

School of Property,
Construction and
Project Management



Intention to Pursue a Career in Construction/Infrastructure: Examining the Perceptions of NSW Trainees

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Part 1: Executive Summary

Culture in Construction is an initiative of the Construction Industry Culture Taskforce (CICT) — comprising the Australian Constructors Association, representing the nation's largest construction firms, the Governments of New South Wales and Victoria and Australia's leading workplace researchers.

Since August 2018, CICT members have been working to develop a new Culture Standard to address three major issues impacting the construction industry's performance and sustainability, i.e., excessive work hours and fatigue, poor mental health, and failure to attract a diverse workforce.

The CICT has funded a program of research which seeks to establish an evidence base on the impacts of the Culture Standard through the study of six pilot projects. This report outlines the preliminary findings from the first pilot project which explores the experience and perceptions of trainees participating in a two-year Infrastructure Traineeship Program, an initiative of the New South Wales Government.

Trainees undertake three eight-month rotations during the program, which involve periods of work experience in government (client), construction (contracting), and consultant organisations.

A survey was conducted with trainees in the 2021-2022 cohort during December 2021 and January 2022. The survey explored trainees' experiences during their first rotation and their perceptions about what a career in construction/infrastructure would offer them. The survey also explored trainees' intentions regarding pursuing a career in the construction/infrastructure industry upon completion of the traineeship program.

Usable survey responses were received from 72 participants, which is equivalent to a 74% response rate. Thirty-five (48.6%) respondents were female and 33 (45.8%) were male.

More than half of respondents (n=43, 59.7%) indicated they have not yet decided whether to pursue a career in construction/infrastructure on completion of the trainee program. Twenty-three (31.9%) of the respondents indicated that they intend to pursue a career in construction/infrastructure on completion of the program and two (2.8%) indicated they definitely do not intend to pursue a career in construction/infrastructure.

A greater proportion of male respondents (43.7%) compared to female respondents (26.5%) made up those who indicated an intention to pursue a career in construction/infrastructure. Both respondents who indicated they definitely do not intend to pursue a career in construction/infrastructure were female.

More than 40% of respondents who spent their first rotation working in a government or consultant organisation (41.4% and 42.9% respectively) indicated that they have decided to pursue a career in construction/infrastructure on completion of the trainee program. By comparison, 20.8% of respondents placed with a construction organisation have made the decision to pursue a career in construction/infrastructure.

The job characteristics most frequently identified by the respondents as being very important when choosing a career were: having a pleasant working environment (85%); having a job that is enjoyable (82%); having colleagues that respondents could get along with (82%); having a secure job (79%); having a job in which transferable skills are gained (79%); and having a job characterised by gender diversity and fair treatment (79%).

Job characteristics that are important for male and female respondents were similar in many respects. However, having a job that provides gender diversity and fair treatment was highest in importance for

female respondents (score of 96 out of 100) but was considerably less important to male respondents (71 out of 100).

For many of the job characteristics identified as being important, the expectation that the construction industry would offer these characteristics were relatively low. For example, for both female and male respondents, expectations that construction/infrastructure careers would provide them with control over their worktime, work hours that don't interfere with non-work roles and interests and have a healthy lifestyle were relatively low compared to the importance of these characteristics.

The gap between what is considered important to respondents and what they perceive a career in construction/infrastructure would offer them was considerably greater for respondents who remain undecided or who have decided definitely not to pursue a career in construction/infrastructure, compared to those who have decided to pursue a career in construction/infrastructure.

For many of the job characteristics, those who have already decided to pursue a career in construction/infrastructure perceive that many of the characteristics they consider to be important will be offered by a career in the sector, including having an enjoyable job, having a job with responsibility, having a job that makes a contribution to society, having a job that is respected, having a secure job and having a job that provides an intellectual challenge.

Participants' commitment to pursuing a career in construction was also measured using a previously validated career commitment scale. There was a significant positive correlation between respondents' commitment to pursuing a career in construction and:

- their satisfaction with the career development experiences they have been given during their first rotation
- their perception that the work environment they experienced during their first rotation was fair (in relation to gender equality), and
- their perception that the work environment they experienced during their first rotation was inclusive.

Satisfaction with career development opportunities, perception of inclusiveness and having work hours that match the trainees' preferences also significantly predicted their response to the question: Have you decided to pursue a career in construction/infrastructure on completion of the trainee program?

Respondents with high levels of satisfaction, a stronger perception of inclusion in the organisational environment and whose work hour preferences matched their preferences were more likely to respond to this question indicating that they have already decided to pursue a career in construction/infrastructure on completion of the trainee program.

Importantly, in relation to work hours, the majority of respondents (n=51, 70.8%) indicated that they prefer to work the same number of hours as they are currently working. The majority of respondents (n=54, 75%) indicated they are currently working between 37 and 40 hours a week. In the program, trainees are strongly discouraged from working more than 37.5 hours a week and this is communicated to the employer organisations. The respondents' stated preferences to work about the same number of hours as they currently do should be understood in light of this.

Qualitative comments made by respondents at the end of the survey reflect mainly very positive experiences in the trainee program. Respondents indicated they have enjoyed opportunities to learn in a supportive work environment. Participants who indicated they are, as yet, undecided or who have decided not to pursue a career in construction/infrastructure were prompted to share their views about what would need to change to persuade them to pursue a career in the sector. These comments indicated these respondents are concerned about negative public perceptions of the industry, a lack of

control over working time and the need for better access to opportunities for females and the potential negative impact of work on life outside of work.

The remainder of the report is structured as follows:

Part 2: Introduction positions the research in the context of Construction Industry Culture Standard, outlines the aim of pilot study one, and provides context in relation to the Infrastructure Traineeship Program.

Part 3: The research method is outlined including sample, survey instrument, and piloting of the survey instrument.

Part 4: Survey findings are presented.

Part 5: The discussion considers the implications of the survey findings according to the three key areas of the Culture Standard. Factors related to pursuing a career in construction/infrastructure are outlined, as are reflections of expectations and experiences of trainees on working in construction/infrastructure in the future.

Part 6: Next steps of the research are outlined.

Part 7: All references used in the report are cited in this section.

Part 8: The appendices include analysis informing the survey findings.

Part 2: Introduction

2.1 Construction Industry Culture Standard

The Construction Industry Culture Taskforce (CICT) - comprising the Australian Constructors Association, representing the nation's largest construction firms, the Governments of New South Wales and Victoria - has developed a Culture Standard intended to address three major issues impacting the construction industry's performance and sustainability:

- **Long working hours:** Hours of work in the industry are excessive, resulting in high rates of turnover, absenteeism, and stress-related leave. There is an inverse relationship between hours worked and productivity per hour.
- **Lack of diversity:** Failure to attract and retain a diverse range of people narrows the industry's talent pool and reduces its capacity to deliver projects
- **Wellbeing:** Research shows stress levels and suicide rates amongst construction workers are double the national average (Culture in Construction, 2021, p.8).

These three issues form the focus areas of the Culture Standard.

More information on the development and content of the Culture Standard is available at this website: <https://cultureinconstruction.com.au/culture-standard/>

2.2 Developing the evidence base through research

A team of researchers from RMIT University, the University of Melbourne, the Australian National University and the University of Tasmania has been engaged to develop an evidence base on the impact of implementing the construction industry Culture Standard.

The research program consists of undertaking the evaluation of six pilot projects and exploring the views of key decision makers on the costs and benefits of implementing the culture standard. Findings of the research will inform the next iteration on the Culture Standard.

The six pilot projects will consist of three from Victoria and three from NSW. The Infrastructure Traineeship Program is the first NSW-based pilot study to participate in the research program.

This report focuses on the first stage of survey findings from the Infrastructure Traineeship Program in NSW.

2.3 Aim of pilot study one

The aim of the research with the Infrastructure Traineeship Program pilot study is to explore how early entrants to the industry experience working in construction/infrastructure organisations. The focus on early entrants helps to control for bias introduced by only collecting data from incumbent construction workers who experience long working hours, poor health, and lack of work-life balance, and who have already made adjustments in their lives to accommodate working in the industry.

This report presents the findings of a survey conducted with trainees participating in the Infrastructure Traineeship Program in the 2021-2022 program and focuses on their experiences during their first rotation.

2.4 Research context

Infrastructure Traineeship Program

The NSW Government has designed a two-year traineeship in the infrastructure sector to provide paid training opportunities for NSW school leavers. The Infrastructure Traineeship Program has been nominated as one of the six pilot studies to be undertaken as part of the investigation of the potential impact of the Culture Standard.

The Infrastructure Traineeship Program is conducted over a two-year period and provides school-leavers with the opportunity to work in the infrastructure construction industry. Trainees participate in three work placement rotations between different organisations:

- Government
- Contractor
- Consultant

Each rotation is undertaken for eight months.

All trainees have completed year 12 of secondary school. The traineeship is an office-based role, and over the two-year program participants study towards a Nationally Accredited Certificate IV VET course in one of the following areas:

- Certificate IV in Business
- Certificate IV in Project Management Practice
- Certificate IV in Procurement and Contracting
- Certificate IV in Surveying

It is anticipated that participants will study 1-day per week during their two-year program. The traineeships are paid positions and trainees are located in both regional and metro areas in New South Wales.

More information on the Infrastructure Traineeship Program is available at the following website:

<https://education.nsw.gov.au/public-schools/career-and-study-pathways/infrastructure-traineeships/about-infrastructure-traineeships>

2021-2022 Trainees

A survey will be administered to this cohort on three occasions: (1) in December 2021 which focuses on their experience during their first rotation; (2) in June 2022 which will focus on their experience during their second rotation; and (3) in December 2022 which will focus on the trainees' experience during their third rotation.

Interviews will be conducted with trainees who completed the survey during their first rotation and who volunteered to be interviewed.

2022-2023 Trainees

Participants to the 2022/23 intake will commence their first rotation in March 2022. A survey will be administered in June 2022 which focuses on their experience during their first rotation in the program. This survey will be repeated in December 2022 to capture data about their second rotation.

Part 3: Method

3.1 Sample

All trainees participating in the 2021-2022 Infrastructure Traineeship Program were invited to complete an online survey. The survey was distributed to trainees by a Group Training Organisation. Participation was voluntary and anonymous. At the time of survey administration there were 97 trainees in the program.

3.2 Survey instrument

The survey instrument consisted of three sections.

Section one asked demographic questions such as age and gender.

Section two asked questions about organisation type, area of study, working hours and intention to choose a career in construction/infrastructure at completion of the Infrastructure Traineeship Program.

Section three asked questions about:

- characteristics that are important when choosing a career (Kyriacou and Coulthard, 2000)
- to what extent participants believe these characteristics are likely to be offered in construction/infrastructure (Kyriacou and Coulthard, 2000)
- participants' satisfaction with their career-related experiences during the first rotation (Nauman et al., 2021)
- participants' feeling of commitment towards a career in construction/infrastructure (Blau, 1985)
- participants' perceptions of fairness within their host organisation in relation to diversity (Mor Barak et al., 1998)
- participants' perception of inclusiveness within the organisation that supports diversity (Mor Barak et al., 1998), and
- participants' experience of life balance during their first rotation.

Survey scales and items are outlined in Appendix 8.1.

3.3 Survey pilot

To ensure that the survey was fit for purpose for the intended population, a sub-set of trainees were asked to review the draft survey and provide feedback on ease of completion, time to complete, wording of instructions and questions, and anything else they wished to raise that could improve the survey. Two trainees provided positive feedback and no changes were recommended.

Part 4: Findings

4.1 Sample demographic data and work hours

Of the 97 trainees in the program, 79 responded to the survey. Upon closer inspection of responses, seven surveys were removed from the dataset due to a high proportion of missing data. Analysis proceeded with 72 responses which is equivalent to a 74% response rate.

Gender: 35 (48.6%) respondents are female, 33 (45.8%) are male, 1 (1.4%) preferred not to say, and 3 (4.2%) did not indicate their gender.

Age: Respondent's age ranged from 20 years to 23 years. The mean age of respondents was 20.8 years.

Aboriginal and/or Torres Strait Islander: Three (4.2%) respondents indicated they are Aboriginal and/or Torres Strait Islander, 66 (91.7%) are not, and 3 (4.2%) did not specify.

Area of study: 51 (70.8%) respondents are studying project management practice, 13 (18.1%) are studying business, 2 (2.8%) are studying procurement and contracting, 2 (4.8%) are studying surveying, and 4 (5.6%) did not specify.

Organisation type: During the first rotation, 30 (41.7%) respondents were hosted by a government organisation, 14 (19.4%) by a consultant organisation, 25 (34.7%) by a construction organisation, and 3 (4.2%) did not specify.

Working hours: Respondents were asked how many hours they worked including paid and unpaid overtime. Five (6.7%) respondents worked less than 37 hours, 54 (75%) worked 37-40 hours, 6 (8%) worked more than 40 hours, and 7 (9.7%) didn't specify.¹

Preferred working hours: Respondents were asked to nominate the number of hours they preferred to work. Fifty-one (70.8%) respondents indicated preferring to work about the same number of hours they did during their first rotation, 13 (18.1%) preferred to work fewer hours, 1 (1.4%) indicated a preference to work more hours, and 7 (9.7%) did not specify.

4.2 Job characteristics affecting career choice and perceptions about a career in construction/infrastructure

All respondents

Participants were asked to rate 24 job characteristics according to the extent to which they are important to them in making a career choice (labelled 'importance' in subsequent analysis) and the extent to which they believe that a career in construction/infrastructure offers these job characteristics (labelled 'availability' in the subsequent analysis).

This data was analysed in order to understand the job characteristics that the trainees are likely to consider when making a choice in relation to pursuing a career in the construction/infrastructure sector

¹ The trainees and their host organisations are discouraged to work more than 37.5 hours each week. Host organisations would be billed for time worked in addition to these hours.

and whether they believe these job characteristics would be offered by a career in construction/infrastructure.

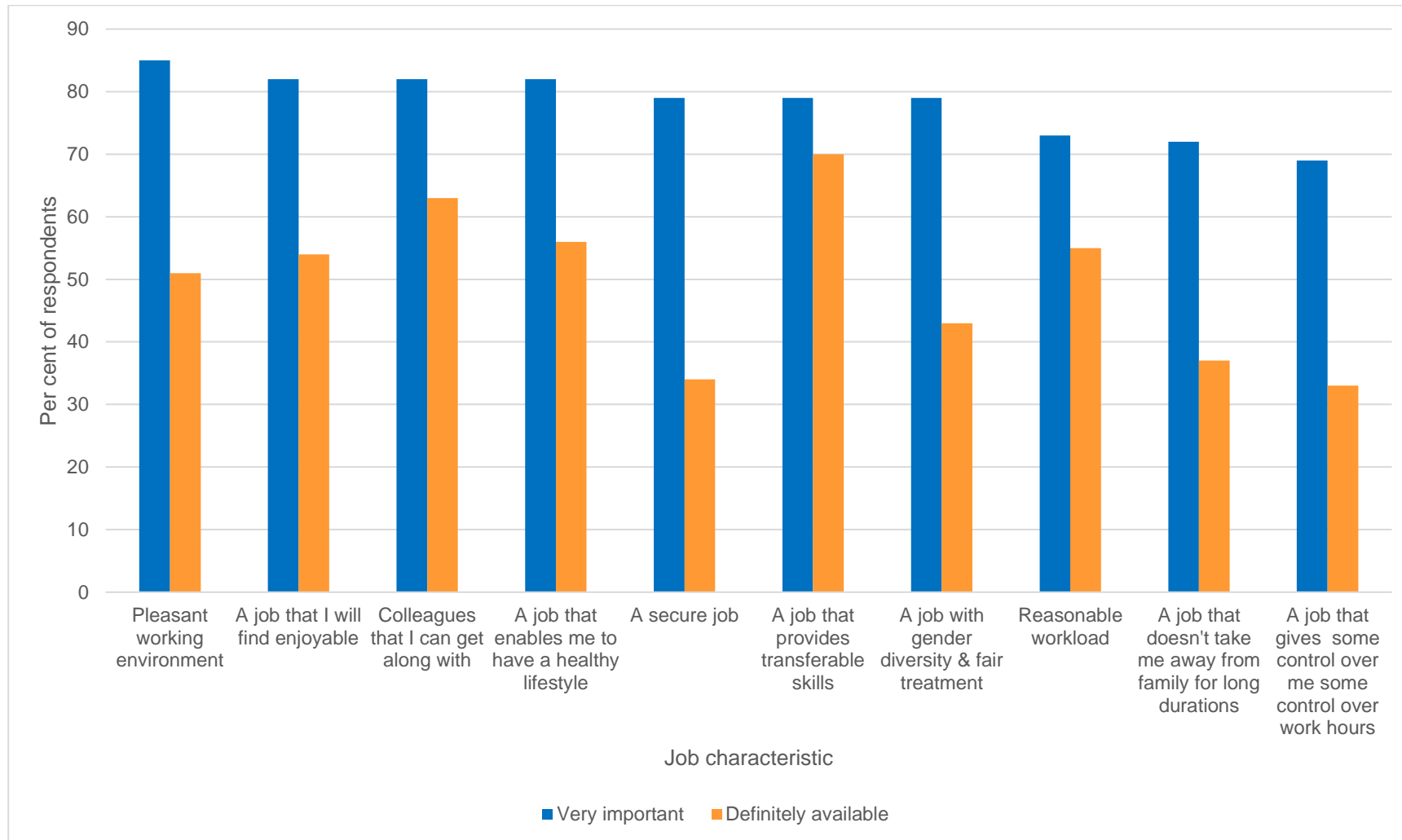
The percentage of respondents who indicated each of the job characteristics is very, quite or not important as well as the percentage who indicated that they believe these job characteristics would definitely be, might be or would not be offered by a career in construction/infrastructure are provided in Appendix 8.2. The percentage of respondents indicating a belief that these job characteristics would definitely be offered by a career in construction/infrastructure was lower than the percentage indicating these characteristics are very important when making a career choice.

Figure 4.1 shows the percentage of respondents who indicated they believe that these important job characteristics would be offered by a career in construction.

The job characteristics most frequently identified by the respondents as being very important when choosing a career were: having a pleasant working environment (85%); having a job that is enjoyable (82%); having colleagues that respondents could get along with (82%); having a secure job (79%); having a job in which transferable skills are gained (79%); having a job characterised by gender diversity and fair treatment (79%); having a job with a reasonable workload (73%); having a job that doesn't take them away from family for long durations (72%) and having a job that gives control over work time (69%).

In particular, a relatively low percentage of respondents believed that a career in construction/infrastructure would definitely offer a job with work hours that don't interfere with non-work roles (31%); a job that offers some control over work time (33%) a job that doesn't take them away from family for long durations (37%); a job with gender diversity and fair treatment (43%); and a job that enables a healthy lifestyle (44%).

Figure 4.1: Percentage of respondents indicating the importance of job characteristics when selecting a career and the expectation that these would be offered in construction/infrastructure



Gender

A mean score was calculated for male and female respondents reflecting their ratings of the importance of characteristics when choosing a career and the extent to which they think a career in construction/infrastructure offers this characteristic (i.e., perceived availability). This calculation was based on the method recommended by Kyriacou and Coulthard (2000) in which a score of 100, 50 and 0 was assigned to each category, respectively, on the three-point response scale ('very', 'quite' and 'not' for the first question, and 'definitely', 'might' and 'not' for the second question).

The mean 'importance' and 'availability' scores of male and female trainees for each of the 24 job characteristics is shown in Appendix 8.3.

Job characteristics that were most important for female respondents when choosing a career were: having a job with gender diversity and fair treatment; having a job that enables them to have a healthy lifestyle; having a pleasant working environment; having a secure job and having a job in which they gain transferable skills.

Job characteristics that were most important for male participants in choosing a career were: having colleagues they can get along with; having a pleasant work environment; having a job that enables them to have a healthy lifestyle; and having a job that they find enjoyable.

The mean importance and availability scores for female and male respondents are provided in Figure 4.2 and Figure 4.3 respectively.

The gap between how important a job characteristic is and what female participants believe the construction/infrastructure industry offers is greatest for the job characteristics of: gender diversity and fair treatment; having an enjoyable job; and having a job that allows them to live a healthy lifestyle.

The gap between how important a job characteristic is and what male participants perceive the construction/infrastructure industry offers is greatest for the job characteristics of: hours that don't interfere with non-work roles and interests (e.g., family and social); control over their work time; and having a pleasant work environment.

Figure 4.2: Importance-availability 'gap' for female trainees

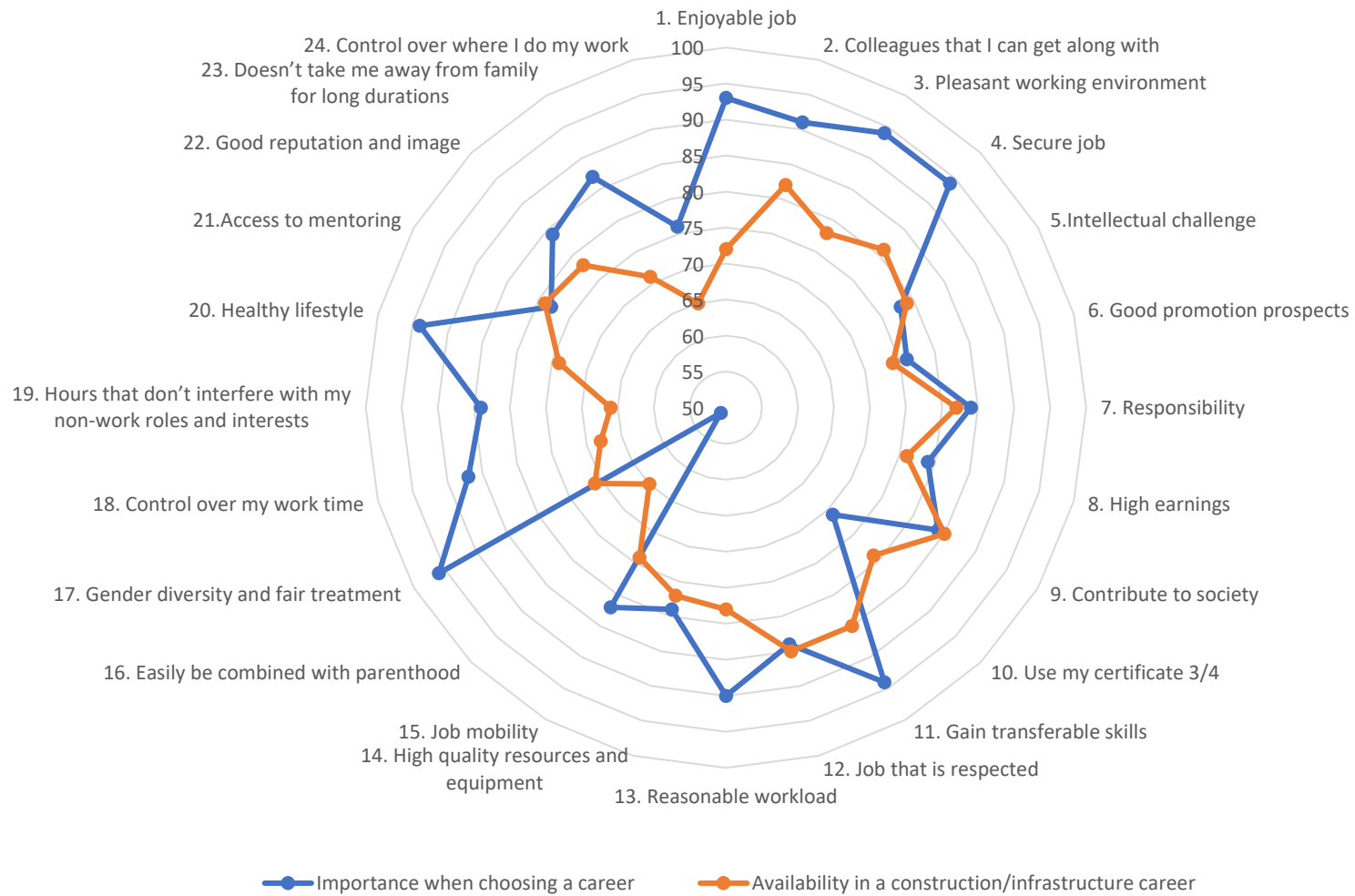


Figure 4.3: Importance-availability 'gap' for male trainees



A comparison of the mean importance and availability scores between female and male trainees was undertaken using a t-test, and the results are presented in the Appendix 8.4.

Significant differences in ratings of importance between female and male respondents were found for two of the 24 job characteristics, i.e., a job that can easily be combined with parenthood and a job with gender diversity and fair treatment.

Female respondents rated a job that offers gender diversity and fair treatment as being significantly more important than male respondents (mean difference of 12.8 points). Whereas male respondents rated a job that can easily be combined with parenthood as being significantly more important than female respondents (mean difference of 17.3 points).

No significant differences were found between female and male respondents' beliefs about the availability of these job characteristics in careers within the construction/infrastructure sector.

Organisation type

A comparison was made between the mean importance and availability scores for respondents who indicated they had spent the first rotation of the traineeship program working in a government (GOV, n = 28), consultant (CONSULT, n = 14) or construction partner (CONSTR, n = 25) organisation. The results are presented in Appendix 8.5.

A one-way analysis of variance (ANOVA) test was performed in order to determine whether the differences between mean importance and availability scores of trainees who spent their first rotation in different types of organisations were statistically significant.

Significant differences were found for the following job characteristics:

Having a job with a reasonable workload

Participants reported significantly different levels of importance in relation to having a reasonable workload. The mean rating score for the importance of having a reasonable workload differed significantly between respondents placed within a government organisation for their first rotation and those placed within a construction partner organisation. Respondents placed in a government organisation rated this as being 15.4 points lower in importance than those placed in a construction partner organisation.

Having a job with gender diversity and fair treatment

Participants who indicated spending their first rotation with different organisation types reported significantly different levels of importance in relation to having a job with gender diversity and fair treatment. The mean rating score for the importance of having a job with gender diversity and fair treatment differed significantly between respondents placed within a consultancy organisation for their first rotation and those placed within a construction partner organisation. Respondents placed in a consultancy organisation rated this as being 19.4 points lower in importance than those placed in a construction partner organisation.

Having a job that is respected

Participants who indicated spending their first rotation with different organisation types reported significantly different beliefs in relation to whether the construction/infrastructure sector offers a career in a job that is respected. The belief that construction/infrastructure offers a career in a job that is

respected differed significantly between participants placed within a government organisation for their first rotation and those placed within a construction partner organisation. Respondents placed in a government organisation rated this as being 16.9 points higher than those placed in a construction partner organisation.

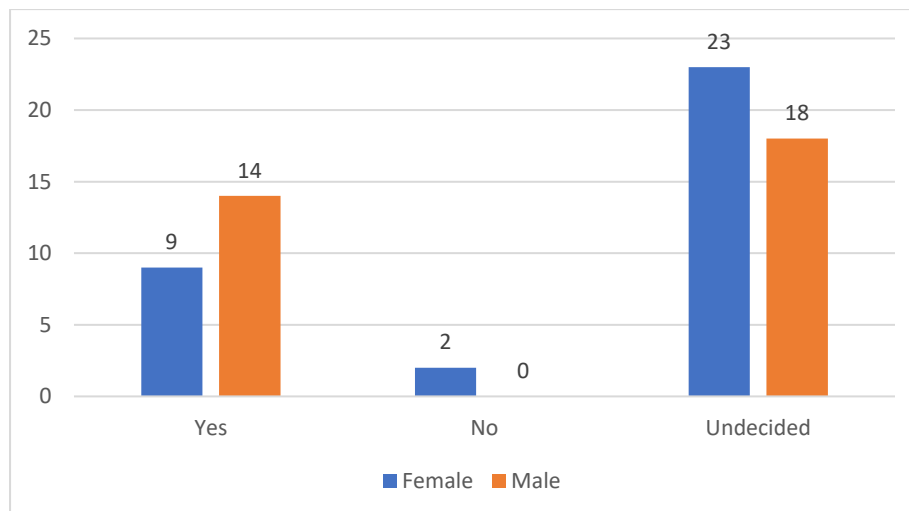
4.3 Intention to pursue a career in construction

Respondents were asked whether they would choose a career in construction/infrastructure at the end of their traineeship. More than half (n = 43; 59.7%) of respondents were yet to make up their mind, 23 (31.9%) indicated that they had already decided to work in construction/infrastructure at the end of their traineeship, two (2.8%) indicated they definitely do not want to work in construction/infrastructure at the end of their traineeship. Four (5.6%) did not specify. Of the 23 respondents who had indicated their intention to work in in construction/infrastructure at the end of their traineeship, nine (39.1%) are female and 14 (60.9%) are male.

Appendix 8.6 shows the mean importance and availability scores for of each of these two groups (yes, and no/undecided) for each job characteristic included in the analysis.

Figure 4.4 shows that, at this point in time, more males than females intend to stay in the construction/infrastructure industry, and more females than males are undecided. Only 26.5% of female respondents compared to nearly half of male respondents (43.7%) indicated they have already decided to pursue a career in construction/infrastructure. Both of the participants who indicated they definitely do not want to pursue a career in construction/infrastructure were female.

Figure 4.4: Intention to pursue a career in construction/infrastructure by gender



Intention to pursue a career in construction was also examined according to the type of organisation at which trainees spent their first rotation.

Figure 4.5 shows that, at this point in time, a greater proportion of participants who indicated that they have decided to pursue a career in construction/infrastructure were placed with a government organisation.

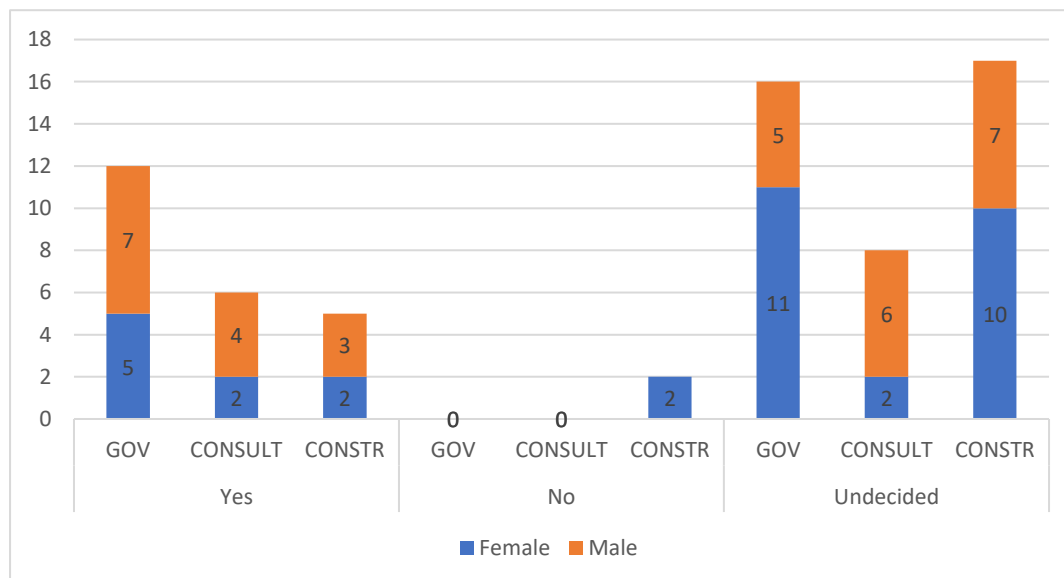
More than 40% of respondents, who were placed with a government or consultant organisation (41.4% and 42.9% respectively) indicated that they have already decided to pursue a career in

construction/infrastructure on completion of their traineeship. By comparison, only 20.8% of respondents who were placed with a construction organisation during their first rotation indicated that they have already decided to pursue a career in construction/infrastructure on completion of the trainee program.

Among those participants who indicated they are undecided as to whether they will pursue a career in construction/infrastructure on completion of the trainee program, a similar number were placed with government organisations (n=16) and construction contracting organisations (n=17) during their first rotation. The two participants who indicated they definitely do not want to pursue a career in construction/infrastructure were placed with a construction organisation during their first rotation.

Figure 4.5 also indicates that slightly more males than females from all organisation types had decided to pursue a career in construction/infrastructure. For those trainees who were undecided on whether to pursue a career a construction, there were more females than males in the government (n=11, n=5) and construction organisations (n=10, n=7).

Figure 4.5: Intention to pursue a career in construction/infrastructure according to organisation type and gender



- GOV: Government organisation; CONSULT: Consultant organisation; CONSTR: Construction organisation
- One respondent selected “prefer not to say” to the question related to gender so their response was excluded

Figure 4.6 shows the difference between importance and availability of a job characteristic for trainees who have already decided to pursue a career in construction/infrastructure when they complete their traineeship. The gap between how important a job characteristic is and what trainees in the ‘definitely yes’ group perceive a career in construction will offer them is greatest for the job characteristic of gender diversity and fair treatment. That is, even those trainees who have decided to pursue a career in construction perceive that the sector will not offer high levels of gender diversity and fair treatment, despite the fact that this is important to them.

Figure 4.7 shows the difference between importance and availability of a job characteristic for trainees who indicated they are undecided or who have definitely decided not to pursue a career in construction. Figure 4.7 shows that the job characteristics in which the importance-availability gap was greatest were: having a job that is enjoyable, having a job that provides control over work time,

having work hours that don't interfere with their non-work roles and interests and having a job that enables a healthy lifestyle.

The mean importance and availability scores between survey participants who indicated they have already decided to pursue a career in construction/infrastructure and those who have decided not to pursue a career in construction and/or who are undecided were compared using a t-test statistical procedure. The results are shown in Appendix 8.7.

In relation to the importance of job characteristics, a statistically significant difference was found between trainees who indicated they have already decided to pursue a career in construction/infrastructure and those who are undecided or who have decided not to pursue a career in construction/infrastructure for two job characteristics. These are 'job mobility' and 'having a job that gives me some control over where I do my work'. Both of these job characteristics were significantly more important for people who have decided they do not want to pursue a career in construction/infrastructure or who are undecided.

In relation to participants' beliefs that a career in construction/infrastructure would offer particular job characteristics, participants who had decided to pursue a career in construction/infrastructure expressed significantly more positive beliefs that a career in construction/infrastructure would offer them: a job that gives them responsibility, a job that is respected, a job that gives them control over their work time and having a job in an industry which has a good reputation and image.

However, mean availability scores among participants who have already decided not to pursue a career in construction/infrastructure or who are undecided were significantly lower for the following job characteristics: having a job that is enjoyable, having colleagues that they can get on with, having a pleasant working environment, having a secure job, having a job in which they gain transferable skills and having a job that enables a healthy lifestyle.

Figure 4.6: Importance-availability 'gap' for trainees who have decided to pursue a career in construction/infrastructure

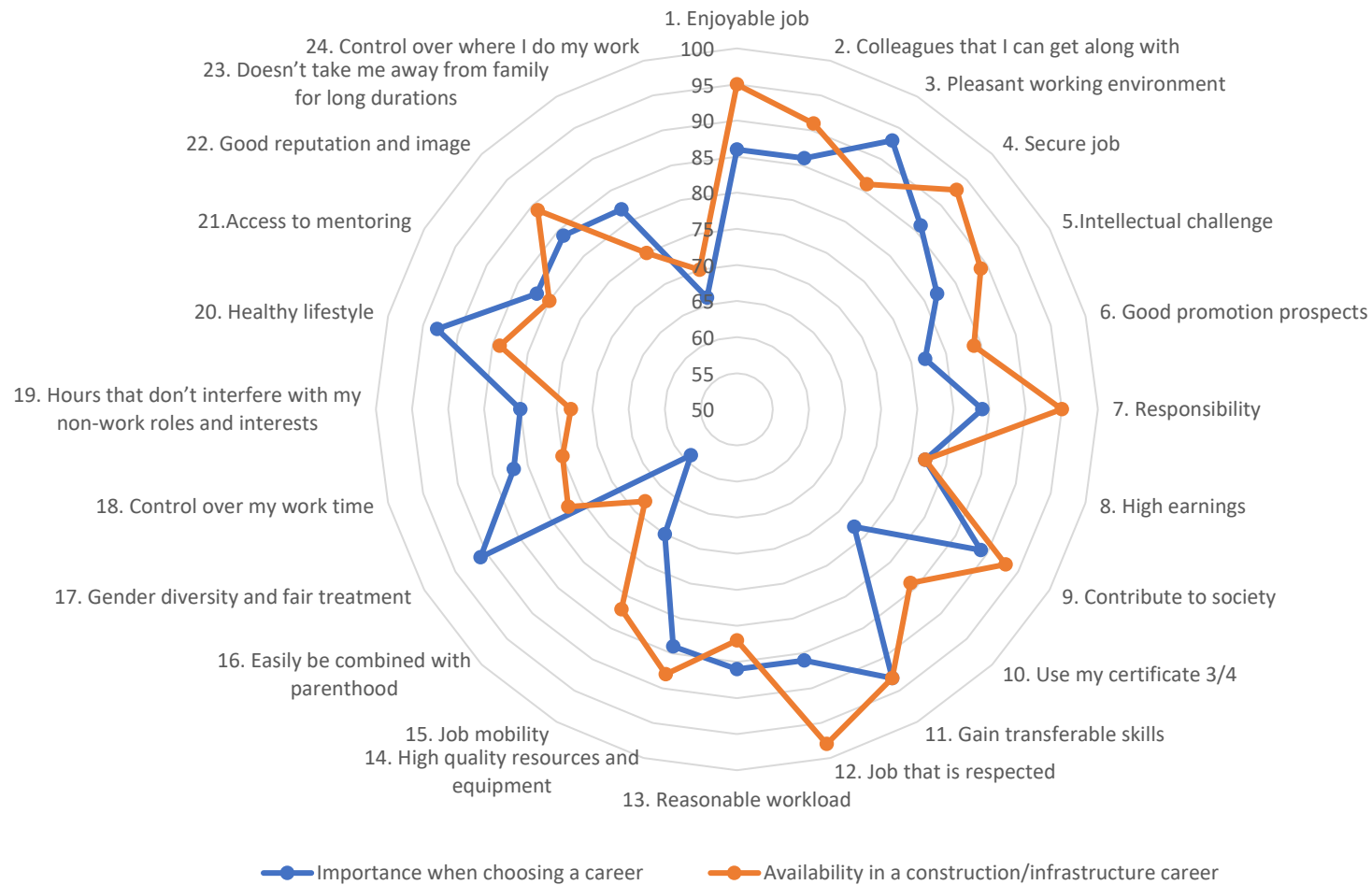
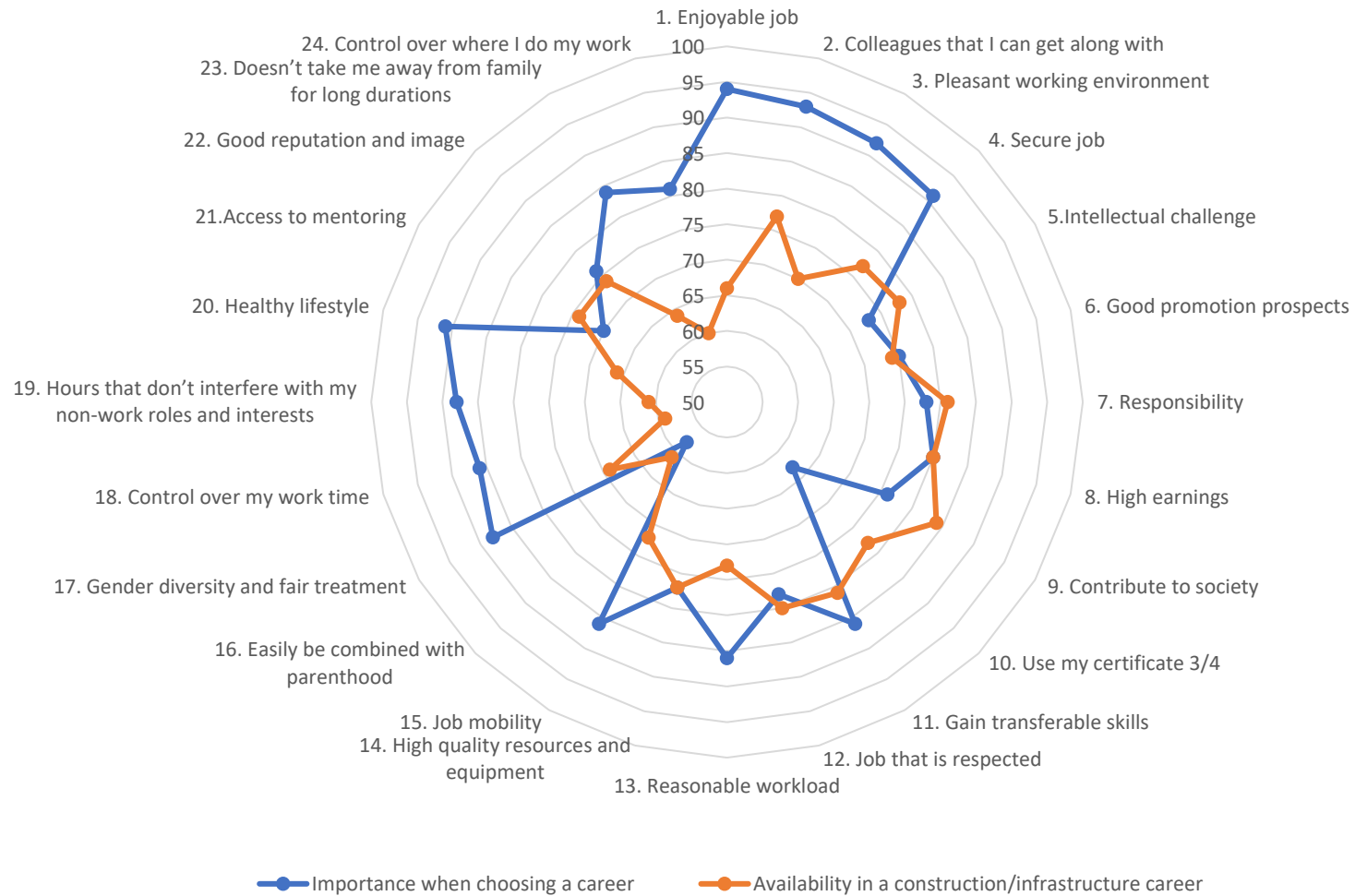


Figure 4.7: Importance-availability 'gap' for trainees who are undecided or have decided not to pursue a career in construction/infrastructure



4.4 Perceptions about a career in construction/infrastructure

An objective of the research was to identify predictors of the choice that trainees make in relation to pursuing a career in the construction/infrastructure sector and/or their level of commitment to pursuing a career in construction/infrastructure.

These outcomes were measured in two ways:

- First, participants were asked to state the extent to which they have made a decision as to whether or not to pursue a career in construction/infrastructure on completion of the trainee program
- Second, a 5-item psychometric scale measuring commitment to a career in construction/infrastructure was used. This was adapted from Blau (1985) - an example of a scale is “Working in construction/infrastructure offers the ideal career for me”.

Psychometric scales were also used to measure participants’ level of career satisfaction and the diversity climate of the organisation in which they were placed during their first rotation (including perceptions of fairness and inclusion in relation to diversity in the work environment). Participants’ perceptions of life balance, and work hour preferences (i.e., whether they would prefer to work more or fewer hours than they currently do) were also captured using single item questions. The measurement items of those factors and the internal consistency reliability of the scales is outlined in Appendix 8.1

Further analysis was undertaken to explore the extent to which perceptions of career satisfaction, the diversity climate, life-balance and work hour preferences, are related to participants’ stated intentions to pursue a career in construction/infrastructure, and/or their level of commitment to pursuing a career in construction/infrastructure.

Gender

Mean scores for all the variables were calculated and compared (using a t-test statistical procedure) between female and male respondents. The results indicate that females had lower scores than males on all variables (see Appendix 8.8). However, of the six variables, only scores for ‘career commitment’ were significantly different. This result indicates that, at this stage, female trainees who completed the survey feel significantly less committed to pursuing a career in construction/infrastructure than male trainees.

Organisation type

Another comparative analysis was conducted based on different types of organisations that respondents worked in during their first rotation of their traineeship programs, i.e., whether the trainees were placed with a government, consultant or construction partner organisation. A one-way analysis of variance (ANOVA) test was performed to determine whether the differences between mean scores of those variables of trainees who spent their first rotation in different types of organisations were statistically significant. The results are shown in Appendix 8.9.

Participants who indicated spending their first rotation with different organisation types reported significantly different scores for life balance. There was a significant difference in mean score of

life balance between respondents placed within a government organisation for their first rotation and those placed within a construction partner organisation. The mean life balance score for respondents placed in a government organisation is 0.82 points higher than the mean score of those placed with a construction partner organisation. This result suggests that respondents working in a government organisation during their first rotation had a more positive perception of their life balance than those working in a construction partner organisation.

Bivariate correlation between career-related variables

A 'bivariate Pearson product moment correlation' procedure was run to determine whether there is statistical evidence of a significant linear relationship between the extent to which participants indicate they feel committed to pursuing a career in construction/infrastructure (career commitment) and their career satisfaction, perceptions of the diversity climate of the organisation within which they undertook their first work placement rotation, and their self-reported life balance, and work hour preferences. The results of this analysis are presented in Appendix 8.10.

This procedure found significant positive associations:

- between commitment to pursuing a career in construction/infrastructure and participants' satisfaction with their career development as experienced during the first rotation of their traineeship,
- between commitment to pursuing a career in construction/infrastructure and participants' perception of fairness (as related to diversity) in the work environment, and
- between commitment to pursuing a career in construction/infrastructure and participants' perception of inclusion in the work environment.

These results suggest that stronger perceptions of the diversity climate of the organisation in which participants were placed during their first rotation, and higher levels of career satisfaction, are associated with higher levels of commitment to pursuing a career in construction/infrastructure.

Associations between perceptions of life balance and career commitment, and work hour preferences and career commitment were not statistically significant.

4.5 Predictors of the decision to work in construction/infrastructure sector

The research tested the extent to which participants' career choice (i.e., the intention to pursue a career in construction/infrastructure following completion of the traineeship program) could be predicted based on their perceptions of the work environment they experienced during their first rotation.

In order to do this a discriminant function analysis was performed. This procedure is used to explore the predictive ability of a set of independent variables (in this case career satisfaction, diversity climate perceptions (including fairness and inclusion), life balance, and work hour preferences) on one categorical dependent measure (in this case self-reported decision regarding intention to pursue a career in construction/infrastructure on completion of the trainee program).

The discriminant analysis identifies the combination of variables that best distinguish respondents who indicated that they have already decided to pursue a career in construction/infrastructure from those who indicated that they either have decided not to work in construction/infrastructure or who were undecided at the time of the survey.

The discriminant analysis was also used to evaluate the relative explanatory power of each variable in predicting the stated intention of respondents. Four respondents who did not answer the question related to career choice and five respondents with at least one missing discriminating variable were excluded from this analysis.

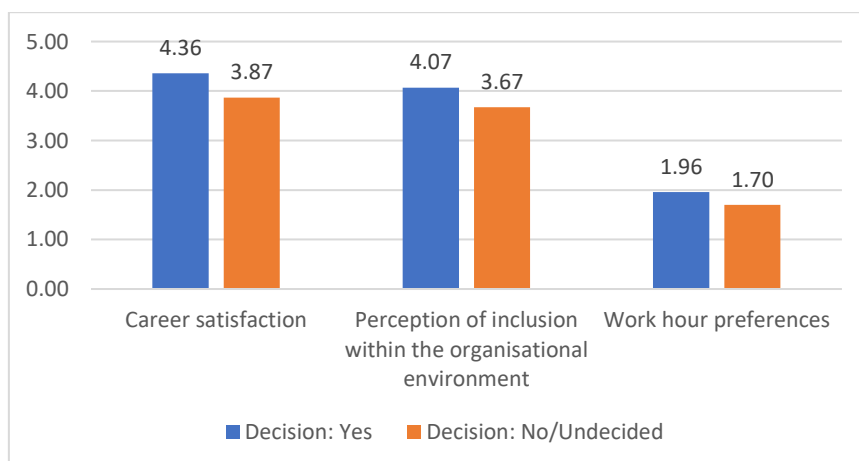
63 valid responses from the “Yes” and “No/Undecided” groups (23 and 40 respondents respectively) were used in the analysis.

Prior to conducting the discriminant analysis, a t-test statistical procedure was performed to determine whether respondents in the two career choice groups differed significantly in terms of the potential discriminating variables (see Appendix 8.11).

The mean scores for career satisfaction, perception of inclusion in the work environment and work hour preferences were significantly different between the two groups, i.e., the ‘yes’ and ‘undecided or no’ groups.

Figure 4.8 shows that mean scores for career satisfaction and perception of inclusion in the work environment were higher for those respondents who have already decided to pursue a career in construction/infrastructure compared to those who have decided not to pursue a career in construction/infrastructure or who are undecided. Also, the mean score for work hour preferences was closer to two (i.e., participants prefer to work a similar number of hours to their current work hours) for those respondents who have indicated they have already decided to pursue a career in construction/infrastructure compared to those who are either undecided or who have decided not to pursue a career in construction/infrastructure on completion of their traineeship.²

Figure 4.8: Mean career satisfaction, perception of inclusion in the work environment, and work hour preferences between respondents by decision to pursue a career in construction/infrastructure



² It should be noted that the majority of participants indicated that they work between 35 and 40 hours a week and the trainees are actively discouraged from working more than 37.5 hours per week. This expectation is communicated to the host employer organisations. Participants’ preferences to work about the same hours as they currently do should be understood in this context.

The discriminant analysis showed that career satisfaction, perception of inclusion in the work environment and work hour preferences were all significant predictors of participants' status in relation to whether they intend to work in construction/infrastructure on completion of the trainee program. Career satisfaction was identified as the strongest predictor of this intention, followed by work hour preferences and perception of inclusion in the work environment,

The results of the discriminant analysis also suggest that 69.8% of the original grouped cases were correctly classified using the combination of the three significant discriminating variables (i.e., career satisfaction, perception of inclusion in the work environment, and work hour preferences).

However, respondents who indicated that they have already decided to work in construction/infrastructure were classified with lower accuracy (47.8%) than those who decided not to work in construction/infrastructure or were undecided (82.5%) (see Appendix 8.12).

Notwithstanding this, these results suggest that the presence (or absence) of a satisfying career experience in the first rotation, perceptions of a positive diversity climate in the organisation within which trainees were placed and work hours that are consistent with trainees' preferences are all predictive of the extent to which participants indicate an intention to pursue a career in construction/infrastructure on completion of the trainee program.

4.6 Improving the attraction to construction/infrastructure for new entrants

For those respondents who were either undecided or had chosen not to pursue a career in construction/infrastructure at the end of their traineeship, 22 (30.6%) indicated they would enter construction/infrastructure if changes were made to the industry.

Respondents who indicated they would enter the industry if changes were made were asked to identify what changes could potentially influence a positive decision to pursue a career in construction/infrastructure. Fifteen respondents provided feedback according to the following themes outlined in Table 4.1. Gender and type of employer organisation are shown for each quote.

Table 4.1: Factors to improve attraction to construction/infrastructure for new entrants

Theme	Respondent quotes
Perceptions of working in construction	Stigma around construction workers being dumb or not as smart because they haven't gone to 4 years of uni (male, construction partner). Greater job appeal, and community appeal. The industry needs to be more open and accessible to young people, instead of years of uni, something like this traineeship is really beneficial for those interested in an infrastructure career (female, construction partner).
Job security	Perhaps a level of programming that allows workers to know where they are headed next, contracts start and end all the time without any security or direction for where they are headed next (female, construction partner).
Safety	More safety inductions to make sure the labour workers know all the risks that can come from laziness around the workplace (male, consultant).
Mentoring	More readily available mentoring (female, government).
Opportunities for females	More opportunities for young female professionals coming into the industry (female, construction partner). Better access to training for young females (female, government).
Life balance	More flexible work-life balance (female, construction partner). If employees had more control of their work hours (male, government). Flexible work-life balance (female, construction partner). Change in workload, working durations, and work environment (male, construction partner).
Respect	Better respect all around (from bosses to workers and workers to bosses) (male, construction partner).

4.7 Reflection on expectations and experiences

At the end of the survey, respondents were invited to leave comments about their expectations or experiences of working in construction/infrastructure. The majority of comments reflected a positive experience. The comments are clustered according to themes in Table 4.2. Gender and type of employer organisation are shown for each quote.

Table 4.2: Expectations and experiences of working in construction/infrastructure

Theme	Respondent quotes
Positive experience	<p>Been a very good experience (male, government).</p> <p>Everything is all good (female, consultant).</p> <p>I enjoyed it (female, government).</p> <p>Overall this has been a new and exciting experience (female, government).</p> <p>Very good so far. Would definitely love to stay in industry post traineeship (male, government).</p>
Shaping career direction	<p>Having experienced this industry I now know that it's not what I want to do in the future (female, construction partner).</p> <p>This traineeship has actually introduced me to the infrastructure and project management industry, before commencing with the program, I had limited knowledge about the industry. I am definitely looking to further my career opportunities in specifically the construction/project management industry (male, consultant).</p>
Opportunity to learn and develop	<p>I get to meet a lot of people with different skills and knowledge which is so amazing learning from different people (male, government).</p> <p>I loved my first rotation so much, it taught me so much and it gave me a reason to wake up everyday (male, government).</p> <p>It has gone way beyond what I expected in good ways and bad ways. but I have learnt a LOT (male, construction partner).</p> <p>It's been really positive to see an area of work that I never thought I'd be involved with. To be able to develop my skills and earn a decent income is great in supporting my progress in building a career (female, construction partner).</p> <p>Working from a management perspective is OK. A balance between office work and hands on work adds great value to the construction/infrastructure industry (male, consultant).</p>
Rewards	<p>I think financial incentives should be implemented into the traineeship program, for over achieving and large contributions when applicable (male, construction partner).</p>
Flexible work hours	<p>Overtimes [should] be more flexible (male, construction partner).</p>
Diversity and inclusion	<p>I'd like to elaborate on one of my answers, I don't believe I was discriminated against by any means in my first rotation, however I answered 'yes' to 'have I been treated differently due to sex or age' because as a typically 'girly girl' 19 year old, I'm sure my capabilities were underestimated at times. This would not have been deliberate and I do not feel discriminated against in the slightest, I understand that my appearance stands out in an infrastructure role (female, government).</p>
Supportive environment	<p>It is a welcoming environment to all with many young and friendly employees (female, construction partner).</p> <p>I feel like I have something [job] that makes me belong (male, government).</p>

Theme	Respondent quotes
Employer expectations	The expectations are a fair bit lower with the first rotation but once the host understands that you've got your bearings in the office, the work will ramp up dramatically (male, consultant).
Challenging nature of work	The systemic delayed nature of projects is a bit off putting as it infers that there is always significant problems on every project. This raises concerns of a difficult workplace if I was to work in this career path, with many problems that could and probably would impact my daily life even when I'm not at work, causing stress and anguish at the thought of the problems to come and the rings that would have to be jumped through to solve problems as most of the time the simplest solutions isn't allowed, meaning potentially constant overly complicated problems have to be solved. The sheer amount of paperwork at the beginning and end stages of a project also seem like a headache, as I have experienced a portion of the final manual reviews at the end of a project and the lengthy review process (male, construction partner).

Part 5: Discussion

This phase of the research explored the perceptions of participants in the inaugural cohort of the NSW Infrastructure Traineeship Program undertaking the first of three work placement rotations. Some key findings emerged which are aligned with the key components of the Culture Standard, particularly in relation to the focus on diversity, health and wellbeing, and time for life.

5.1 Diversity climate

For all survey respondents (35 females, 33 males) having a job characterised by gender diversity and fair treatment was ranked as the 7th (out of 24) most important of all job characteristics. Seventy-nine percent of respondents rated it as very important, however 57% of respondents believed that a career in construction/infrastructure might be characterised by gender diversity and fair treatment.

Females rated gender diversity and fair treatment as the most important job characteristic to them (1st out of 24), and males rated it as 9th out of 24. Of the 24 job characteristics, only the gender diversity and fair treatment job characteristic was statistically different between males and females.

The results suggest that having a work environment that is supportive of gender diversity, i.e., that is seen to be inclusive and fair is important to participants in the early stages of the traineeship program. The proportion of female trainees who indicated that they definitely wanted to pursue a career in construction after completion of the traineeship program was lower than for than males, whilst more females than males were undecided. One of the factors contributing to this may be the gap between the high importance of having a work environment/climate that is supportive of diversity and characterised by fair treatment for females, and the relatively low level of belief that these characteristics will be available to them should they pursue a career in construction/infrastructure. While male and female respondents had similar perceptions of the diversity climate that would be available to them should they pursue a career in construction/infrastructure, females rated this as more important than males, which may explain why proportionally more females remain undecided about pursuing a career in construction/infrastructure.

When asked to comment on how the industry could be improved to attract new entrants, the issue of improving opportunities for females was raised by participants. There was also a sense expressed by female respondents that they have been treated differently due to their gender during their first rotation work placement. For example, one participant commented: *“I [have] been treated differently due to sex or age’ because as a typically ‘girly girl’ 19 year old, I’m sure my capabilities were underestimated at times”*.

The sample size in the current analysis was small and it is not appropriate to generalise these findings, however, the findings reflect that perceptions of the diversity climate and female trainees’ experiences in the first rotation of their trainee program may be influential in shaping the decision of female participants to pursue a career in construction/infrastructure or not. In this respect the focus of the Culture Standard on improving work cultures to create more gender inclusive work environments, supported by the removal of offensive material and language, providing amenities to support a diverse workforce and to take positive steps to increase female

representation in construction/infrastructure organisations has the potential to help the sector to attract young female employees and encourage them to remain in the sector beyond the life of their training programs.

5.2 Health and wellbeing

A job that enables trainees to have a healthy lifestyle was ranked as the equal second most important job characteristic for respondents. Eighty-two percent of respondents rated job characteristic as very important to them, compared to 56% of respondents who believed that a career in construction/infrastructure “might” enable a healthy lifestyle. When we explored the response of trainees according to their intention to stay in construction/infrastructure on completion of the traineeship program, the responses differed considerably. Trainees who intended to enter the industry expressed a stronger belief that the industry would offer them a job that enables a healthy lifestyle (mean score of 86), whereas trainees who were undecided or who do not intend to enter the industry had a considerably low level of expectation regarding the construction/infrastructure sector offering a job that would enable them to pursue a healthy lifestyle (mean score of 66).

5.3 Time for life

In relation to work hours, some findings are not easy to explain. For example, participants had relatively low expectations that construction/infrastructure would provide them with a job with hours that don't interfere with non-work roles and interests (e.g. family and social). These low expectations were observed among participants who were undecided and/or who have already decided not to pursue a career in construction/infrastructure. When they were asked what would need to change in the construction/infrastructure sector in order for them to decide to pursue a career in the sector, comments made by undecided participants reflect concerns about working time arrangements. For example, participants commented that greater flexibility, improved work-life balance, changes to work durations and more control over work time could encourage them to remain within the sector on completion of their traineeship.

Participants in the Infrastructure Training Program are encouraged to work no more than 37.5 hours per week, and consistent with this, 75% of survey respondents indicated they work between 37 and 40 hours per week. Despite the capping of weekly work hours for the trainees, they are still concerned about the long and inflexible hours that they might experience should they choose to pursue a career in the construction/infrastructure sector upon completion of their traineeship. A better understanding of how and why the trainees develop the perception that maintaining a satisfactory life balance will be a problem in the construction/infrastructure sector is needed. The follow-up interviews will explore the source of these perceptions. However, it is possible that the trainees make these assessments based upon what they are observing in the work contexts within which they are undertaking their placements. That is, the trainees may be being socialised into the construction industry's cultural expectations that people will work long hours before they have been required or expected to do so themselves.

The results also suggest that organisation type plays a role in shaping the perception that life balance is not easily attainable in the construction/infrastructure sector. Participants who indicated they spent their first rotation period working within a construction contracting organisation had reported significantly lower levels of life balance during this rotation than those placed with a government organisation. Among the three organisational types, participants

whose first rotation placement was spent with a construction contractor organisation had the highest perception that having a job characterised by a reasonable workload, hours that don't interfere with non-work roles and interests (e.g., family and social) and that give them some control over their work time was important, but the lowest belief that a career construction/infrastructure would provide these things.

The findings suggest that the Culture Standard's emphasis on providing time for life and providing flexible work options are important in relation to improving the construction/infrastructure industry's ability to attract and retain young workers, irrespective of their gender.

5.4 Factors related to pursuing a career in construction/infrastructure

The correlational analysis showed that commitment to a career in construction is associated with career satisfaction for trainees. Career satisfaction is associated with career success, attaining career goals, meeting goals of career advancement, and development of new skills. Organisations taking on trainees might usefully consider how they support this in the 2022-2023 cohort with a focus on career development, progressive learning, and career pathways.

Inclusion and fairness (diversity climate) both positively correlated with commitment to a career in construction/infrastructure. Organisations which have employee trainees should focus on practices which enable inclusion and fairness, which is consistent with the intentions of the Culture Standard.

Career satisfaction, perceptions of an inclusive work environment and work hours that are similar to what is preferred all predict trainees' decision to stay in construction/infrastructure beyond the duration of the traineeship. However, most participants indicated their hours are currently consistent with their preferred hours. It is noted that currently trainees are advised not to work more than 37.5 hours a week (unless pre-agreed with the employer). This is lower than industry averages reported for both project and office-based roles (Lingard & Francis, 2004). It may not be possible for trainees to work 37.5 hours per week on completion of the traineeship program if they continue to work in the construction/infrastructure industry.

5.5 Other reflections

The qualitative comments made by participants reflected the value of the traineeship program. Participants reflected on the positive experience of the first rotation, stating that it was important in shaping their career direction and provided an opportunity to learn and develop skills and knowledge from industry professionals. In addition to skill development, there was also a sense that the traineeship program had provided participants with an opportunity to learn about construction/infrastructure more broadly and this had greatly assisted them with important career planning decisions.

The qualitative comments made by participants identified several other important themes that reflect cultural characteristics of work in construction and characteristics that may not be appealing to potential entrants. For example, participants identified stigma associated with working in construction, specifically referring to the perception that the construction workforce is ill-educated. One participant commented on preferring to have a work environment characterised by respectful interactions between managers and subordinates. Job security was raised as a

concern by one female trainee who had spent the first rotation with a construction contracting organisation. Given the limited experience of the trainees it is interesting that they are already picking up on concerns about low levels of job security which they have yet to experience in the sector. The expectation that jobs in the sector will be characterised by insecurity may come from interactions with others during their placement period. One particularly lengthy comment reflected the view that construction is a stressful industry in which problems and difficulties associated with project delivery are inherent to work, which can impact the mental wellbeing and sense of achievement of workers engaged in project delivery. This perception speaks to the broader contextual challenges faced by the construction industry and the systemic nature of some of the project-level challenges that impact work time, mental health and wellbeing in the sector.

Part 6: Next steps

Data collection will occur at three further stages at the Infrastructure Traineeship Program:

1. Conduct interviews with trainees from the 2021-2022 trainee cohort. Interviews are scheduled to commence in March 2022 and will explore trainees experience of the program and how it has shaped perceptions and intention of working in construction/infrastructure. Some of the key findings from the survey (presented in this report) will be explored.
2. Re-administer the survey with the 2021-2022 trainee cohort in June 2022. The survey will be comprised of similar questions as outlined in this report, subject to minor review based on the first survey administration.
3. Administer the survey with the 2022-2023 trainee cohorts in June 2022. The survey will be comprised of similar questions as outlined in this report, subject to minor review based on the first survey administration.
4. Re-administer the survey with the 2021-2022 and 2022-2023 trainee cohorts in December 2022. The survey will be comprised of similar questions as outlined in this report, subject to minor review based on the first and second survey administrations.

Part 7: References

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Part 8: Appendices

8.1 Measurement scales and items

Table 8.1: Questions and related answers of item(s) of each variable

Variable	Question (item)	Answer	Reference
Career satisfaction	I am satisfied with the success I have achieved.	1 = Strongly disagree 2 = Disagree 3 = Neither agree nor disagree 4 = Agree 5 = Strongly agree	(Greenhaus et al., 1990, in Nauman et al 2021)
	I am satisfied with the progress I have made toward meeting my overall career goals.		
	I am satisfied with the progress I have made toward meeting my goals for income.		
	I am satisfied with the progress I have made toward meeting my goals for advancement.		
	I am satisfied with the progress I have made toward meeting my goals for the development of new skills.		
Career commitment	If I had all the money I needed, I would probably still continue working in construction/infrastructure	1 = Strongly disagree 2 = Disagree 3 = Neither agree nor disagree 4 = Agree 5 = Strongly agree	Blau (1985)
	If I could do it all over again, I would not choose to work in construction/infrastructure (Reverse scored)		
	I definitely want a career in construction/infrastructure		
	I like working in construction/infrastructure too much to give it up		
	Working in construction/infrastructure offers the ideal career for me		
Organisational fairness	I feel I have been treated differently here because of my race, sex, religion, or age (reverse scored)	1 = Strongly disagree 2 = Disagree 3 = Neither agree nor disagree 4 = Agree 5 = Strongly agree	Mor Barak, Cherin, & Berkman (1998)
	This organisation hires and promotes employees objectively, regardless of their race, sex, religion, or age		
	Employees here are evaluated and given feedback fairly, regardless of their race, sex, religion, or age		

Variable	Question (item)	Answer	Reference
	Layoff decisions are made fairly here, regardless of employees' race, sex, religion, or age		
	This organisation implements human resource policies (such as sick leave) fairly for all employees		
	At this organisation employees are given work tasks based on their skills and abilities		
Organisational inclusion	This organisation encourages the formation of employee network support groups	1 = Strongly disagree 2 = Disagree 3 = Neither agree nor disagree 4 = Agree 5 = Strongly agree	Mor Barak, Cherin, & Berkman (1998)
	There is a mentoring program in use here that identifies and prepares all minority and female employees for promotion		
	This organisation spends enough money and time on diversity awareness and related training		
Life balance	At my 1st rotation in the traineeship program, my work schedule left me enough time for my personal/family life?	1 = Strongly disagree 2 = Disagree 3 = Neither agree nor disagree 4 = Agree 5 = Strongly agree	
Work hour preferences	If you could choose the number of hours you normally work, would you prefer to work:	1= fewer hours 2 = about the same 3 = more hours	

Internal consistency reliability of multi-item scales used in the survey

When analysing data collected using psychometric scales, the first step of the analysis is to check the internal consistency reliability of those variables. Internal consistency reliability is a measure of the correlations between different items related to a particular variable. It measures whether several items (questions) that are intended to measure the same general construct produce similar scores.

The most common measure of internal consistency reliability is Cronbach's alpha coefficient. A Cronbach alpha coefficient between 0.7 and 0.8 is acceptable, between 0.8 and 0.9 is good and greater than 0.9 is excellent.

The Cronbach alpha coefficients reflect good internal consistency reliability for the constructs of career satisfaction (Cronbach's alpha = 0.864) and career commitment (Cronbach's alpha = 0.871), acceptable internal consistency reliability for the constructs of organisational fairness (Cronbach's alpha = 0.793) and inclusion (Cronbach's alpha=0.712). The assessment of internal consistency reliability was not performed for career choice decision, life balance, and work hour preferences because these were measured using a single item.

8.2 Importance and availability of job characteristics for all respondents

Table 8.2: Participants' rating of importance of job characteristics when choosing a career and their availability in construction/infrastructure

Job characteristic	Importance when choosing a career (% of respondents)			Availability in a construction/infrastructure career (% of respondents)		
	Very	Quite	Not	Definitely	Might	Might not
3. Pleasant working environment	85	15	0	51	49	0
1. A job that I will find enjoyable	82	18	0	54	43	3
2. Colleagues that I can get along with	82	18	0	63	37	0
20. A job that enables me to have a healthy lifestyle	82	18	0	44	56	0
4. A secure job	79	21	0	66	34	0
11. A job where I gain transferable skills	79	19	1	70	30	0
17. A job with gender diversity and fair treatment	79	19	1	43	57	0
13. Reasonable workload	73	27	0	55	40	4
23. A job that doesn't take me away from family for long durations	72	22	6	37	58	4
18. A job that gives me some control over my work time	69	31	0	33	63	4
19. A job with hours that don't interfere with my non-work roles and interests (e.g. family and social)	69	31	0	31	67	1
9. A job where I will contribute to society	66	30	4	76	22	1
7. A job which gives me responsibility	64	33	3	72	28	0
12. A job that is respected	64	33	3	70	30	0
15. Job mobility—easy to get a job anywhere	64	33	3	52	46	1
14. A job with high quality resources and equipment	63	33	4	61	39	0
8. High earnings over length of career	60	39	1	57	43	0
22. A job in an industry which has a good reputation and image	60	37	3	58	40	1

Job characteristic	Importance when choosing a career (% of respondents)			Availability in a construction/infrastructure career (% of respondents)		
	Very	Quite	Not	Definitely	Might	Might not
6. Good promotion prospects	55	42	3	55	45	0
5. A career that provides intellectual challenge	54	45	1	64	36	0
24. A job that gives me some control over where I do my work	54	42	4	30	67	3
21. A job where I have access to mentoring	52	45	3	52	48	0
10. A job where I can use my certificate 3/4 which I am studying for now	39	54	7	60	40	0
16. A job that can easily be combined with parenthood	33	52	15	28	70	1

- Sample size n = 67
- Data sorted from the most to the least important job characteristics in choosing a career.
- Job characteristics have been numbered and used throughout the findings section to enable ease of cross-referencing.

8.3 Importance and availability of job characteristics by gender (score)

Table 8.3: Male and female participants' rating of importance of job characteristics when choosing a career and their availability in construction/infrastructure

Job characteristic	Importance when choosing a career (score out of 100)		Availability in a construction/infrastructure career (score out of 100)	
	Female	Male	Female	Male
1. A job that I will find enjoyable	93	89	72	80
2. Colleagues that I can get along with	91	92	82	81
3. Pleasant working environment	94	92	78	73
4. A secure job	94	86	81	86
5. A career that provides intellectual challenge	78	75	79	86
6. Good promotion prospects	76	77	74	83
7. A job which gives me responsibility	84	78	82	91
8. High earnings over length of career	79	80	76	81
9. A job where I will contribute to society	84	78	85	91
10. A job where I can use my certificate 3/4 which I am studying for now	71	63	79	81
11. A job where I gain transferable skills	94	86	85	86
12. A job that is respected	84	80	85	86
13. Reasonable workload	90	84	78	73
14. A job with high quality resources and equipment	79	81	77	84
15. Job mobility—easy to get a job anywhere	82	78	74	78
16. A job that can easily be combined with parenthood	51	69	65	63
17. A job with gender diversity and fair treatment	96	83	71	73
18. A job that gives me some control over my work time	87	81	68	61
19. A job with hours that don't interfere with my non-work roles and interests (e.g. family and social)	84	84	66	64
20. A job that enables me to have a healthy lifestyle	94	89	74	71
21. A job where I have access to mentoring	78	73	79	73

Job characteristic	Importance when choosing a career (score out of 100)		Availability in a construction/infrastructure career (score out of 100)	
	Female	Male	Female	Male
22. A job in an industry which has a good reputation and image	84	75	78	80
23. A job that doesn't take me away from family for long durations	87	78	71	63
24. A job that gives me some control over where I do my work	76	72	65	63

- Female trainees n = 34, male trainees n = 32.
- For ratings of the importance of job characteristics when choosing a career: very = 100, quite = 50, not = 0; for ratings of extent to which respondents think a career in construction/infrastructure will offer these characteristics: definitely = 100, might = 50, might not = 0

8.4 Importance and availability of job characteristics by gender (t-test)

Table 8.4: Comparison of mean importance and availability scores in relation to gender

Job characteristic	Importance when choosing a career			Available in a construction/ infrastructure career		
	p-value	MDif	t-value	p-value	MDif	t-value
1. A job that I will find enjoyable	0.458	3.6	0.746	0.273	-7.6	-1.105
2. Colleagues that I can get along with	0.829	-1.0	-0.217	0.855	1.1	0.183
3. Pleasant working environment	0.654	1.9	0.450	0.472	4.5	0.724
4. A secure job	0.102	8.2	1.664	0.392	-5.1	-0.862
5. A career that provides intellectual challenge	0.657	2.9	0.446	0.272	-6.5	-1.109
6. Good promotion prospects	0.990	-0.1	-0.013	0.133	-9.3	-1.522
7. A job which gives me responsibility	0.403	5.7	0.842	0.133	-8.3	-1.521
8. High earnings over length of career	0.966	-0.3	-0.042	0.440	-4.8	-0.777
9. A job where I will contribute to society	0.431	5.7	0.794	0.357	-5.3	-0.928
10. A job where I can use my certificate 3/4 which I am studying for now	0.269	8.1	1.114	0.764	-1.8	-0.301
11. A job where I gain transferable skills	0.102	8.2	1.664	0.910	-0.6	-0.114
12. A job that is respected	0.519	4.1	0.649	0.910	-0.6	-0.114
13. Reasonable workload	0.330	5.3	0.982	0.538	4.5	0.619
14. A job with high quality resources and equipment	0.789	-1.8	-0.269	0.245	-7.1	-1.172
15. Job mobility—easy to get a job anywhere	0.538	4.2	0.620	0.488	-4.6	-0.697
16. A job that can easily be combined with parenthood	0.033	-17.3	-2.182	0.713	2.2	0.369
17. A job with gender diversity and fair treatment	0.023	12.8	2.359	0.647	-2.8	-0.460
18. A job that gives me some control over my work time	0.344	5.5	0.953	0.324	6.7	0.994

Job characteristic	Importance when choosing a career			Available in a construction/ infrastructure career		
	p-value	MDif	t-value	p-value	MDif	t-value
19. A job with hours that don't interfere with my non-work roles and interests (eg. family and social)	0.925	-0.6	-0.095	0.732	2.1	0.343
20. A job that enables me to have a healthy lifestyle	0.282	5.1	1.087	0.684	2.6	0.409
21. A job where I have access to mentoring	0.497	4.5	0.683	0.339	6.0	0.964
22. A job in an industry which has a good reputation and image	0.175	8.8	1.373	0.791	-1.7	-0.267
23. A job that doesn't take me away from family for long durations	0.241	8.6	1.183	0.247	8.1	1.168
24. A job that gives me some control over where I do my work	0.530	4.6	0.632	0.730	2.2	0.347

- MDif: mean difference between rating scores of female respondents and male respondents
- A significant difference is denoted by a p value less than 0.05
- Female respondents (N = 34) and male respondents (N = 32)

8.5 Importance and availability of job characteristics by organisation type (score)

Table 8.5: Rating of importance of job characteristics when choosing a career and their availability in construction/infrastructure by organisation type in first rotation

Job characteristic	Importance when choosing a career			Availability in a construction/infrastructure career		
	GOV	CONSULT	CONSTR	GOV	CONSULT	CONSTR
1. A job that I will find enjoyable	91	86	94	77	79	72
2. Colleagues that I can get along with	91	93	90	84	82	78
3. Pleasant working environment	95	86	94	82	75	68
4. A secure job	89	89	90	89	82	76
5. A career that provides intellectual challenge	71	75	82	80	82	84
6. Good promotion prospects	73	86	74	77	89	72
7. A job which gives me responsibility	77	71	90	88	93	80
8. High earnings over length of career	79	86	76	79	86	74
9. A job where I will contribute to society	77	86	82	91	89	82
10. A job where I can use my certificate 3/4 which I am studying for now	66	68	64	88	75	74
11. A job where I gain transferable skills	88	89	90	86	82	86
12. A job that is respected	75	82	86	93	86	76
13. Reasonable workload	79	89	94	79	79	70
14. A job with high quality resources and equipment	77	82	80	77	88	80
15. Job mobility—easy to get a job anywhere	77	71	90	79	82	68
16. A job that can easily be combined with parenthood	52	57	68	68	61	60
17. A job with gender diversity and fair treatment	86	79	98	75	75	66

Job characteristic	Importance when choosing a career			Availability in a construction/infrastructure career		
	GOV	CONSULT	CONSTR	GOV	CONSULT	CONSTR
18. A job that gives me some control over my work time	84	82	86	70	68	56
19. A job with hours that don't interfere with my non-work roles and interests (eg. family and social)	84	82	86	68	68	60
20. A job that enables me to have a healthy lifestyle	93	93	88	77	79	63
21. A job where I have access to mentoring	77	75	72	77	75	76
22. A job in an industry which has a good reputation and image	80	68	82	82	82	72
23. A job that doesn't take me away from family for long durations	86	68	88	73	68	58
24. A job that gives me some control over where I do my work	75	68	78	66	64	60

Government n = 28, consultant organisation n = 14, construction partner n = 25.

8.6 Importance and availability of job characteristics by career intention

Table 8.6: Mean importance and availability responses for respondents who have decided to pursue a career in construction/infrastructure and those who are undecided or who have decided definitely not to pursue a career in construction/infrastructure

Job characteristic	Importance when choosing a career		Availability in a construction/infrastructure career	
	<i>Definitely want to pursue a career in C/I industry</i>	<i>Undecided or definitely do not want to pursue a career in C/I industry</i>	<i>Definitely want to pursue a career in C/I industry</i>	<i>Undecided or definitely do not want to pursue a career in C/I industry</i>
1. A job that I will find enjoyable	86	94	95	66
2. Colleagues that I can get along with	86	93	91	77
3. Pleasant working environment	93	92	86	70
4. A secure job	86	91	93	77
5. A career that provides intellectual challenge	82	73	89	78
6. Good promotion prospects	77	75	84	74
7. A job which gives me responsibility	84	78	95	81
8. High earnings over length of career	77	80	77	80
9. A job where I will contribute to society	89	76	93	84
10. A job where I can use my certificate 3/4 which I am studying for now	73	63	84	78
11. A job where I gain transferable skills	93	86	93	81
12. A job that is respected	86	78	98	80
13. Reasonable workload	86	86	82	73
14. A job with high quality resources and equipment	84	77	88	77
15. Job mobility—easy to get a job anywhere	70	86	82	72
16. A job that can easily be combined with parenthood	59	58	68	61
17. A job with gender diversity and fair treatment	91	88	77	69
18. A job that gives me some control over my work time	82	86	75	59

Job characteristic	Importance when choosing a career		Availability in a construction/infrastructure career	
	<i>Definitely want to pursue a career in C/I industry</i>	<i>Undecided or definitely do not want to pursue a career in C/I industry</i>	<i>Definitely want to pursue a career in C/I industry</i>	<i>Undecided or definitely do not want to pursue a career in C/I industry</i>
19. A job with hours that don't interfere with my non-work roles and interests (eg. family and social)	80	88	73	61
20. A job that enables me to have a healthy lifestyle	93	91	84	66
21. A job where I have access to mentoring	82	70	80	74
22. A job in an industry which has a good reputation and image	84	76	89	74
23. A job that doesn't take me away from family for long durations	82	84	75	64
24. A job that gives me some control over where I do my work	66	81	70	60

"Yes": Respondents who decided to work in construction/infrastructure (n = 22).

"No/Maybe": Respondents who decided not to work in construction/infrastructure or have not decided yet (n = 44).

8.7 Importance and availability of job characteristics by career intention (t-test)

Table 8.7: Statistical comparison of mean importance and availability scores according to respondents' stated career decision regarding pursuit of a career in construction/infrastructure

Job characteristic	Importance when choosing a career			Availability in a construction/infrastructure career		
	p-value	MDif	t-value	p-value	MDif	t-value
1. A job that I will find enjoyable	0.153	-8.0	-1.465	0.001	29.5	5.610
2. Colleagues that I can get along with	0.225	-6.8	-1.235	0.020	13.6	2.406
3. Pleasant working environment	0.812	1.1	0.239	0.013	15.9	2.592
4. A secure job	0.402	-4.5	-0.843	0.004	15.9	2.983
5. A career that provides intellectual challenge	0.194	9.1	1.313	0.091	10.2	1.724
6. Good promotion prospects	0.759	2.3	0.308	0.114	10.2	1.610
7. A job which gives me responsibility	0.434	5.7	0.787	0.003	14.8	3.039
8. High earnings over length of career	0.744	-2.3	-0.327	0.730	-2.3	-0.347
9. A job where I will contribute to society	0.063	12.5	1.899	0.098	9.1	1.680
10. A job where I can use my certificate 3/4 which I am studying for now	0.203	10.2	1.287	0.381	5.7	0.882
11. A job where I gain transferable skills	0.204	6.8	1.284	0.021	12.5	2.371
12. A job that is respected	0.270	8.0	1.114	0.001	18.2	4.147
13. Reasonable workload	1.000	0.0	0.000	0.239	9.1	1.188
14. A job with high quality resources and equipment	0.373	6.8	0.897	0.082	10.8	1.777
15. Job mobility—easy to get a job anywhere	0.025	-15.9	-2.295	0.143	10.2	1.482
16. A job that can easily be combined with parenthood	0.898	1.1	0.129	0.335	6.8	0.978
17. A job with gender diversity and fair treatment	0.572	3.4	0.568	0.226	8.0	1.223

Job characteristic	Importance when choosing a career			Availability in a construction/infrastructure career		
	p-value	MDif	t-value	p-value	MDif	t-value
18. A job that gives me some control over my work time	0.456	-4.5	-0.749	0.038	15.9	2.155
19. A job with hours that don't interfere with my non-work roles and interests (eg. family and social)	0.214	-8.0	-1.263	0.079	11.4	1.787
20. A job that enables me to have a healthy lifestyle	0.647	2.3	0.461	0.006	17.8	2.861
21. A job where I have access to mentoring	0.122	11.4	1.568	0.392	5.7	0.862
22. A job in an industry which has a good reputation and image	0.244	8.0	1.178	0.020	14.8	2.395
23. A job that doesn't take me away from family for long durations	0.771	-2.3	-0.293	0.108	11.4	1.631
24. A job that gives me some control over where I do my work	0.043	-14.8	-2.066	0.128	10.2	1.544

- MDif: mean difference between rating scores of respondents who decided to work in construction/infrastructure and respondents who decided not to work in this sector or were undecided
- A significant difference is denoted by a p value less than 0.05
- Respondents who decided to work in construction/infrastructure (N = 22) and respondents who decided not to work in this sector or were undecided (N = 44)

8.8 Comparison of mean scores of discriminating variables by gender (t-test)

Table 8.8: Comparison of mean scores of variables by gender grouping

Variable	Gender	Mean score	Standard deviation	t-value	p-value
Career commitment	Female (N=33)	3.37	0.86	-2.161	0.034*
	Male (N=33)	3.78	0.65		
Career satisfaction	Female (N=34)	4.00	0.77	-0.615	0.541
	Male (N=33)	4.10	0.59		
Organisational fairness	Female (N=34)	4.07	0.62	-0.894	0.375
	Male (N=31)	4.22	0.65		
Organisational inclusion	Female (N=34)	3.82	0.70	-0.154	0.878
	Male (N=31)	3.85	0.66		
Life balance	Female (N=34)	3.94	0.95	-1.396	0.084
	Male (N=30)	4.27	0.91		
Work hour preferences	Female (N=34)	1.79	0.41	-0.360	0.360
	Male (N=30)	1.83	0.46		

* Correlation is significant at the 0.05 level (2-tailed)

8.9 Career variables, diversity climate and life balance by organisation type (AVOVA)

Table 8.9: Comparison of mean scores for career variables, diversity climate and life balance by organisation type

Variable	Type of organisation	Mean score	Standard deviation	F-ratio	p-value
Career commitment	GOV (N=28)	4.05	0.72	0.506	0.605
	CONSULT (N=14)	3.64	0.58		
	CONSTR (N=25)	3.43	0.95		
Career satisfaction	GOV (N=29)	4.01	0.66	0.208	0.813
	CONSULT (N=14)	4.00	0.73		
	CONSTR (25)	4.12	0.70		
Organisational fairness	GOV (N=27)	4.33	0.53	1.851	0.166
	CONSULT (N=14)	4.04	0.62		
	CONSTR (N=25)	4.02	0.72		
Organisational inclusion	GOV (N=27)	3.85	0.69	0.224	0.800
	CONSULT (N=14)	3.71	0.54		
	CONSTR (N=25)	3.85	0.75		
Life balance	GOV (N=26)	4.46	0.76	6.037	0.004**
	CONSULT (N=14)	4.29	0.83		
	CONSTR (N=25)	3.64	1.00		

Variable	Type of organisation	Mean score	Standard deviation	F-ratio	p-value
Work hours preference	GOV (N=26)	1.81	0.40	0.077	0.926
	CONSULT (N=14)	1.79	0.43		
	CONSTR (N=25)	1.84	0.47		

** Correlation is significant at the 0.01 level (2-tailed)

8.10 Bivariate correlations between variables

Table 8.10: Bivariate correlations between variables

Variable		CS	OF	OI	LB	WHP	CC
Career satisfaction (CS)	Pearson Correlation	1					
	Sig. (2-tailed)						
Organisational fairness (OF)	Pearson Correlation	0.412**	1				
	Sig. (2-tailed)	<0.001					
Organisational inclusion (OI)	Pearson Correlation	0.620**	0.525**	1			
	Sig. (2-tailed)	<0.001	<0.001				
Life balance (LB)	Pearson Correlation	0.227	0.310*	0.236	1		
	Sig. (2-tailed)	0.074	0.014	0.062			
Work hour preferences (WHP)	Pearson Correlation	0.181	0.100	0.244	0.268*	1	
	Sig. (2-tailed)	0.155	0.435	0.054	0.034		
Career commitment (CC)	Pearson Correlation	0.475**	0.251*	0.275*	0.233	0.187	1
	Sig. (2-tailed)	<0.001	0.047	0.029	0.066	0.142	

* Correlation is significant at the 0.05 level (2-tailed); ** Correlation is significant at the 0.01 level (2-tailed)

8.11 Comparison of mean scores of discriminating variables by career intention grouping (t-test)

Table 8.11: Comparison of mean scores of discriminating variables by career choice grouping

Variable	Career in construction/infrastructure				t-value	p-value
	Yes (N=23)		No/Undecided (N=40)			
	M	SD	M	SD		
Career satisfaction	4.36	0.61	3.87	0.68	2.862	0.006**
Organisational fairness	4.33	0.58	4.03	0.66	1.804	0.076
Organisational inclusion	4.07	0.53	3.67	0.73	2.326	0.023*
Life balance	4.39	0.89	3.95	0.96	1.803	0.076
Work hour preferences	1.96	0.21	1.70	0.46	3.008	0.004**

* Correlation is significant at the 0.05 level (2-tailed); ** Correlation is significant at the 0.01 level (2-tailed)

8.12 Classification matrix for discriminant analysis

Table 8.12: Classification matrix for discriminant analysis

Actual group	Observation	Predicted group	
		Decision 1 (Yes)	Decision 2 (No/undecided)
Decision 1 (Yes)	23	11 (47.8%)	12 (52.2%)
Decision 2 (No/Undecided)	40	7 (17.5%)	33 (82.5%)