to ensure flexibility, inclusivity, a fair playing field for contractors, and to address the perceived skill shortage. It is also necessary to incorporate Māori language and cultural elements into construction-related courses; this would help foster a sense of belonging among Māori students and promoting diversity in the industry. The government should provide targeted support programs for Māori practitioners, including financial aid, career guidance, and assistance navigating the industry's complexities. It should also promote diversity in leadership roles within the construction industry, emphasise the importance of Māori representation in decision-making positions, and increase awareness of success stories and achievements of Māori individuals in the construction sector. Government initiatives should celebrate and fund programs that highlight positive contributions, and foster strategic relationships between construction companies and local iwi to provide internships and opportunities for young Māori talent. Such initiatives would create a positive representation in the industry, and allow for flexible and accessible training programs that cater to the unique needs of Māori practitioners, allowing them to acquire skills without significant financial strain. By implementing these recommendations, New Zealand can work towards creating a more inclusive, diverse, and skilled workforce in the construction sector, benefitting both the industry and the Māori community.

## **12. Future Research Direction**

To further explore the insights gained from this study, our future research endeavours will involve the implementation of a comprehensive questionnaire survey. This survey has been meticulously crafted based on the rich findings derived from our current research. Its primary objective is to reach a broader spectrum of construction industry practitioners, encompassing both Māori and non-Māori individuals. By soliciting diverse perspectives, we aim to gain a comprehensive understanding of the challenges and potential solutions pertaining to the upskilling of Māori workers into high-skilled positions within the construction sector. Through this collaborative effort, we aspire to develop a robust framework that fosters inclusive growth and empowers Māori practitioners to thrive in their careers.

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