

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) — a collective initiated by the Australian Constructors Association and 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 Culture Standard to address three major issues impacting the construction industry's performance and sustainability: 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. This report outlines the findings from a study which explores the experiences 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 private and public sector infrastructure construction organisations.

This report draws on data collected during the second and third waves and has been analysed in the following way:

- Trainees in their second rotation. Data was drawn from the June-July survey for the 2021-2022 cohort, and the November-December survey for the 2022-2023 cohort.
- Trainees in their third rotation (2021-2022 cohort) who completed the survey in November-December 2022.
- All trainees who completed the survey in November-December 2022 (rotation three from the 2021-2022 cohort and rotation two from the 2022-2023 cohort).

The results showed that job characteristics considered important and the perceived availability of them in infrastructure construction differed significantly for trainees according to their intention to pursue a career in infrastructure construction. In particular, trainees who are undecided and/or who have decided not to pursue a career in infrastructure construction had significantly lower expectations that a career in infrastructure construction would provide them with enjoyable work, a pleasant working environment, gender diversity and fair treatment, control over work time, a job that doesn't interfere with family and social life, a job that can easily be combined with parenthood, a job that doesn't take them away from family for long durations, and a job that permits them to lead a healthy lifestyle. Many of these job characteristics reflect aspects of the social and cultural environment within which work takes place and are issues that are directly addressed by the Culture Standard, e.g. health and wellbeing, time for life, and gender diversity.

Those trainees who were undecided about a career in infrastructure construction indicated that changes would need to be made to the sector in order for them to change their minds: an improved experience in terms of mentoring, support and development opportunities; work hours which enabled time for life; work location flexibility; respectful workplace relationships; and a more inclusive and fair work environment.

The results showed that trainees who were more satisfied with career development opportunities, who perceived higher levels of fairness and inclusion and who experienced a better life balance were significantly more likely to indicate an intention to pursue a career in infrastructure construction on completion of the traineeship.

Trainees who were completing their third and final rotation were asked to identify the organisation type they preferred to work in based on their experience of the three rotations. 37% of trainees preferred the construction organisation placement, 30% preferred the consultant organisation placement, and 28% preferred the government organisation placement. Irrespective of rotation preference, trainees indicated that preferences were shaped by the extent to which they had a supportive supervisor and were given a wide variety of learning opportunities on a particular rotation setting. A key difference was found for working in a construction organisation in which trainees indicated a preference for a 'hands-on' rather than an exclusively desk-based work experience.

The remainder of the report is structured as follows:

Part 2: The introduction outlines the aim of the study and provides context in relation to the Infrastructure Traineeship Program.

Part 3: The research method is outlined including sampling and a description of the survey instrument is provided.

Part 4: Survey findings are presented for trainees in their second rotation.

Part 5: Survey findings are presented for trainees in their third rotation.

Part 6: Qualitative data from the survey is presented which focuses on reflection and experiences of working in construction from trainees who completed the survey in November-December 2022 (rotation three from the 2021-2022 cohort and rotation two from the 2022-2023 cohort).

Part 7: 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 infrastructure construction are outlined, as are reflections of expectations and experiences of trainees on working in infrastructure construction in the future.

Part 8: References cited in the report are listed.

Part 9: The appendices include outputs from statistical analysis of the survey data.

Part 2: Introduction

2.1 The Culture in Construction initiative

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

- Long working hours
- Lack of diversity, and
- Wellbeing (Culture in Construction, 2021, p.8).

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

One objective of the CICT is to improve the Australian construction industry's ability to attract suitable entry-level workers.

2.2 Aim and objectives

This report describes research that was undertaken to:

- explore young workers' perceptions about working in infrastructure construction, and
- examine the factors that are likely to influence the career choices of potential new entrants to the sector.

Data were collected from two different cohorts of trainees enrolled in the NSW Government Infrastructure Traineeship Program (the Program). The Program comprises a two-year paid traineeship for school leavers, providing them with the opportunity to work in the infrastructure construction industry and engage in vocational education. During the course of the Program, trainees participate in three office-based work placements, rotating between different types of organisation operating in the infrastructure construction sector, i.e., government agencies (clients), construction contracting organisations (constructors) and consulting organisations (e.g. design firms). Each rotation is undertaken for eight months. While working in the infrastructure construction sector trainees also study towards a nationally accredited vocational education qualification in one of the following areas: Business; Project Management Practice; Procurement and Contracting; or Surveying.

Specifically, the research sought to explore the factors that influence trainees' career choices and, in particular, the decision of whether or not to pursue a career in infrastructure construction on completion of the Program. Research objectives were to:

- identify the factors that the trainees consider to be important in selecting a job/career,
- understand the extent to which trainees believe that job characteristics important to them would be available if they pursued a career in the construction industry,
- compare and contrast the job-related factors that are important to men and women participating in the traineeship program,
- explore the career choice intentions of trainees following their work placement, i.e., upon completion of the second and/or third job rotations in the trainee program, and

- identify the extent to which trainees' experiences during their second or third periods of work placement shape their stated career choice intentions.

Studying the experiences of trainees is important because engaging in work experience allows young people – with little or no experiential knowledge - to try a job out and determine whether they like it or not (Taylor, 2005). Further, the quality of workplace internships/placements has been linked to young workers' career decision-making (Gamboa et al. 2013).

The research findings will be used to inform the refinement of the construction industry Culture Standard to ensure it addresses the key issues likely to influence young workers' career choices in relation to infrastructure construction.

Part 3: Method

3.1 Data presented in this report

This report presents the findings of a survey conducted with trainees participating in the Infrastructure Traineeship Program in the 2021-2022 and 2022-2023 cohorts. Quantitative (survey) data are presented from both cohorts.

The survey data presented in this report combines the experiences of both cohorts in relation to their *second rotation* in order to provide a larger sample size and enable multivariate statistical analysis to be conducted (Part 4 of the report).

Additional analysis of the 2021-2022 cohort members' experiences of their *third rotation* is presented in Part 5 of the report.

Qualitative data from the survey is presented in part 6 of the report and focuses on reflection and experiences of working in construction from all *trainees who completed the survey in November-December 2022* (rotation three from the 2021-2022 cohort and rotation two from the 2022-2023 cohort).

3.2 Sample

All trainees participating in the 2021-2022 and 2022-2023 Infrastructure Traineeship Program cohorts were invited to complete an online survey during November and December 2022. The survey was distributed to trainees by their employer (a Group Training Organisation). Participation was voluntary and anonymous. At the time of survey administration there were 72 trainees in the 2021-2022 cohort and 85 trainees in the 2022-2023 cohort.

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

Survey scales and items are outlined in Appendix 9.1.

Part 4: Findings – second rotation

4.1 Sample demographic data and work hours

In the following analysis, responses from two groups of trainees (2021-2022 and 2022-2023 cohorts) undertaking their second rotation were combined resulting in a sample of 105 responses comprising:

- 59 trainees from the 2021-2022 cohort with a response rate of 74% (N=80)
- 46 trainees from the 2022-2023 cohort with a response rate of 54% (N=85)

Gender: 48 (45.7%) respondents are women, 55 (52.4%) are men, and two (1.9%) preferred not to indicate their gender.

Age: Respondents' age ranged from 19 years to 22 years. The mean age of respondents was 20.5 years.

Aboriginal and/or Torres Strait Islander: Four (3.8%) respondents indicated they are Aboriginal and/or Torres Strait Islander, and 101 (96.2%) indicated they are not.

Area of study: 76 (72.4%) respondents were studying project management, 13 (12.4%) are studying procurement and contracting, 11 (10.5%) are studying business, and 5 (4.8%) did not specify their area of study.

Organisation type: During their second rotation, 37 (35.2%) respondents were hosted by a government organisation, 27 (25.7%) by a consultant organisation, 40 (38.1%) by a construction organisation. One respondent (1%) did not specify any organisation type.

Working hours: Respondents were asked how many hours they worked including paid and unpaid overtime. 4 (3.8%) respondents worked less than 37 hours, 85 (81%) worked 37-40 hours, 5 (4.8%) worked more than 41 hours, and 11 (10.5%) didn't specify.¹

Preferred working hours: Respondents were asked to nominate the number of hours they preferred to work. 69 (65.7%) respondents indicated preferring to work about the same number of hours they did during their rotation, 19 (18.1%) preferred to work fewer hours, 6 (5.7%) indicated a preference to work more hours, and 11 (10.5%) did not specify.

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.

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

All respondents

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

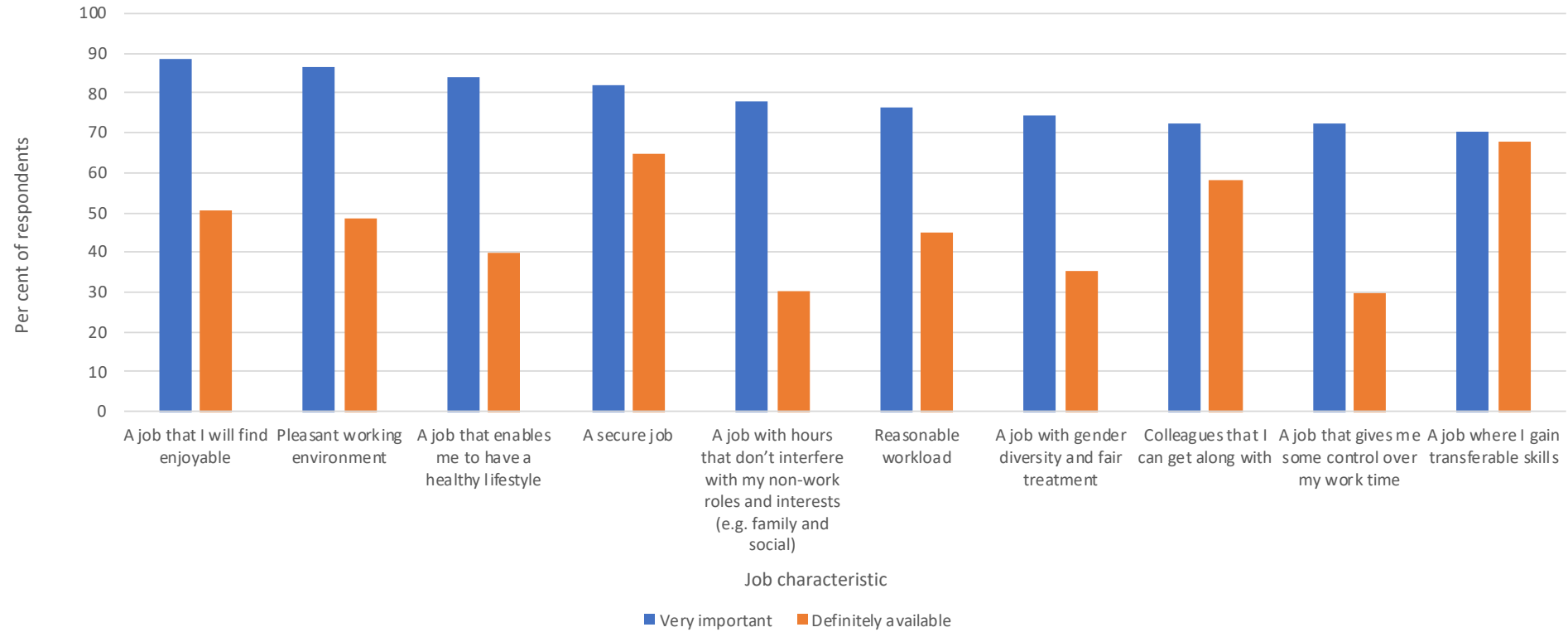
The percentage of respondents who indicated that the importance of each job characteristic is either very, quite or not important, as well as the percentage who indicated that they believe these job characteristics would definitely be, might be or would not be offered by a career in infrastructure construction are provided in Appendix 9.2. For most of the job characteristics, the percentage of respondents indicating a belief that these job characteristics would definitely be offered by a career in infrastructure construction 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 favourable job characteristics are very important in selecting a career and would be available in a career in infrastructure construction.

The job characteristics most frequently identified by the respondents as being very important when choosing a career were: having a job that is enjoyable (89%); having a pleasant working environment (87%); having a job that enables them to have a healthy life style (84%); having a secure job (82%); a job with hours that don't interfere with their non-work roles and interests (e.g. family and social) (79%); having a reasonable workload (76%); having a job with gender diversity and fair treatment (74%); having colleagues that they can get along with (72%); having a job that gives them some control over their work time (72%); and having a job where they gain transferable skills (71%).

A relatively low percentage of respondents believed that a career in infrastructure construction would definitely offer a job that can be combined with parenthood (26%); a job that gives them some control over their work time (30%); a job that doesn't take them away from family for long durations (30%); a job with hours that don't interfere with their non-work roles and interests (e.g. family and social) (31%); a job that gives them some control over where they do their work (32%); a job with gender diversity and fair treatment (35%); and a job that enables them to have a healthy lifestyle (40%).

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 infrastructure construction (The chart includes the job characteristics most frequently identified by the respondents as being very important)



Gender

A mean score was calculated for women and men who completed the survey, reflecting their ratings of the importance of job characteristics when choosing a career and the extent to which they think a career in infrastructure construction 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 for each of the 24 job characteristics (as rated by women and men who completed the survey) are shown in Appendix 9.3.

Job characteristics that were most important for women when choosing a career were: a job that they will find enjoyable; a pleasant working environment; a job that enables them to have a healthy lifestyle; a job with gender diversity and fair treatment; a job with hours that don't interfere with their non-work roles and interests (e.g. family and social); having a secure job; a reasonable workload; and having colleagues that they can get along with.

Job characteristics that were most important for men in choosing a career were: a job that they will find enjoyable; having a pleasant working environment; a secure job; a job that enables them to have a healthy lifestyle; a job with hours that don't interfere with their non-work roles and interests (e.g. family and social); and a reasonable workload.

The mean importance and availability scores for women and men are provided in Figure 4.2 and Figure 4.3 respectively.

The gap between how important a job characteristic is and what women believe the infrastructure construction industry offers is greatest for the job characteristics of: hours that don't interfere with non-work roles and interests; gender diversity and fair treatment; control over their work time; a job that enables them to have a healthy lifestyle; having an enjoyable job; and having a pleasant working environment.

The gap between how important a job characteristic is and what men perceive the infrastructure construction 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; a job that enables them to have a healthy lifestyle; having control over where they work; having a reasonable workload; and having an enjoyable job.

Figure 4.2: Importance-availability 'gap' for women who completed the survey

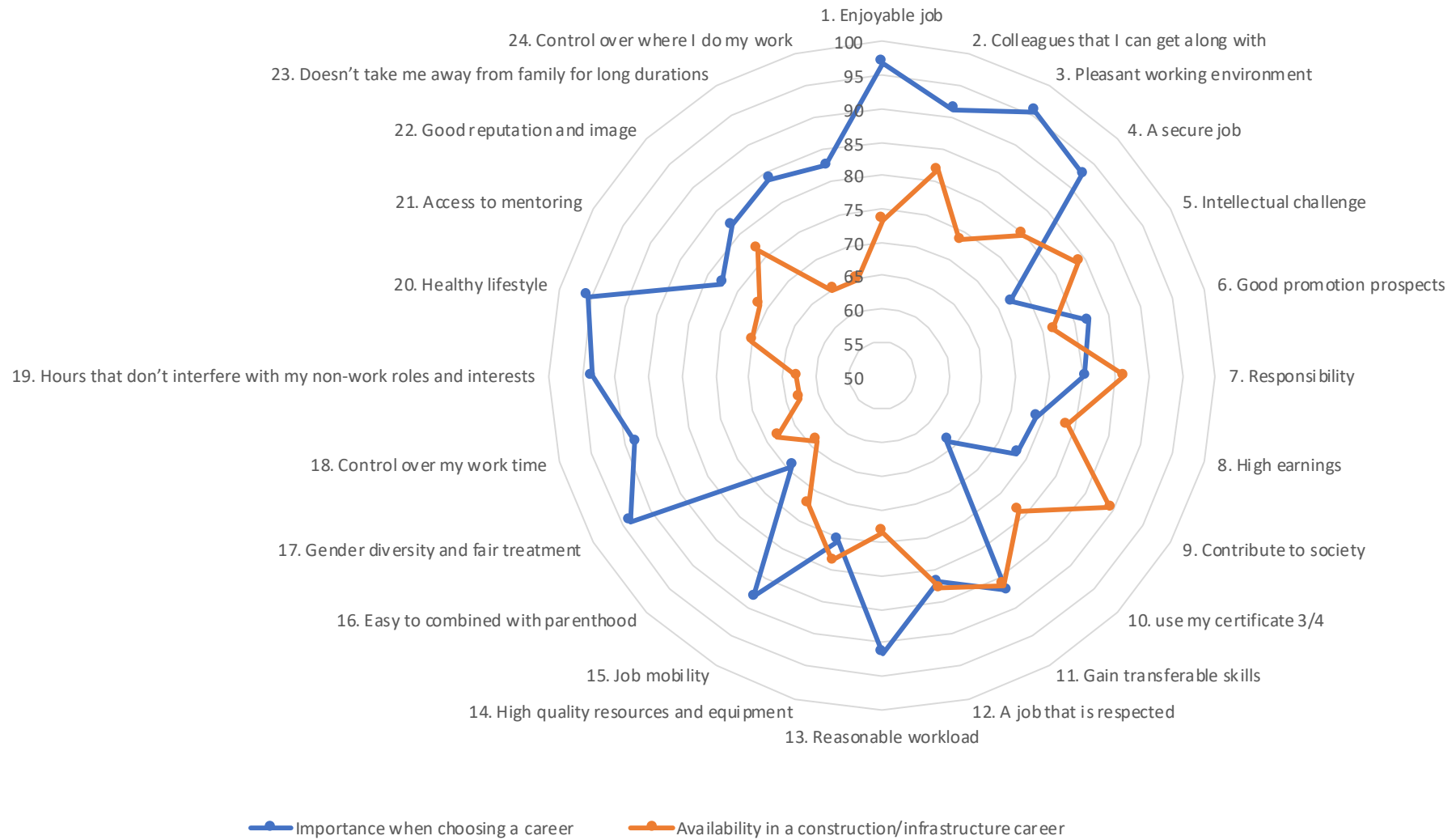
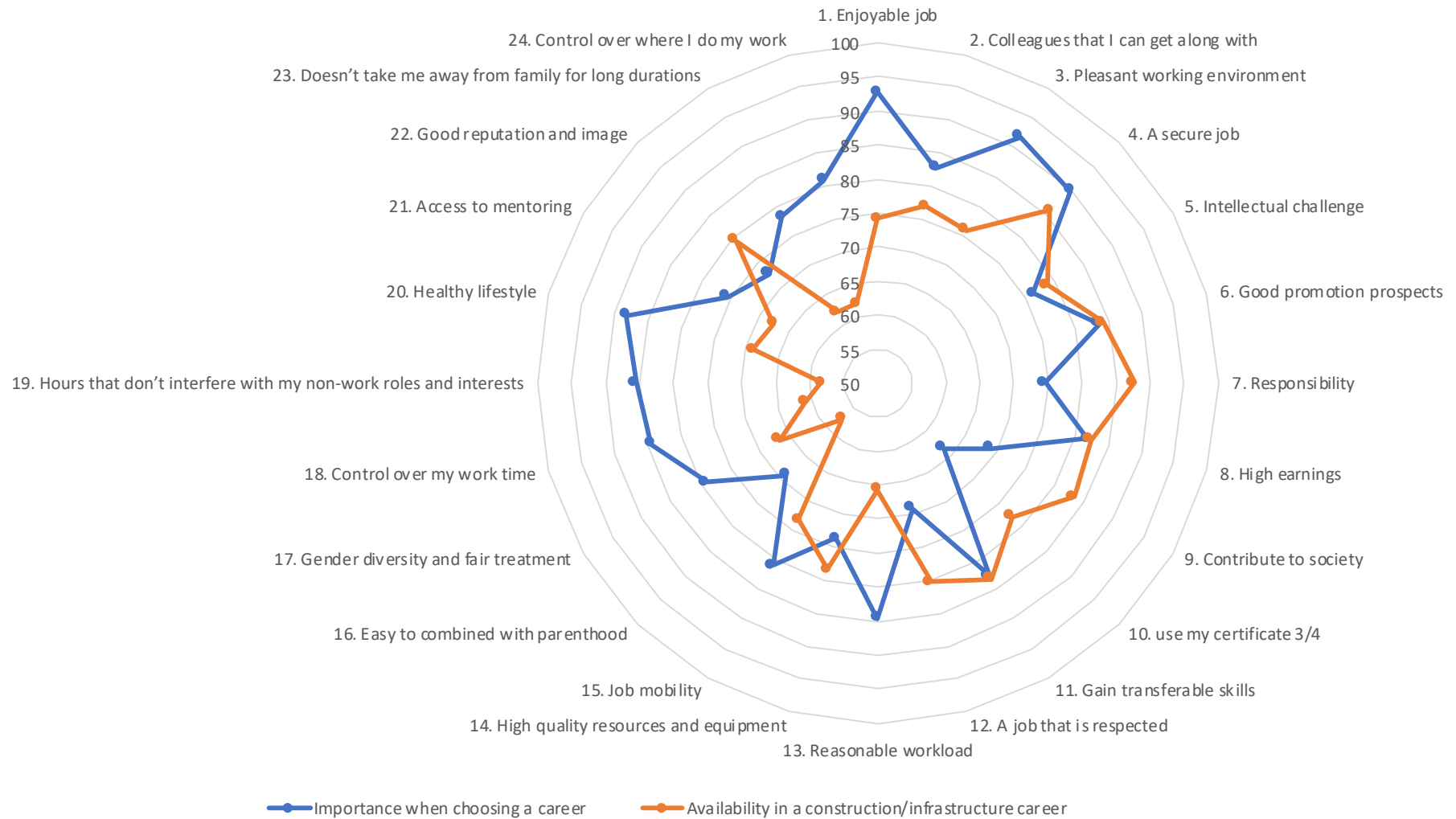


Figure 4.3: Importance-availability 'gap' for men who completed the survey



A statistical comparison of the mean importance and availability scores between women and men trainees was undertaken and the results are presented in the Appendix 9.4.

Women indicated significantly more positive ratings of importance than men for the following job characteristics:

- A job with gender diversity and fair treatment
- A job with hours that don't interfere with non-work roles and interests (e.g. family and social), and
- A job that enables them to have a healthy lifestyle

No significant differences between women's and men's ratings of availability were found for the 24 job characteristics.

Organisation type

A similar statistical comparison of the mean importance and availability scores was conducted for respondents who indicated they had spent the second rotation of the traineeship program working in a government (GOV, n = 37), consultant (CONSULT, n = 27) or construction organisation (CONSTR, n = 40). The results are presented in Appendix 9.5.

A significant difference in ratings was found for the following job characteristic:

Importance of having colleagues that I can get along with

The mean rating score for the importance of having colleagues that respondents can get along with differed significantly between respondents placed within a government organisation for their second rotation and those placed within a construction organisation. On average, respondents placed in a government organisation rated this job characteristic as being 14 points lower in importance than those placed in a construction organisation.

Availability of a job with hours that don't interfere with my non-work roles and interests (eg. family and social)

The mean rating score for the availability of a job with hours that don't interfere with respondents' non-work roles and interests differed significantly between respondents placed within a government organisation for their second rotation and those placed within a consultant organisation. On average, respondents placed in a government organisation rated this job characteristic as being 20 points lower in availability than those placed in a consultant organisation.

Availability of a job that enables me to have a healthy lifestyle

The mean rating score for the availability of a job that enables respondents to have a healthy lifestyle differed significantly between respondents placed within a government organisation for their second rotation and those placed within a construction organisation. On average, respondents placed in a government organisation rated this job characteristic as being 16 points lower in availability than those placed in a construction organisation.

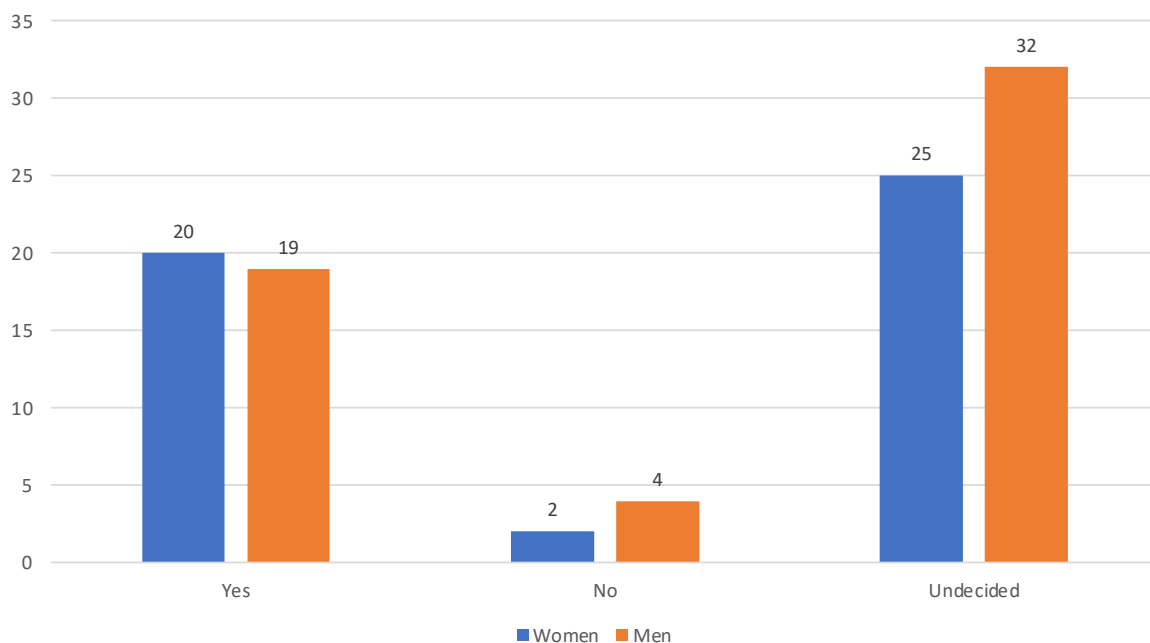
4.3 Intention to pursue a career in construction

Respondents were asked whether they would choose a career in infrastructure construction at the end of their traineeship. 57 (54.3%) respondents were yet to make up their mind, 39 (37.1%) indicated that they had already decided to work in infrastructure construction at the end of their traineeship, and six (5.7%) indicated they definitely did not want to work in infrastructure construction at the end of their traineeship. One respondent (1%) did not specify. Of the 39 respondents who indicated their intention to work in infrastructure construction at the end of their traineeship, 20 (51.3%) are women, 19 (48.7%) are men, and two (5.1%) preferred not to say their gender.

Appendix 9.6 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 the time of the survey, more women than men intended to stay in the infrastructure construction industry, and more men than women were undecided. 42.6% of women and 34.5% of men who completed the survey indicated they had already decided to pursue a career in infrastructure construction. Two women and four men indicated they definitely do not want to pursue a career in infrastructure construction.

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



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

Figure 4.5 shows that, at the time of the survey, a greater proportion of respondents who indicated that they had decided to pursue a career in infrastructure construction were placed with a construction organisation.

45% of respondents who were placed with a construction organisation during their second rotation indicated that they had already decided to pursue a career in infrastructure construction on completion of the trainee program. By comparison, 30% of respondents who were placed with a government organisation and 44% of respondents who were placed with a consultant organisation

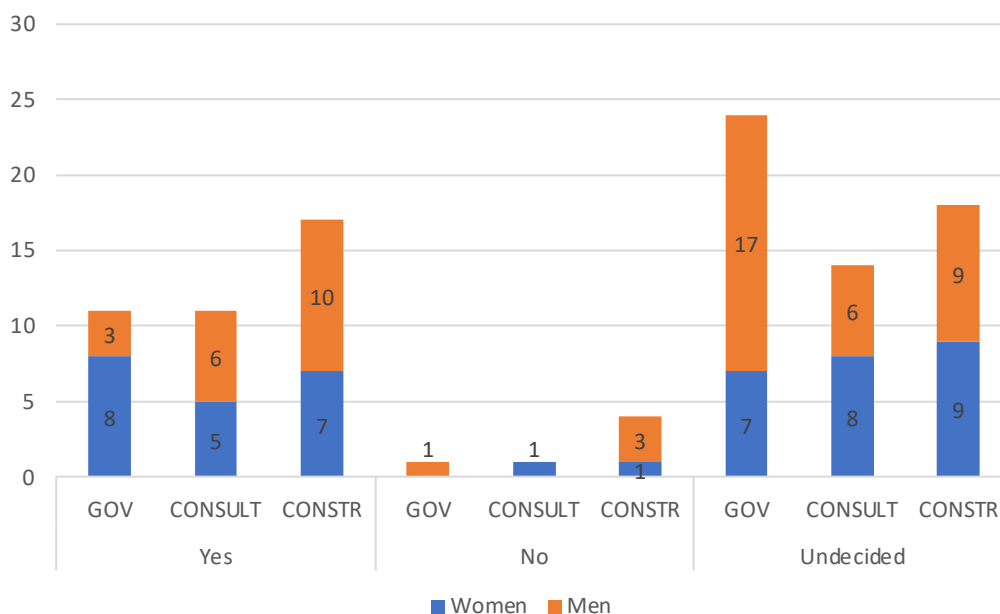
indicated that they had decided to pursue a career in infrastructure construction on completion of their traineeship.

Among those respondents who indicated they were undecided as to whether they will pursue a career in infrastructure construction on completion of the trainee program, 24 were placed with government organisations, 14 were placed in consultant organisations and 18 with construction organisations during the second rotation. Of the six respondents who indicated they definitely did not want to pursue a career in infrastructure construction, four were placed with a construction organisation (3 men and 1 woman), one male respondent was placed with a government organisation, and one woman was placed with a consultant organisations.

Figure 4.5 also indicates that slightly more women than men from government organisations had decided to pursue a career in infrastructure construction, while more men than women from consultant and construction organisations had decided to pursue a career in infrastructure construction.

Of the trainees who were undecided as to whether to pursue a career in infrastructure construction, the same number of men and women were placed in construction organisations (9 women and 9 men). 24 respondents placed with a government organisation were undecided about pursuing a career in infrastructure construction (17 men compared to 7 women). 14 respondents placed with a consultant organisation were undecided about pursuing a career in infrastructure construction. Of these, 8 were women and 6 were men.

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



- GOV: Government organisation; CONSULT: Consultant organisation; CONSTR: Construction organisation
- Two respondents selected “prefer not to say” to the question related to gender, they responses were excluded.

Figure 4.6 shows the difference between importance and availability of each job characteristic for trainees who had already decided to pursue a career in infrastructure construction 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 characteristics of gender diversity and fair treatment, reasonable workload, healthy lifestyle, hours that don't interfere with non-work roles and interests, and control over work time. That is, even those trainees who had decided to pursue a career in infrastructure construction perceived that the sector may not offer them a workplace characterised by gender diversity and fair treatment, or the opportunity for having a reasonable workload, a healthy lifestyle, and time for life.

Figure 4.7 shows the difference between importance and availability of each job characteristic for trainees who indicated they were undecided or who had 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: hours that don't interfere with non-work roles and interests, having a job that is enjoyable, having a job that provides control over work time, having a job that enables a healthy lifestyle, a job that provides control over where they work, a job that doesn't take them away from family for long durations, having job with pleasant work environment, and a job with reasonable workload.

A statistical comparison of the mean importance and availability scores between survey respondents who indicated they had already decided to pursue a career in infrastructure construction and those who had decided not to pursue a career in construction, or who were undecided, was undertaken. The results are shown in Appendix 9.7.

A statistically significant difference in ratings of importance was found between trainees who indicated they had already decided to pursue a career in infrastructure construction and those who were undecided or who had decided not to pursue a career in infrastructure construction for nine job characteristics. This was in relation to having:

- A secure job
- A career that provides intellectual challenge
- Good promotion prospects
- A job which gives me responsibility
- A job where I will contribute to society
- A job where I can use my certificate 3/4 which I am studying for now
- A job where I gain transferable skills
- A job that is respected, and
- A job with high quality resources and equipment

These job characteristics were significantly more important to respondents who had already decided they want to pursue a career in infrastructure construction.

A statistically significant difference in ratings of availability was found between trainees who indicated they had already decided to pursue a career in infrastructure construction and those who were undecided or who had decided not to pursue a career in infrastructure construction for the following job characteristics:

- A job that I will find enjoyable
- Colleagues that I can get along with
- Pleasant working environment
- A secure job
- A job which gives me responsibility
- High earnings over length of career
- A job where I gain transferable skills

- A job that is respected
- A job with high quality resources and equipment
- Job mobility—easy to get a job anywhere
- A job that can easily be combined with parenthood
- A job with gender diversity and fair treatment
- A job that gives me some control over my work time
- A job with hours that don't interfere with my non-work roles and interests (e.g. family and social)
- A job that enables me to have a healthy lifestyle
- A job where I have access to mentoring
- A job in an industry which has a good reputation and image
- A job that doesn't take me away from family for long durations, and
- A job that gives me some control over where I do my work

For all of these characteristics, trainees who indicated they had already decided to pursue a career in infrastructure construction expressed significantly more positive perceptions of the availability of these characteristics in an infrastructure construction career.

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

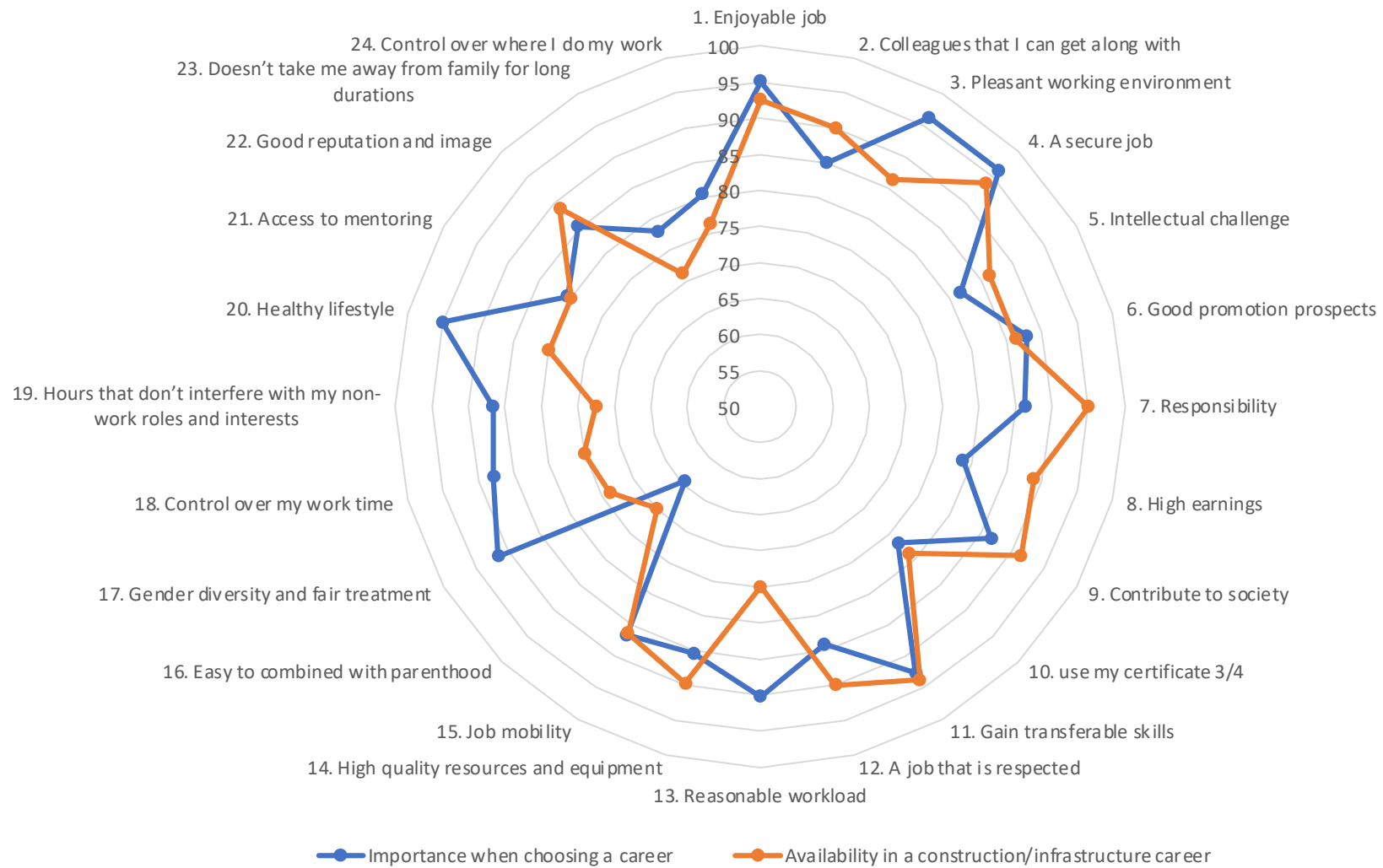
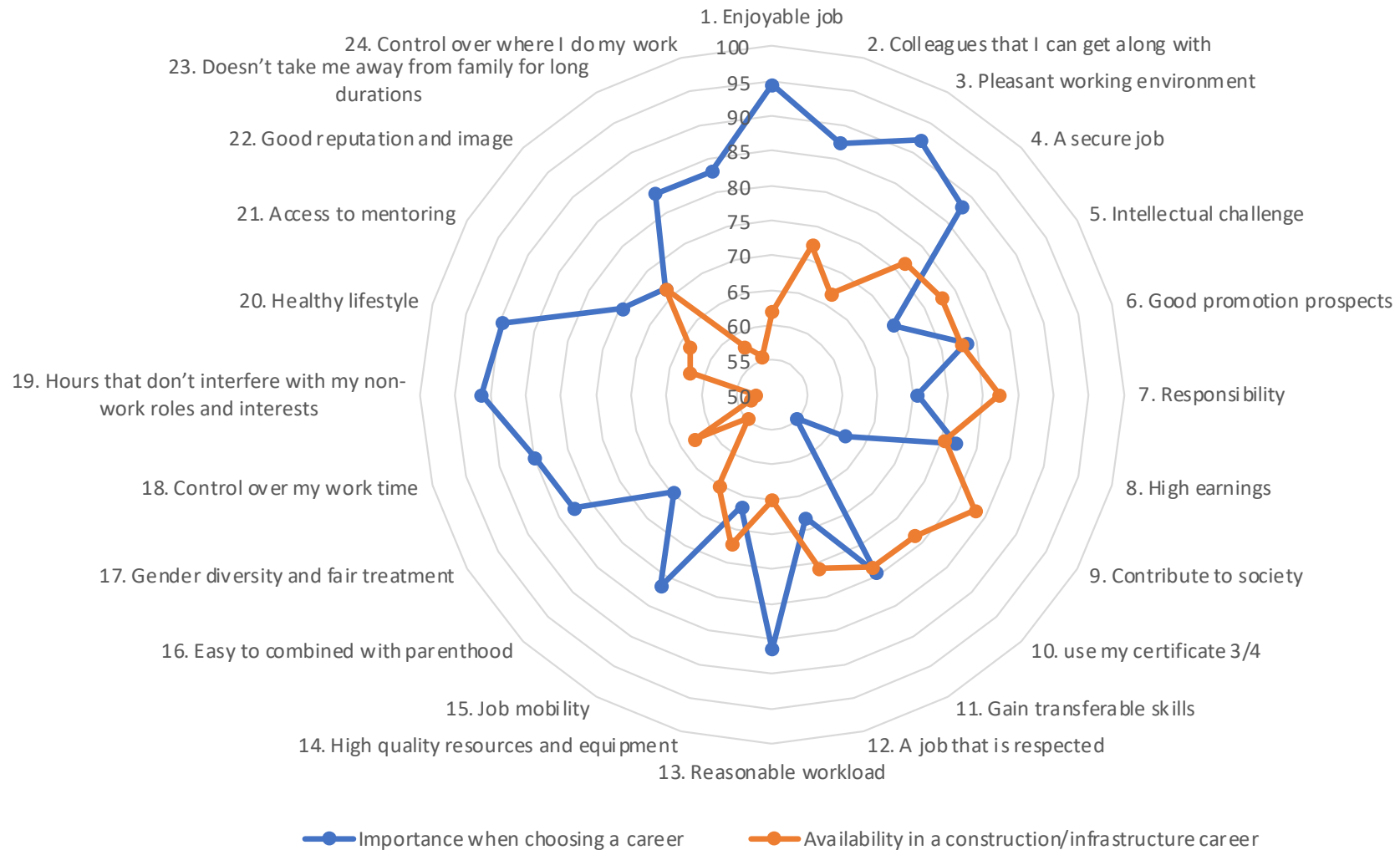


Figure 4.7: Importance-availability 'gap' for trainees who were undecided or had decided not to pursue a career in infrastructure construction



4.4 Perceptions about a career in infrastructure construction

Analysis was undertaken to explore the factors that predict trainees' decision-making in relation to pursuing a career in infrastructure construction.

Gender

Statistical analysis was performed to test for a difference in mean scores on key variables of interest between men and women who completed the survey. The results indicate that women had slightly higher mean scores than men for career commitment, while men had slightly higher scores than women for career satisfaction, and perceptions of organisational fairness and organisational inclusion. However, none of these differences was statistically significant (see Appendix 9.8).

Organisation type

Similar statistical analysis was conducted to test for a difference in mean scores between trainees whose second job rotation was spent in different types of organisations. The results are shown in Appendix 9.9.

The mean scores for different organisation types were fairly close, except for perceptions of organisational fairness. Respondents who were placed in construction organisations during their second rotation, on average, had higher scores for perceptions of organisational fairness compared to respondents who were placed in government organisations. The difference was statistically significant.

Correlation between job rotation experience and career-related variables

Correlation analysis was conducted to determine whether a significant linear relationship could be found between the extent to which respondents indicate they feel committed to pursuing a career in infrastructure construction (career commitment) and the experience they had during their second job rotation. Experiences included in this analysis were: trainees' satisfaction with career development opportunities (career satisfaction), perceptions of the diversity climate of the organisation within which they undertook their second work placement rotation (organisational fairness and organisational diversity), their self-reported life balance, and work hour preferences. The results of this analysis are presented in Appendix 9.10.

Significant positive associations were found between commitment to pursuing a career in infrastructure construction and respondents':

- satisfaction with their career development as experienced during the second rotation of their traineeship,
- perception of fairness (as related to diversity),
- perception of inclusion, and
- work hour preferences.

These results suggest that greater satisfaction with career opportunities and more positive perceptions of organisational fairness and inclusion associated with a stronger commitment to pursuing a career in infrastructure construction.

4.5 Predictors of the decision to work in infrastructure construction

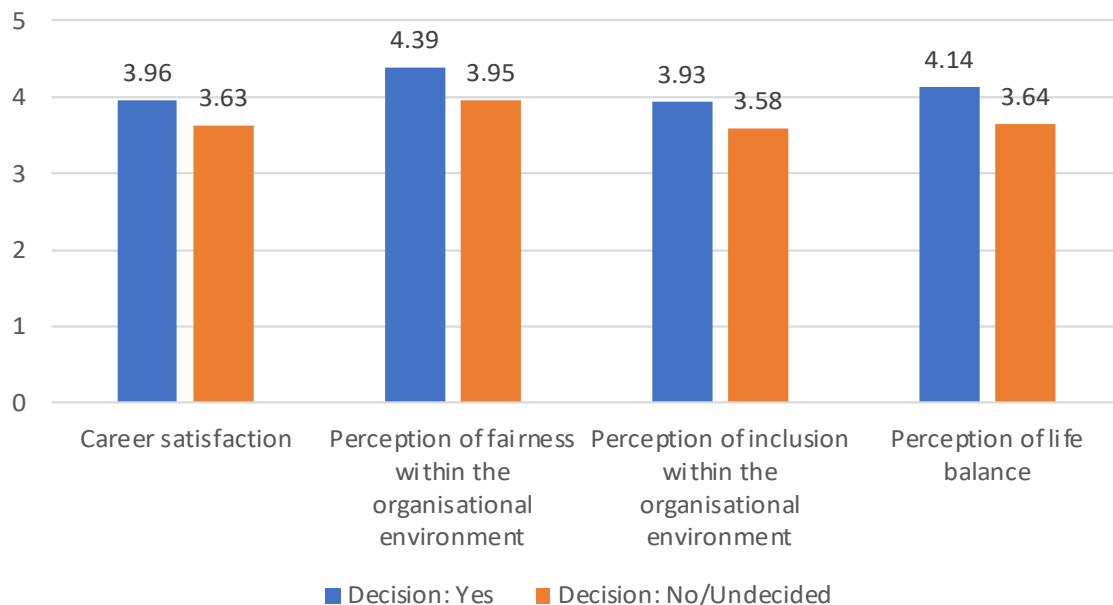
Regression analysis was performed to test the extent to which trainees' career choice/intention (i.e., the decision whether or not to pursue a career in construction/infrastructure following completion of the traineeship program) could be predicted based on their perceptions of the work environment they experienced during their second rotation.

Initially, the mean work experience perception scores of trainees who indicated they had already decided to pursue a career in infrastructure construction were compared with those of trainees who indicated they had decided not to pursue a career in infrastructure construction or who were undecided. This was done to identify which work experience perception scores might predict career decision-making. The results of this analysis are presented in Appendix 9.11.

The mean scores for career satisfaction, perceptions of organisational fairness and inclusion, and life balance differed significantly between the two groups.

Figure 4.8 shows that mean scores for career satisfaction, perceptions of organisational fairness and inclusion and life balance were higher for those respondents who had already decided to pursue a career in infrastructure construction compared to those who had decided not to pursue a career in infrastructure construction or who were undecided.

Figure 4.8: Mean career satisfaction, perceptions of fairness and inclusion in the work environment, and perception of life balance between respondents by decision to pursue a career in infrastructure construction



The first regression model (which can be found in Appendix 9.12) tested the combined effects of career satisfaction, perception of organisational fairness, inclusion, life balance, and the difference between importance and availability of favourable job characteristics on trainees' indicated intention to pursue a career in infrastructure construction. This regression model also controlled for the effects of age, gender, and the type of organisation in which respondents spent their second work placement rotation. No statistically significant effect was found for any of the career experience variables.

A second regression model tested the combined effects of career satisfaction, perception of organisational fairness, inclusion, life balance, and the difference between importance and availability of favourable job characteristics and respondents' career commitment on trainees' indicated intention to pursue a career in infrastructure construction (Appendix 9.13). This regression model also controlled for the effects of age, gender, and the type of organisation in which respondents spent their second work placement rotation. The results indicate only a positive and significant effect for career commitment, while the effect of career satisfaction was insignificant. This suggests that respondents who indicate a stronger commitment to pursue a career in infrastructure construction are more likely to have made the decision to pursue a career in infrastructure construction. This regression model explained 67.9% of variance in respondents' intention to pursue a career in infrastructure construction.

A third regression model tested the extent to which career commitment is predicted by career satisfaction, perception of organisational fairness, inclusion, life balance, and the perceived difference between importance and availability of favourable job characteristics (See Appendix 9.14). The model also controlled for the effects of age, gender, and the type of organisation in which respondents spent their second job placement rotation. The results indicate a positive and significant association between career satisfaction and career commitment.

Together, the three regression models confirm that trainees' evaluative judgements about the quality of the work experiences during their rotation (i.e. their satisfaction with career development opportunities) result in the development of a commitment to the pursuit of a career in infrastructure construction. Where experiences are positive, trainees develop strong commitment to pursuing a career in infrastructure construction. But where experiences are not positive, commitment to pursuing a career in construction will be low. This level of career commitment then directly predicts trainees' decision as to whether they will pursue a career in infrastructure construction on completion of their traineeship. Figure 4.9 shows these significant relationships indicating that career commitment acts as a linking mechanism between trainees' satisfaction with the career development opportunities they felt they were provided with during their second rotation and their career choice intentions.

Figure 4.9: The association between different career aspects and respondents' intention to pursue a career in infrastructure construction



4.6 Improving the attractiveness of infrastructure construction to potential new entrants

For those respondents in their second rotation who were either undecided or had chosen not to pursue a career in infrastructure construction at the end of their traineeship, 32 (30.5%) indicated they would enter infrastructure construction if changes were made to the industry.

Twenty-two respondents provided feedback about what would need to change in order for them to make the decision to pursue a career in infrastructure construction. These themes are outlined in Table 4.1.

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

Theme	Respondent quotes
Mentoring and support	<p>More genuine support and mentorship to the youth entering the industry (man).</p> <p>A living wage to be provided the trainees/apprentices. For the work we are currently completing our pay is extremely low. Increased support for trainees/apprentices is needed critically (man).</p>
Breadth of experience	<p>Trainee involvements with other roles in the industry (woman).</p> <p>A more broad environment for different aspects of infrastructure to be available (man).</p>
Work hours and life balance	<p>More work life balance (woman).</p> <p>Working flexibility (woman).</p> <p>Work hours (man).</p> <p>More control over work time (man).</p> <p>Working week revision. Reforms in work life balance would be necessary, more flexible working hours (man).</p> <p>In construction specifically more reasonable hours of work (woman).</p> <p>Better control over hours worked. Less hours worked (man).</p> <p>Flexibility with working hours/arrangements (woman).</p> <p>Better understanding to work life and non-work life (man).</p>
Work location flexibility	<p>Job location flexibility (woman).</p> <p>More control over work location (man).</p> <p>Give more control over where I do my work (man).</p> <p>An ability to work remotely/from home more freely (man).</p>

<p>Inclusion</p>	<p>More females in the industry would be nice. I would say more inclusive over all, especially with construction sites. We see that more females are in the industry but seeing more would be great (woman).</p> <p>In my limited construction experience, there were healthy male/female ratios and a pretty even spread of male and female leaders. However, I'm sure that's not the case everywhere and that could be improved (woman).</p> <p>More gender diversity but there are already rapid changes with that (woman).</p> <p>Fair work amongst genders, ages, social status, and family lifestyle (man).</p> <p>Diversity and gender inclusivity (woman).</p>
<p>Work overload and work stress</p>	<p>I think that most project managers I have seen in these two rotations are overworked, overloaded, under resourced and at their wits end. Although they seem happy and love to have a drink and socialize with mates, I believe their job could be made less stressful so that they are not torn apart by contractors, subbies, public works, agencies, and stakeholders. It just feels like they are trying to put out fires left, right, and centre and when they extinguish one, three others start. I guess that is just the job of project management (man).</p>
<p>Workplace relationships</p>	<p>The kind of anti-authority attitude some tradies and contractors have should really improve. Again, I only have limited experience on site, but it always felt like it was cooler to hate your job and moan about it all the time than it is to love your job and feel good about going to work (woman).</p> <p>Dependent on the workplace, the types of people in the company/who I'd be working with (woman).</p> <p>Better communication between stakeholders (man).</p>

4.7 Comparison between first and second rotations

Respondents were asked to identify the organisation types with which they were placed in both their first and second rotations. Table 4.3 indicates respondents' transitions between different types of organisations. One respondent did not specify their organisation type for the second rotation.

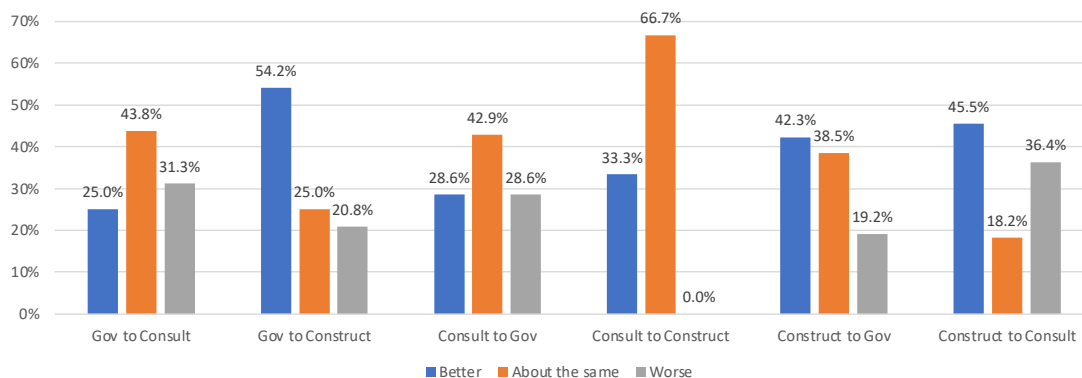
Ninety-three respondents indicated that they are placed in a different type of organisation during their second rotation compared to their first rotation. Four respondents were placed in a government organisation during the first and second rotations, and seven respondents stayed in construction organisations during both rotations.

Table 4.3: Transitions between organisations

Transition between organisations	Number of respondents	% of respondents
Government to government	4	3.8%
Government to consultant	16	15.4%
Government to construction	24	23.1%
Consultant to consultant	0	0%
Consultant to government	7	6.7%
Consultant to construction	9	8.7%
Construction to construction	7	6.7%
Construction to government	26	25.0%
Construction to consultant	11	10.6%

Trainees were asked to compare their experiences between their first and second rotation and indicate whether their second rotation was better, about the same, or worse than their first rotation. The following figure indicates the responses for the trainees who were placed in different types of organisations during their first and second rotations.

Figure 4.10: Comparison of respondents' experiences between their first and second rotations for those who changed organisation type



Overall, 39% (13 out of 33) of the respondents who transitioned to a government organisation in their second rotation indicated a better experience. In comparison, 33% (9 out of 27) of those who transitioned to a consultant organisation and 27% (9 out of 33) of those who transitioned to a construction organisation indicated having a better experience.

Respondents were asked to explain the main differences between their first and second rotations. Results from the 2021-2022 cohort were presented in report 2 (see section 5.2). In this report we present the findings from the 2022-2023 cohort. Ten themes emerged: work location, work intensity and workload, type of work, quality of allocated work tasks, work environment, work schedule, flexibility of working time and location, commute, support for learning, and gender diversity. Table 4.4 outlines themes and associated illustrative quotes. Gender and type of employer organisation are shown for each statement.

Table 4.4: Main differences between first and second rotation for 2022-2023 cohort

Theme	Respondent quotes
Work location	<p>Working from home with government wasn't my favourite but it was good to learn the skill. Now in rotation 2, working in the office is great (woman, government to construction).</p> <p>I am on site more in my 2nd rotation than my 1st which is very surprising because I was with construction for my 1st rotation and I was mostly in the office. I like my 2nd rotation a bit more than my 1st (woman, construction to government).</p> <p>Office full time [consultant] compared to half on site and half in office [construction] (man, consultant to construction).</p> <p>1st rotation in construction consisted of earlier starting days and a lot more time on site whereas for my second rotation I am predominantly in office or working from home with little time spent on site (man, construction to consultant).</p> <p>I am not very used to working from home, I find it better to work in the office like my first rotation (woman, construction to government).</p> <p>Rotation 1 I was only in the office every Thursday. In Rotation 2 I am in the office everyday which is a change. Rotation 1 I went out to site a couple of times, unlike rotation 2 its mostly office based (man, government to construction).</p> <p>The first company I was with I was working from home 2 days a week and the office another 2. This company I am now working in the office 4 days a week which makes it a large difference from being able to learn face-to-face more often (man, construction to construction).</p> <p>The main difference has been working in office everyday opposed to working from home every day (man, government to construction).</p> <p>Working from home compared to onsite working in the first rotation (man, consultant to government).</p> <p>Work time is about the same between both rotations. But in the second rotation I work from home on Tuesday's and the second rotation is closer to home meaning I am not having to travel roughly 2 hours a day as I did in my previous rotation. In rotation 1 I was with construction meaning I was on site every day of the week, while in my second rotation with government it is less frequent (woman, construction to government).</p>

Theme	Respondent quotes
Work intensity and workload	<p>2nd rotation is more full on (man, construction to construction).</p> <p>A lot more office based work, not working as closely with a specific team, resulting in a less consistent workload (man, construction to government).</p> <p>Definitely more workload in construction compared to government (man, government to construction).</p> <p>Construction project management so much busier (woman, consultant to construction).</p> <p>My first rotation had a bigger workload but my second rotation has introduced me to many more people (man, consultant to government).</p> <p>The main differences are that I have a much higher work load in my second rotation and I am learning a lot and becoming much more involved with everything. I am also going into work every day whereas in my first rotation I was primarily working from home, making it difficult to be more involved. I am also all round enjoying the work in my second rotation and have been considering it as a viable career path. (woman, government to construction).</p>
Type of work	<p>Both rotations have been very informative in learning about infrastructure and building. In my second rotation I am a part of the completions team so I get to see the very end of the project after the project team leaves which is very different from the first rotation (woman, construction to government).</p> <p>The type of work I am doing is also very different from my first rotation. My first rotation consisted of site walks and observations, PO's, and site material tracking whereas I am now working on variation letters, letters of recommendations, communicating with contractors and site diaries (man, construction to consultant).</p> <p>Tasks aren't specific to practical projects [in the second rotation] (woman, government to consultant).</p> <p>Main difference between government and construction dramatic. Under the government we are the client and oversee more and make more decisions rather than get told what to build and get it done (man, construction to government).</p> <p>My 2nd rotation has different tasks done every day whereas my 1st rotation I had a set place for the duration of my rotation. I do like to do different things as doing the same things make me bored easily and lose interest (woman, construction to government).</p> <p>Very similar, both construction. In my first rotation it was mostly design, and now it's mostly site which is perfect (man, construction to construction).</p> <p>In my first rotation I was involved in several projects where as in my 2nd rotation I'm only involved in one (woman, consultant to construction).</p> <p>A lot more time in office in 2nd rotation and more of the behind the scenes work, whereas first rotation was a lot of time on site with supervisors seeing the big pieces come together (man, construction to consultant).</p> <p>My second rotation is better because of the variety of work given (man, construction to government).</p>
Quality of allocated work tasks	<p>I feel that my work is more important in my second rotation (woman, government to construction).</p> <p>I feel more useful [in construction rotation] in terms of doing tasks that are essential to their works and upcoming events (woman, government to construction).</p>

Theme	Respondent quotes
Work environment	<p>Comparatively stressful environment in the second rotation (man, government to construction).</p> <p>I felt more included in government and everyone was much nicer (man, government to construction).</p> <p>I feel a lot less intimidated than I did with the government agency as they are a lot more friendly and welcoming at my new placement (woman, government to consultant).</p> <p>I feel that in my first rotation the people there were much more like friends than just colleagues (man, construction to government).</p> <p>Smaller office, I have become less stressed in my 2nd rotation as I can go home and forget about work, can be more myself and have a laugh, but it does take longer to get to work (woman, construction to government).</p> <p>Everyone at my current consultant rotation is amazing and I love the business goals (woman, government to consultant).</p> <p>I like the work I'm doing here slightly more [construction rotation], work environment is different and feels cosier (woman, government to construction).</p> <p>The office is smaller, and the people are much busier, now that I've moved from public to private. Personally, I've had a little trouble adjusting to a more intensive workstation, and I've had trouble due to my lack of license stopping me from having easy access to site. One or two of the workers are very nice, but I don't tend to mesh well with the rest of them (man, government to construction).</p> <p>My second rotation is a-lot better. I have a lot more work to do and they included me a-lot more than my first one (woman, government to construction).</p>
Work schedule	<p>Work times remain the same as our contract states 7.6 hours daily (man, construction to government).</p> <p>Differing work times [between rotation 1 and 2]. Time for life outside of work due to starting earlier and finishing earlier. I have become more tired due to earlier mornings and longer drives [during second rotation] (woman, government to construction).</p> <p>I preferred starting half an hour earlier at 8:30 to miss the peak hour and also being able to leave work slightly earlier and have more time in the afternoon to see my family, to the gym or go for walks. Finishing at 5 does mean I don't usually eat dinner with my family if I go to the gym compared to when I finished at 4:30 (woman, construction to government).</p> <p>Both rotations I had time for my life outside of work, no one really contacted me outside work hours unless it was really important and only if I could have done it (woman, construction to government).</p> <p>Working time is very well 6:45 to 3:45, I always have time for life after work in my second rotation. I'm able to take care of my health by going to the gym and continue on with my routine (man, construction to construction).</p>
Flexibility of working time and location	<p>I work the same hours but I am able to work over to leave early on Friday (man, government to construction).</p> <p>In my second rotation the hours are more flexible, and I get to go out onsite more (man, construction to government).</p> <p>My 2nd rotation isn't as flexible (man, construction to government).</p> <p>My second rotation is better because is flexible, working from home (man, construction to government).</p>
Commute	<p>Starting earlier in my second rotation as the travel to and from work is longer (man, construction to government).</p> <p>The travel time is much better, I have more free time after work as I'm not spending 1 hour+ travelling to and from work (woman, government to construction).</p>

Theme	Respondent quotes
Support for learning	<p>I am asked to come in the office often [construction rotation] which sets a good work life routine and shows interest in my experience and learning (woman, government to construction).</p> <p>I have plenty of work to do in this new one, in my first rotation they were very confused and weren't prepared for a trainee. In my second rotation they are very professional and helpful, I'm learning plenty and my well-being has improved immensely compared to my first rotation (man, government to government).</p> <p>I started late in the first rotation and I don't think my employer was trained how to supervise a trainee. There were a few other problems so I wasn't fond of my first one but my second rotation is a lot better. I always have something to do, there are good people around me and I really enjoy it (woman, government to construction).</p> <p>My second rotation had a larger support group and the supervisor that I currently have has been very careful to include me in meetings and give me tasks frequently to keep me busy (woman, construction to government).</p> <p>The Government Organisation was more structured and therefore gave me better focus and working schedule. I did more work and learnt more and the Government one taught me more as it is more fast paced. I am yet to do more at my consultancy one but there are future projects that have promise (woman, government to consultant).</p> <p>Work is more hands on as well as learning wise. I work with an amazing team that always show support and are always there to help no matter what questions you have (man, construction to construction).</p>
Gender diversity	<p>Another difference that I have really enjoyed about my new placement is that there are women on my team. The supervisor that I was placed with is also a female which has been encouraging to see and at my previous placement I was treated well but stereotypically at times because my team used to consist of only males (woman, construction to government).</p> <p>Client side is much more gender inclusive whilst under the builder it was male dominant (man, construction to government).</p> <p>Some people have trouble with gender inclusion but everyone is mostly gender inclusive (woman, construction to government).</p> <p>Alot more gender inclusion in second rotation (man, construction to consultant).</p> <p>Gender inclusion - the same [at two rotations] (man, government to construction).</p>

Part 5: Findings – third rotation

5.1 Sample size and demographics

Forty three responses were received from respondents who were in their third rotation (59.7% response rate). Respondents' demographics are as follows:

Gender: 19 (44.2%) respondents are women, 22 (51.2%) are men, 1 (2.3%) is non-binary, and 1 (2.3%) preferred not to indicate their gender.

Age: Respondent's age ranged from 17 years to 22 years. The mean age of respondents was 20.8 years.

Aboriginal and/or Torres Strait Islander: All the respondents (n=43) indicated that they are not Aboriginal and/or Torres Strait Islander.

Area of study: 37 (86%) respondents are studying project management, 3 (7%) are studying business, 1 (2.3%) are studying procurement and contracting, and 2 (4.7%) did not specify.

Organisation type: During the third rotation, 12 (27.9%) respondents were hosted by a government organisation, 16 (37.2%) by a consultant organisation, and 15 (34.9%) by a construction organisation.

Transitions between organisations: Respondents were asked to identify the types of organisations within which they were placed during their second and third rotations. **Error! Reference source not found.** indicates respondents' transitions between different types of organisations. Two respondents had not specified their organisation for the second rotation.

Thirty six respondents indicated that they are placed in a different type of organisation during their third rotation compared to their second rotation. One respondent was placed in a consultant organisation during the second rotation and third rotation, and four respondents stayed in construction organisations during both rotations. Two respondents did not provide a response.

Table 5.1: Transition between organisations

Transition between organisations	Number of respondents	% of respondents
Government to government	0	0.0%
Government to consultant	8	19.5%
Government to construction	4	9.8%
Consultant to government	7	17.1%
Consultant to consultant	1	2.4%
Consultant to construction	6	14.6%
Construction to government	5	12.2%

Transition between organisations	Number of respondents	% of respondents
Construction to consultant	6	14.6%
Construction to construction	4	9.8%

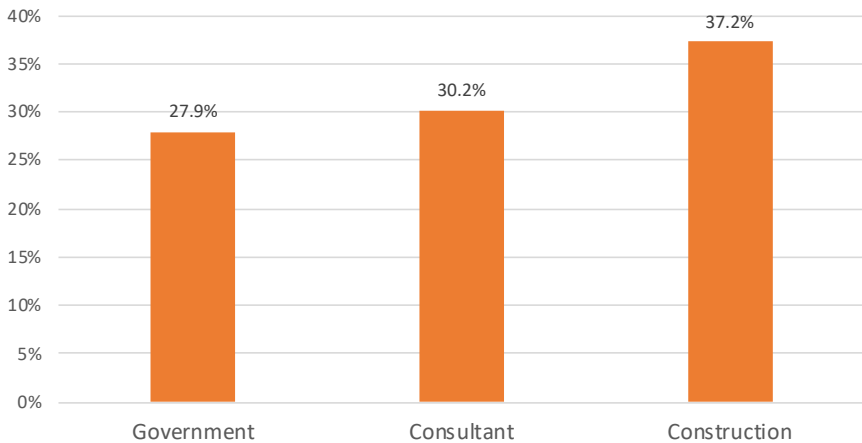
Working hours: Respondents were asked how many hours they worked including paid and unpaid overtime. 1 (2.3%) respondent worked less than 37 hours, 37 (86%) worked 37-40 hours, 2 (4.7%) worked more than 40 hours, and 3 (7%) didn't specify.²

Preferred working hours: Respondents were asked to nominate the number of hours they preferred to work. 29 (67.4%) respondents indicated preferring to work about the same number of hours they did during their third rotation, 7 (16.3%) preferred to work fewer hours, 4 (9.3%) indicated a preference to work more hours, and 3 (7%) did not specify.

5.2 Preferred rotation during the program

Trainees were asked to compare their experience between the three rotations and indicate which rotation they liked the best. Figure 5.1 indicates the responses. 12 (27.9%) respondents indicated a preference for their rotation in a government organisation, 13 (30.2%) respondents indicated a preference for their rotation in a consultant organisation, and 16 (37.2%) indicated a preference for their rotation in a construction organisation. Two respondents (4.7%) did not specify any preference.

Figure 5.1: Comparison of respondents' experiences between the 3 rotations



Respondents who had completed three rotations were also asked to state the reason for preferring a specific organisation type during the program. Their explanations were thematically analysed and are presented in Table 5.2, 5.3 and 5.4 for government, consultant, and construction organisation types respectively.

² The trainees are discouraged to work more than 37.5 hours each week. Host organisations would be billed for time worked in addition to these hours.

Government

Seven themes emerged in relation to why respondents identified the government organisation rotation as their preference. Table 5.2 outlines these themes and associated illustrative quotes.

Table 5.2: Reasons why government was selected as the preferred rotation

Theme	Respondent quotes
Resources and skill development	<p>Due to the resources available and training and opportunities. It is an environment which allows trainees to further their skills effectively.</p> <p>I got to undertake various tasks.</p> <p>Exposed to the most [tasks].</p> <p>Government has provided me exposure to multiple teams within the organisation which has allowed me to learn a wide variety of skills and insight.</p> <p>I accomplished more in my first rotation than my others and if I'm honest with you I feel like I was growing a lot but my second and third rotations pulled me down.</p> <p>This rotation had great resources and was able to provide me with vast work experience across multiple projects.</p> <p>Took the most effort in my schedule and making sure I had work to do/had a good work experience.</p>
Quality of mentor/supervisor	<p>Mentored by individuals with lots of knowledge and experience in their field.</p> <p>My supervisor had time for me.</p>
Peer support	<p>I also enjoy being with other trainees and having both formal and informal meetings to share experiences and help if needed.</p>
Work environment	<p>Healthy work environment.</p> <p>Team was small and tight-knit, they were nice people and pushed me out of my comfort zone more than other places did.</p>
Work experience relevant to area of study	<p>I enjoyed the work government provided me with, it was manageable and relevant to project management.</p>
Work purpose and ethic	<p>I enjoyed the sense of service and work ethic within my agency. I also felt valued at work and like I contributed to the team.</p> <p>Interesting.</p>
Learning	<p>I learnt the most in my construction rotation by being on-site every day but my best would've been the government rotation because this really helped tie together the construction and government rotation together. Due to their similarity.</p>

Consultant

Nine themes emerged in relation to why respondents identified the consultant organisation rotation as their preference. Table 5.3 outlines these themes and associated illustrative quotes.

Table 5.3: Reasons why consultant was selected as the preferred rotation

Theme	Respondent quotes
Team belonging	I felt most part of the team compared to the other rotations.
Resources and skill development	Access to a wide array of mentors, projects and opportunities that allowed me to grow into my position. Offering me good learning opportunities and a decent workflow that I am able to complete and get assistance with when needed.
Responsibility	I have a lot more work to do this rotation and I feel like I am given more responsibility.
Type of work	I enjoyed the type of work I was doing there. It has been a great experience. I love the work I do. Was very interesting and allowed me to observe multiple facets of the industry at the same time.
Access to projects	Because I am able to work on a variety of different projects and see the how the progress is onsite
Supportive environment	It's hard to decide, but I think I've enjoyed the consultant rotation the most as it was by far the most supportive environment and I felt as though I could be myself without judgement. I also feel like there's a lot of room to grow in a consultant firm. That being said, the construction rotation might be the most informative and beneficial to my development, I've certainly learned a lot here. My consultant company is very family orientated. My team at work is quite friendly and good to work with.
Commute	My workplace is closer to home and doesn't have a super long commute time.
Work location	My work location is also in a very good location with a great view over Sydney and other points of interest.
Work experience relevant to area of study	This rotation is good as in some of my previous rotations I didn't have a lot of work, or I had work that I believe doesn't relate to my course and I was just completing things that didn't teach me project management related things. They actually have me doing stuff relevant to my studies and I can see myself being employed at this company after the traineeship.

Construction

Six themes emerged in relation to why respondents identified the construction organisation rotation as their preference. Table 5.4 outlines these themes and associated illustrative quotes.

Table 5.4: Reasons why construction was selected as the preferred rotation

Theme	Respondent quotes
Range of experience	I had the most experience on construction sites and had also other trainees to work with. Experience gained and had an awesome supervisor.
Commute	Due to the site location being within a 10-minute drive of my house.

Theme	Respondent quotes
Learning opportunity	<p>Because I had the most work and learnt the most.</p> <p>Getting more involved into what Project Management really is.</p> <p>I feel during my construction rotation I actually learnt. On my other two rotations, I feel I haven't learnt as much - I have learnt the paperwork and the specific project management website used at each company, but otherwise I have found it very repetitive. I feel as though the two office based rotations have not benefited my learning as much as the construction rotation. During the construction rotation I gained an understanding about the job and have been able to understand my training a whole lot better.</p> <p>I had lots of responsibilities and learnt many skills.</p>
Interesting work	<p>It suits my interests the most and I feel I have learnt the most there.</p>
Preference for site work	<p>Having a more hands on approach and being able to go out on site and see things first hand rather than sitting behind a computer all day and not getting to see the progress of a project in person.</p> <p>I enjoyed the on site aspect and physically seeing the project progress.</p> <p>Its more hands on and I'm not stuck behind a desk for a long duration of time.</p> <p>My best rotation was at construction onsite and being proactive with the build. And taking care of a subcontractor on the project of facade.</p>
Supportive work environment	<p>I have been treated with respect, been given responsibilities and have become a part of a great team.</p> <p>I have enjoyed both the 1st and 3rd rotation. I have been supported and I felt comfortable to talk about issues in my workplace with my supervisor.</p> <p>They have offered me a job and it was a great culture and good fun work.</p>

Part 6: Reflection on expectations and experiences of working in infrastructure construction

At the end of the survey administered in November-December 2022, respondents were invited to provide any additional comments they wished to make about their expectations or experiences of working in infrastructure construction. Eighty-nine respondents completed the survey, of which 43 (48.3%) were from the 2021-2022 cohort and 46 (57.1%) from the 2022-2023 cohort.

Of the 89 survey respondents, only eleven left a comment. Due to the relatively small number of comments, findings cannot be generalised more broadly to the entire cohort of trainees. The comments are clustered according to themes and presented in Table 6.1.

Table 6.1: Expectations and experiences of working in infrastructure construction

Theme	Respondent quotes
Commute impacting on life balance	<p>I am also spending anywhere from 3 hours to 4 hours in the car each day travelling to and from work. Due to this work commitment, my 8 hour working days are stretched from 8 hours to 10 or 12 hour working days uncompensated and this has caused me to miss my volunteer commitments outside of work, as well as take me away from social and family occasions (woman, 2021-2022 cohort).</p> <p>I have liked my rotations, I have had great experiences with all three companies. However, my current rotation is a two hour commute (one way, 4 hours total a day). It has left me feeling burnt out, no time for a lifestyle that I have preached to other trainees (new and same cohort). While I like my current rotation, it has made me question the traineeship and if this is something [enter construction] I want to do due to the travel and lack of personal time (woman, 2021-2022 cohort).</p>
Career decisions	<p>The construction/infrastructure industry is a really great industry to work in as there are so many options for jobs in so many different organisations. I have discovered however that is not for me and will be heading down a different path when the traineeship finishes, but will definitely recommend it to others (woman, 2021-2022 cohort).</p> <p>It's been a great experience in this industry and this traineeship. I'm extremely grateful to be here and it's taught me very valuable skills I can use in all facets of life and if I could go back in time I would still choose to do everything the same way. The only reason I do not want to stay in this industry is because I found myself interested in other industries, but these rotations and experience has taught me lots of transferable skills (man, 2021-2022 cohort).</p> <p>Working in construction isn't what I want to do as a career (woman, 2021-2022 cohort).</p> <p>It's been an experience to say the least, but I am happy to move forward and get something out of this traineeship and possible progress further. I am still wondering if moving forward [into construction] after the traineeship is what I want to do (man, 2022-2023 cohort).</p> <p>I would love a job offering here (woman, 2022-2023 cohort)</p>

Theme	Respondent quotes
Opportunity to learn and develop	<p>It has been good between my first 2 rotations as I have got to experience the very beginning of a project and how to establish one and now in my second rotation, I get to see the end of projects once the project team leave and what happens after that and then monitor that. I think this experience would be great to have with all trainees as it would give them idea about both sides of construction the start and the very end (woman, 2022-2023 cohort).</p> <p>I have loved experiencing the way that construction works as I can understand it in my 2nd rotation. I would have loved to have done more with being on site and with a Project Manager (woman, 2022-2023 cohort).</p>
Diversity and inclusion	<p>In reference to the question about does the organisation hire people objectively regardless of race sex etc, I answered "disagree" but I think that's because I've been told I might be hired over someone else BECAUSE I'm a female as I go towards their diversity quota. I don't like the idea that I've been given a free pass, but i guess it's better than the other way around (woman, 2021-2022 cohort).</p>
(Lack of) supportive environment	<p>Never really had any mentoring or someone take me under their wing so for the most part, always felt very alone (man, 2021-2022 cohort).</p>
Employer resourcing	<p>My current placement is too under-resourced to provide proper work experience in the role. I have been given the role of contract admin for 2 different projects (three jobs) because they are unable to find someone to replace those who have left. This reduces the amount of work experience I am getting on this rotation (woman, 2021-2022 cohort).</p>

Part 7: Discussion

7.1 Trainees' perceptions of careers in infrastructure construction after participating in their second rotation

Data collected from the 2021-2022 cohort (from the previous survey wave) and the 2022-2023 trainee cohorts was pooled to analyse trainees' perceptions about pursuing a career in infrastructure construction having undertaken two periods of job rotation.

41% of these trainees indicated they have decided they do want to pursue a career in infrastructure construction following their traineeship, 57% are still undecided and 5.7% indicated that they definitely do not want to pursue a career in infrastructure construction. Of those that indicated they intend to pursue a career in infrastructure construction 49% are women and 46% are men.

Some significant differences were found in the job characteristics considered important to trainees who indicate an intention to pursue a career in infrastructure construction and those who do not. Trainees who intend to pursue a career in infrastructure construction placed significantly more importance on job characteristics such as job security, having a job that provides intellectual challenge, good promotion prospects, a job that gives them responsibility, a job that makes a contribution to society, a job that is respected and a job with high quality resources and equipment. These characteristics were significantly less important to trainees who were undecided or who had decided not to pursue a career in infrastructure construction.

Respondents who have decided to pursue a career in infrastructure construction also differed significantly from those who were undecided and/or who have already decided they do not intend to pursue a career in infrastructure construction in terms of the perceived availability of many job characteristics. In particular, trainees who are undecided and/or who have decided not to pursue a career in infrastructure construction had significantly lower expectations that a career in infrastructure construction would provide them with enjoyable work, a pleasant working environment, gender diversity and fair treatment, control over work time, a job that doesn't interfere with family and social life, a job that can easily be combined with parenthood, a job that doesn't take them away from family for long durations and a job that permits them to lead a healthy lifestyle.

Many of these job characteristics reflect aspects of the social and cultural environment within which work takes place and are issues that are directly addressed by the Culture Standard, e.g. health and wellbeing, time for life, and gender diversity. The fact that the 'undecided/no' group of trainees perceive these characteristics to be less available in an infrastructure construction career may contribute to their uncertainty and/or decision not to pursue a career in the sector.

The importance of these cultural characteristics of work was supported by the fact that significant differences were also found between trainees who indicated they intend and those that are undecided and/or have decided not to pursue a career in infrastructure construction in their work-placement experiences in relation to:

- Satisfaction with career development opportunities provided to them during their second rotation,

- Perceptions of fairness in the organisational environment in which they worked in their second rotation,
- Perceptions of inclusion in the organisational environment in which they worked in their second rotation, and
- Perception of life-balance they experienced during their second rotation.

Trainees who were more satisfied with career development opportunities, who perceived higher levels of fairness and inclusion and who experienced a better life balance were significantly more likely to indicate an intention to pursue a career in infrastructure construction on completion of the traineeship.

The importance of characteristics of workplace culture in shaping intentions in relation to pursuing a career in infrastructure construction was also evident in the responses of respondents' who indicated they were either undecided or who had chosen not to pursue a career in infrastructure construction and what would need to change in order to make the sector sufficiently attractive to them to change their intentions.

Trainees indicated that an improved experience in terms of mentoring, support and development opportunities was one factor. Other factors identified were related to work hours and time for life, including improved work-life balance, flexible work, and more control over work hours. Trainees also identified work location flexibility as being something that would influence their decision. Respectful workplace relationships and a more inclusive and fair work environment were also identified as factors that would need to change if these trainees were to pursue a career in infrastructure construction.

The issue of work hours is interesting because the majority of trainees (81%) indicated that, during their second rotation, they worked between 37 and 40 hours a week, hence these trainees are not working long hours that are typical of project-based construction work. 66% of trainees also indicated a preference to work the same number of hours they did during their second rotation, while 18% indicated they preferred to work fewer hours.

Because they are not working long hours themselves, it seems likely that trainees' perceptions of workplace culture, in particular an expectation that hours are long and work-life balance will be challenging, are formed on the basis of observing the work practices of others in the workplaces in which trainees are placed.

7.2 Comparison between organisation types

43 respondents from the 2021-2022 cohort of trainees (19 women and 22 men) completed the survey in November/December 2022 and these trainees were asked specifically to identify the organisation type that they preferred to work in based on their experience of the three rotations.

The results reflect different preferences, with 37% of trainees preferring the construction organisation placement, 30% preferring the consultant organisation placement, and 28% preferring the government organisation placement.

Respondents' reasons for these preferences were also explored and revealed that a common experience influencing respondents' stated preference was the extent to which they had a supportive supervisor and were given a wide variety of learning opportunities on a particular rotation setting. However, an important difference was the preference of some trainees to engage in site-based work which respondents described as being 'hands-on' and not exclusively desk-based. Trainees who enjoyed site-based work preferred the construction organisation rotation.

Taylor (2005) similarly observes the perception of whether a job offers 'inside' or 'outside' work as being important in young people's career decision-making. Young people attracted to construction often indicate a desire to be outside (at least for some of the time) and to have a job in which they see tangible outcomes.

Interestingly, several of the trainees commented that the work schedule they experienced during the construction organisation rotation actually worked better for them than the work schedule they experienced in other types of organisations. The reason for this was the earlier start and finish times meant that, when they finished work each day, they had more time to engage in activities like go to the gym and socialise with family and friends.

Part 8: References

- Blau, G. J. (1985). The measurement and prediction of career commitment. *Journal of Occupational Psychology*, 58(4), 277-288.
- Culture in Construction. (2021). A Culture Standard for the Construction Industry. Consultation Paper: October 2021. Australian Constructors Association. Accessed 16 February 2021 from: https://cultureinconstruction.com.au/wp-content/uploads/2021/10/A-Culture-Standard-for-the-Construction-Industry_Consultation-Paper_October-2021.pdf
- Gamboa, V., Paixao, M. P., & de Jesus, S. N. (2013). Internship quality predicts career exploration of high school students. *Journal of Vocational Behavior*, 83(1), 78-87.
- Kyriacou, C., & Coulthard, M. (2000). Undergraduates' Views of Teaching as a Career Choice. *Journal of Education for Teaching*, 26(2), 117-126.
- Mor Barak, M. E., Cherin, D. A., & Berkman, S. (1998). Organizational and Personal Dimensions in Diversity Climate: Ethnic and Gender Differences in Employee Perceptions. *The Journal of Applied Behavioral Science*, 34(1), 82-104.
- Nauman, S., Zheng, C., & Ahmad, R. (2021). Employee Career Outlook and Turnover: Unleashing the Roles of Career Adaptability and Career Satisfaction in International Construction Projects. *Journal of Construction Engineering and Management*, 147(11), 04021150.
- Taylor, A. (2005). It's for the rest of your life: The pragmatics of youth career decision making. *Youth & Society*, 36(4), 471-503.

Part 9: Appendices

9.1 Measurement scales and items

Table 9.1: 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	

A new variable was developed indicating the difference between respondents' mean 'importance' and 'availability' mean ratings in relation to the 24 job characteristics. This new variable was used to examine the effect of respondents' perceived difference between importance and availability of job characteristics on their intention to pursue a career in infrastructure construction.

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 = 0.895) and career commitment (Cronbach's alpha = 0.888), acceptable internal consistency reliability for the constructs of organisational fairness (Cronbach's alpha = 0.778), and marginally acceptable for organisational inclusion (Cronbach's alpha=0.699). 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.

9.2 Importance and availability of job characteristics for all respondents

Table 9.2: Respondents' rating of importance of job characteristics when choosing a career and their availability in infrastructure construction

Job characteristic	Importance when choosing a career (% of respondents)			Availability in infrastructure construction career (% of respondents)		
	Very	Quite	Not	Definitely	Might	Might not
1. A job that I will find enjoyable	88.6	10.5	0	50.5	43.8	3.8
2. Colleagues that I can get along with	72.4	24.8	1	58.1	39	1
3. Pleasant working environment	86.7	12.4	0	48.6	48.6	1
4. A secure job	81.9	17.1	0	64.8	32.4	0
5. A career that provides intellectual challenge	53.3	41	4.8	61.9	35.2	1
6. Good promotion prospects	63.8	35.2	0	61	37.1	0
7. A job which gives me responsibility	57.1	36.2	4.8	72.4	24.8	0
8. High earnings over length of career	57.1	38.1	2.9	60	38.1	0
9. A job where I will contribute to society	50.5	41	7.6	71.4	26.7	0
10. A job where I can use my certificate 3/4 which I am studying for now	40	45.7	13.3	57.1	40	1
11. A job where I gain transferable skills	70.5	26.7	1.9	67.6	30.5	0
12. A job that is respected	60	27.6	11.4	61	36.2	0
13. Reasonable workload	76.2	21.9	1	44.8	45.7	7.6
14. A job with high quality resources and equipment	52.4	41.9	4.8	57.1	39	1
15. Job mobility—easy to get a job anywhere	68.6	28.6	1.9	47.6	48.6	1.9
16. A job that can easily be combined with parenthood	49.5	35.2	14.3	25.7	67.6	4.8
17. A job with gender diversity and fair treatment	74.3	21.9	2.9	35.2	61	1.9
18. A job that gives me some control over my work time	72.4	25.7	1	29.5	61.9	6.7

Job characteristic	Importance when choosing a career (% of respondents)			Availability in infrastructure construction career (% of respondents)		
	Very	Quite	Not	Definitely	Might	Might not
19. A job with hours that don't interfere with my non-work roles and interests (e.g. family and social)	78.1	21	0	30.5	57.1	10.5
20. A job that enables me to have a healthy lifestyle	83.8	14.3	1	40	54.3	2.9
21. A job where I have access to mentoring	57.1	38.1	3.8	41.9	53.3	2.9
22. A job in an industry which has a good reputation and image	60	32.4	6.7	55.2	42.9	0
23. A job that doesn't take me away from family for long durations	66.7	27.6	4.8	29.5	64.8	3.8
24. A job that gives me some control over where I do my work	64.8	31.4	1.9	32.4	60	5.7

- Sample size n = 105 (two cohorts combined)
- Job characteristics have been numbered and used throughout the findings section to enable ease of cross-referencing

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

Table 9.3: Respondents' rating of importance of job characteristics when choosing a career and their availability in infrastructure construction by gender

Job characteristic	Importance when choosing a career (score out of 100)		Availability in infrastructure construction career (score out of 100)	
	Women	Men	Women	Men
1. A job that I will find enjoyable	96.8	92.7	73.4	74.1
2. Colleagues that I can get along with	91.3	82.7	81.9	76.9
3. Pleasant working environment	95.7	91.8	73.4	75.9
4. A secure job	92.6	90.0	79.8	85.8
5. A career that provides intellectual challenge	72.3	76.4	84.0	78.7
6. Good promotion prospects	81.9	83.6	76.6	84.3
7. A job which gives me responsibility	80.4	74.5	86.2	87.7
8. High earnings over length of career	73.9	81.8	78.7	82.4
9. A job where I will contribute to society	73.4	69.1	89.4	83.3
10. A job where I can use my certificate 3/4 which I am studying for now	63.8	63.6	78.7	77.8
11. A job where I gain transferable skills	87.2	82.7	86.2	83.3
12. A job that is respected	81.9	69.1	83.0	80.2
13. Reasonable workload	91.5	84.5	73.4	65.7
14. A job with high quality resources and equipment	75.5	73.6	78.7	78.3
15. Job mobility—easy to get a job anywhere	88.3	80.9	72.3	73.1
16. A job that can easily be combined with parenthood	69.1	69.1	63.8	57.4
17. A job with gender diversity and fair treatment	93.6	79.1	68.1	66.7
18. A job that gives me some control over my work time	88.3	84.5	62.8	61.1
19. A job with hours that don't interfere with my non-work roles and interests (e.g. family and social)	93.6	85.5	62.8	58.3
20. A job that enables me to have a healthy lifestyle	95.7	88.2	70.2	68.9
21. A job where I have access to mentoring	77.7	75.5	71.3	67.6

Job characteristic	Importance when choosing a career (score out of 100)		Availability in infrastructure construction career (score out of 100)	
	Women	Men	Women	Men
22. A job in an industry which has a good reputation and image	81.9	72.7	76.6	79.6
23. A job that doesn't take me away from family for long durations	84.0	78.2	64.9	62.0
24. A job that gives me some control over where I do my work	82.6	80.9	64.9	62.0

- Women n = 48, Men n = 55
- 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 infrastructure construction will offer these characteristics: definitely = 100, might = 50, might not = 0

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

Table 9.4: Comparison of mean importance and availability scores by gender

Job characteristic	Importance when choosing a career			Available in infrastructure construction career		
	p-value	MDif	t-value	p-value	MDif	t-value
1. A job that I will find enjoyable	0.177	4.1	1.36	0.908	-0.7	-0.116
2. Colleagues that I can get along with	0.059	8.6	1.912	0.327	5.1	0.985
3. Pleasant working environment	0.23	3.9	1.208	0.617	-2.5	-0.501
4. A secure job	0.505	2.6	0.669	0.208	-6.1	-1.268
5. A career that provides intellectual challenge	0.497	-4.0	-0.682	0.289	5.3	1.066
6. Good promotion prospects	0.718	-1.7	-0.362	0.119	-7.7	-1.574
7. A job which gives me responsibility	0.309	5.9	1.022	0.725	-1.6	-0.353
8. High earnings over length of career	0.155	-7.9	-1.433	0.453	-3.7	-0.753
9. A job where I will contribute to society	0.498	4.3	0.681	0.176	6.0	1.362
10. A job where I can use my certificate 3/4 which I am studying for now	0.977	0.2	0.028	0.856	0.9	0.182
11. A job where I gain transferable skills	0.362	4.5	0.917	0.542	2.8	0.612
12. A job that is respected	0.054	12.8	1.95	0.569	2.8	0.572
13. Reasonable workload	0.117	6.9	1.583	0.204	7.7	1.278
14. A job with high quality resources and equipment	0.749	1.9	0.321	0.936	0.4	0.081
15. Job mobility—easy to get a job anywhere	0.14	7.4	1.488	0.881	-0.8	-0.15
16. A job that can easily be combined with parenthood	0.993	0.1	0.008	0.214	6.4	1.251
17. A job with gender diversity and fair treatment	0.003	14.5	3.071	0.777	1.4	0.284
18. A job that gives me some control over my work time	0.424	3.8	0.802	0.765	1.7	0.3

Job characteristic	Importance when choosing a career			Available in infrastructure construction 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)	0.041	8.2	2.066	0.466	4.4	0.733
20. A job that enables me to have a healthy lifestyle	0.048	7.6	2.002	0.801	1.3	0.252
21. A job where I have access to mentoring	0.702	2.2	0.384	0.502	3.7	0.673
22. A job in an industry which has a good reputation and image	0.139	9.2	1.491	0.544	-3.0	-0.608
23. A job that doesn't take me away from family for long durations	0.305	5.9	1.032	0.575	2.9	0.562
24. A job that gives me some control over where I do my work	0.747	1.7	0.323	0.606	2.9	0.517

- MDif: mean difference between rating scores between women and men
- A significant difference is denoted by a p value less than 0.05
- Women (N = 48) and men (N = 55)

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

Table 9.5: Rating of importance of job characteristics when choosing a career and their availability in infrastructure construction by organisation type in second rotation

Job characteristic	Importance when choosing a career			Availability in infrastructure construction career		
	GOV	CONSULT	CONSTR	GOV	CONSULT	CONSTR
1. A job that I will find enjoyable	93.1	92.6	97.5	73.6	71.2	76.3
2. Colleagues that I can get along with	78.6	88.9	92.5	79.2	76.9	81.3
3. Pleasant working environment	90.3	96.3	95.0	72.2	75.0	76.3
4. A secure job	86.1	90.7	96.3	82.9	80.8	86.3
5. A career that provides intellectual challenge	75.0	68.5	78.8	79.2	82.7	82.5
6. Good promotion prospects	83.3	75.9	85.0	77.8	88.5	80.0
7. A job which gives me responsibility	79.2	71.2	78.8	82.9	88.5	91.3
8. High earnings over length of career	73.6	73.1	85.0	77.8	80.8	83.8
9. A job where I will contribute to society	69.4	74.1	73.8	81.9	92.3	87.5
10. A job where I can use my certificate 3/4 which I am studying for now	58.3	68.5	66.3	76.4	84.6	77.5
11. A job where I gain transferable skills	86.1	81.5	85.0	81.9	90.4	83.8
12. A job that is respected	76.4	70.4	76.3	80.0	80.8	83.8
13. Reasonable workload	81.9	88.9	93.8	66.7	73.1	68.8
14. A job with high quality resources and equipment	68.1	68.5	82.5	75.0	78.0	83.8
15. Job mobility—easy to get a job anywhere	83.3	77.8	87.5	66.7	73.1	80.0
16. A job that can easily be combined with parenthood	69.4	64.8	68.8	59.7	65.4	58.8
17. A job with gender diversity and fair treatment	77.8	90.7	90.0	63.9	69.2	68.8

Job characteristic	Importance when choosing a career			Availability in infrastructure construction career		
	GOV	CONSULT	CONSTR	GOV	CONSULT	CONSTR
18. A job that gives me some control over my work time	80.6	88.9	88.8	56.9	65.4	63.8
19. A job with hours that don't interfere with my non-work roles and interests (eg. family and social)	84.7	92.6	91.3	52.8	73.1	58.8
20. A job that enables me to have a healthy lifestyle	87.5	94.4	93.8	59.7	73.1	75.6
21. A job where I have access to mentoring	69.4	85.2	77.5	62.5	78.8	71.3
22. A job in an industry which has a good reputation and image	72.2	79.6	78.8	72.2	80.8	82.5
23. A job that doesn't take me away from family for long durations	76.4	77.8	87.5	59.7	65.4	65.0
24. A job that gives me some control over where I do my work	79.2	84.6	82.5	61.1	65.4	65.0

Government n = 37, consultant organisation n = 27, construction partner n = 40

9.6 Importance and availability of job characteristics by career intention

Table 9.6: Mean importance and availability responses for respondents who had decided to pursue a career in infrastructure construction and those who were undecided or who had decided definitely not to pursue a career in infrastructure construction

Job characteristic	Importance when choosing a career		Availability in infrastructure construction career	
	<i>Definitely want to pursue a career in IC industry</i>	<i>Undecided or definitely do not want to pursue a career in IC industry</i>	<i>Definitely want to pursue a career in IC industry</i>	<i>Undecided or definitely do not want to pursue a career in IC industry</i>
1. A job that I will find enjoyable	95.1	94.4	92.5	61.9
2. Colleagues that I can get along with	85.0	87.3	90.0	72.2
3. Pleasant working environment	96.3	92.1	86.3	66.7
4. A secure job	96.3	88.1	93.8	76.6
5. A career that provides intellectual challenge	81.7	69.8	86.3	77.8
6. Good promotion prospects	87.8	78.6	86.3	77.8
7. A job which gives me responsibility	86.3	70.6	95.0	82.3
8. High earnings over length of career	78.8	77.0	88.8	75.4
9. A job where I will contribute to society	86.6	61.9	91.3	83.3
10. A job where I can use my certificate 3/4 which I am studying for now	76.8	54.8	78.8	78.6
11. A job where I gain transferable skills	92.7	79.4	93.8	78.6
12. A job that is respected	84.1	68.3	90.0	75.8
13. Reasonable workload	90.2	86.5	75.0	65.1
14. A job with high quality resources and equipment	85.4	66.7	89.7	72.2
15. Job mobility—easy to get a job anywhere	86.6	81.7	86.3	65.1
16. A job that can easily be combined with parenthood	64.6	69.8	70.0	54.8
17. A job with gender diversity and fair treatment	91.5	82.5	73.8	62.7
18. A job that gives me some control over my work time	87.8	84.9	75.0	53.2

Job characteristic	Importance when choosing a career		Availability in infrastructure construction career	
	<i>Definitely want to pursue a career in IC industry</i>	<i>Undecided or definitely do not want to pursue a career in IC industry</i>	<i>Definitely want to pursue a career in IC industry</i>	<i>Undecided or definitely do not want to pursue a career in IC industry</i>
19. A job with hours that don't interfere with my non-work roles and interests (eg. family and social)	86.6	91.3	72.5	52.4
20. A job that enables me to have a healthy lifestyle	95.1	89.7	80.0	62.1
21. A job where I have access to mentoring	80.5	74.6	80.0	63.5
22. A job in an industry which has a good reputation and image	85.4	71.4	88.8	71.4
23. A job that doesn't take me away from family for long durations	78.0	83.3	71.3	57.9
24. A job that gives me some control over where I do my work	80.5	83.1	76.3	55.6

"Yes": Respondents who had decided to work in infrastructure construction (n = 41).

"No/Maybe": Respondents who had decided not to work in infrastructure construction or had not decided yet (n = 63).

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

Table 9.7: Statistical comparison of mean importance and availability scores according to respondents' stated career decision regarding pursuit of a career in infrastructure construction

Job characteristic	Importance when choosing a career			Availability in infrastructure construction career		
	p-value	MDif	t-value	p-value	MDif	t-value
1. A job that I will find enjoyable	0.828	0.7	0.218	<.001	30.6	6.74
2. Colleagues that I can get along with	0.629	-2.3	-0.484	<.001	17.8	3.835
3. Pleasant working environment	0.171	4.3	1.379	<.001	19.6	3.976
4. A secure job	0.017	8.2	2.426	<.001	17.1	4.13
5. A career that provides intellectual challenge	0.045	11.9	2.031	0.087	8.5	1.729
6. Good promotion prospects	0.049	9.2	1.996	0.079	8.5	1.777
7. A job which gives me responsibility	0.005	15.6	2.902	0.001	12.7	3.273
8. High earnings over length of career	0.755	1.8	0.313	0.005	13.4	2.896
9. A job where I will contribute to society	<.001	24.7	4.519	0.067	7.9	1.855
10. A job where I can use my certificate 3/4 which I am studying for now	0.001	22.1	3.363	0.973	0.2	0.034
11. A job where I gain transferable skills	0.004	13.3	2.967	<.001	15.2	3.694
12. A job that is respected	0.018	15.9	2.408	0.002	14.2	3.135
13. Reasonable workload	0.412	3.7	0.824	0.119	9.9	1.574
14. A job with high quality resources and equipment	<.001	18.7	3.515	<.001	17.5	3.739
15. Job mobility—easy to get a job anywhere	0.348	4.8	0.944	<.001	21.2	4.189
16. A job that can easily be combined with parenthood	0.495	-5.2	-0.685	0.003	15.2	3.032
17. A job with gender diversity and fair treatment	0.059	8.9	1.909	0.041	11.1	2.084

Job characteristic	Importance when choosing a career			Availability in infrastructure construction career		
	p-value	MDif	t-value	p-value	MDif	t-value
18. A job that gives me some control over my work time	0.545	2.9	0.608	<.001	21.8	3.905
19. A job with hours that don't interfere with my non-work roles and interests (eg. family and social)	0.274	-4.7	-1.102	0.001	20.1	3.371
20. A job that enables me to have a healthy lifestyle	0.14	5.4	1.487	<.001	17.9	3.4
21. A job where I have access to mentoring	0.309	5.9	1.023	0.003	16.5	3.101
22. A job in an industry which has a good reputation and image	0.021	13.9	2.345	<.001	17.3	3.775
23. A job that doesn't take me away from family for long durations	0.364	-5.3	-0.911	0.018	13.3	2.43
24. A job that gives me some control over where I do my work	0.626	-2.6	-0.489	<.001	20.7	3.936

- MDif: mean difference between rating scores of respondents who decided to work in infrastructure construction 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 infrastructure construction (N = 41) and respondents who decided not to work in this sector or were undecided (N = 63)

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

Table 9.8: Comparison of mean scores of variables by gender grouping

Variable	Gender	Mean score	Standard deviation	t-value	p-value
Career commitment	Women (N=45)	3.36	0.79	0.644	0.521
	Men (N=54)	3.24	0.95		
Career satisfaction	Women (N=46)	3.71	0.72	-0.738	0.462
	Men (N=54)	3.82	0.76		
Organisational fairness	Women (N=44)	4.03	0.66	-1.609	0.111
	Men (N=51)	4.23	0.58		
Organisational inclusion	Women (N=42)	3.66	0.62	-0.976	0.332
	Men (N=52)	3.79	0.68		
Life balance	Women (N=44)	3.84	1.03	-0.090	0.928
	Men (N=50)	3.86	1.01		
Work hour preferences	Women (N=44)	1.89	0.49	0.283	0.778
	Men (N=49)	1.86	0.50		

* Difference in mean scores between women and men is significant at the 0.05 level (2-tailed)

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

Table 9.9: 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=34)	3.27	0.82	0.682	0.508
	CONSULT (N=25)	3.15	0.86		
	CONSTR (N=40)	3.41	0.94		
Career satisfaction	GOV (N=35)	3.70	0.57	0.894	0.412
	CONSULT (N=25)	3.69	0.80		
	CONSTR (40)	3.90	0.80		
Organisational fairness	GOV (N=32)	3.93	0.64	4.212	0.018*
	CONSULT (N=25)	4.07	0.60		
	CONSTR (N=38)	4.35	0.58		
Organisational inclusion	GOV (N=31)	3.60	0.50	0.923	0.401
	CONSULT (N=25)	3.74	0.68		
	CONSTR (N=38)	3.82	0.76		
Life balance	GOV (N=33)	3.73	1.04	0.472	0.625
	CONSULT (N=23)	3.91	0.79		
	CONSTR (N=38)	3.95	1.06		

Variable	Type of organisation	Mean score	Standard deviation	F-ratio	p-value
Work hours preference	GOV (N=33)	1.85	0.44	0.135	0.874
	CONSULT (N=22)	1.91	0.43		
	CONSTR (N=38)	1.84	0.59		

* Difference in mean scores is significant at the 0.05 level

9.10 Bivariate correlations between variables

Table 9.10: Bivariate correlations between variables

Variable		CS	OF	OI	LB	WHP	CC	PG
Career satisfaction (CS)	Pearson Correlation	1						
	Sig. (2-tailed)							
Organisational fairness (OF)	Pearson Correlation	.246*	1					
	Sig. (2-tailed)	0.016						
Organisational inclusion (OI)	Pearson Correlation	.472**	.617**	1				
	Sig. (2-tailed)	<.001	<.001					
Life balance (LB)	Pearson Correlation	.446**	.258*	.353**	1			
	Sig. (2-tailed)	<.001	0.012	<.001				
Work hour preferences (WHP)	Pearson Correlation	.218*	-0.023	.260*	.329**	1		
	Sig. (2-tailed)	0.035	0.829	0.012	0.001			
Career commitment (CC)	Pearson Correlation	.432**	.226*	.322**	0.193	.275**	1	
	Sig. (2-tailed)	<.001	0.028	0.002	0.062	0.008		
Perceived gap between importance and availability of job characteristics (PG)	Pearson Correlation	-0.163	-0.166	-0.147	-0.158	-.215*	-0.19	1
	Sig. (2-tailed)	0.116	0.12	0.172	0.14	0.044	0.068	

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

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

Table 9.11: Comparison of mean scores of variables by career choice grouping

Variable	Career in infrastructure construction				t-value	p-value
	Yes (N=41)		No/Undecided (N=63)			
	M	SD	M	SD		
Career satisfaction	3.96	0.76	3.63	0.71	2.245	0.027*
Organisational fairness	4.39	0.62	3.95	0.58	3.563	<.001**
Organisational inclusion	3.93	0.70	3.58	0.60	2.637	0.010**
Life balance	4.14	0.95	3.64	1.04	2.354	0.021*
Perceived gap between importance and availability of job characteristics	2.25	14.67	8.69	16.61	-1.930	0.057

* Difference in mean scores is significant at the 0.05 level; ** Difference in mean scores is significant at the 0.01 level

9.12 The association between different career aspects and respondents' intention to pursue a career in infrastructure construction

Table 9.12: Testing the effects of different perceived career aspects on respondents' intention to pursue a career in infrastructure construction

Variable	Coefficient (B)	Standard error	Significance	Exp(B)
Age	-0.267	0.34	0.431	0.765
Gender (reference group: Men)	Ref			
Women	0.857	0.53	0.106	2.357
Organisation type (reference group: Government)	Ref			
Consultant organisation	-0.259	0.703	0.712	0.772
Construction organisation	0.051	0.596	0.931	1.053
Career satisfaction	-0.007	0.407	0.987	0.993
Perception of organisational fairness	0.932	0.576	0.105	2.54
Perception of organisational inclusion	0.672	0.549	0.221	1.959
Perception of life-balance	0.258	0.272	0.344	1.294
Perceived gap between importance and availability of job characteristics	-0.016	0.017	0.335	0.984

* The effect is significant at the 0.05 level; ** The effect is significant at the 0.01 level

Dependent variable: respondents' intention to pursue a career in infrastructure construction

9.13 The combined effects of career commitment and different perceived job aspects on respondents' intention to pursue a career in infrastructure construction

Table 9.13: Testing the combined effects of career commitment and different perceived career aspects on respondents' intention to pursue a career in infrastructure construction

Variable	Coefficient (B)	Standard error	Significance	Exp(B)
Age	-0.445	0.467	0.341	0.641
Gender (reference group: Men)	Ref			
Women	0.414	0.759	0.585	1.513
Organisation type (reference group: Government)	Ref			
Consultant organisation	0.752	1.006	0.455	2.121
Construction organisation	0.188	0.829	0.821	1.207
Career satisfaction	-1.183	0.666	0.076	0.306
Perception of organisational fairness	1.114	0.75	0.138	3.046
Perception of organisational inclusion	-0.244	0.795	0.759	0.784
Perception of life-balance	0.255	0.371	0.493	1.29
Perceived gap between importance and availability of job characteristics	-0.008	0.026	0.76	0.992
Career commitment	3.503	0.829	<.001**	33.2

* The effect is significant at the 0.05 level; ** The effect is significant at the 0.01 level

Dependent variable: respondents' intention to pursue a career in infrastructure construction

9.14 Linear regression model testing the effects of career satisfaction, perceptions of organisational fairness, inclusion, and life balance, and perceived difference between importance and availability of job characteristics on respondents' career commitment

Table 9.14: Testing the effects of different perceived career aspects on career commitment

Variable	Coefficient (B)	Standard error	Beta	Significance
Age	0.061	0.119	0.053	0.608
Gender (reference group: Men)	Ref			
Woman	0.309	0.181	0.171	0.091
Organisation type (reference group: Government)	Ref			
Consultant organisation	-0.276	0.247	-0.13	0.267
Construction organisation	0.069	0.214	0.038	0.75
Career satisfaction	0.328	0.145	0.282	0.027*
Perception of organisational fairness	0.097	0.198	0.063	0.625
Perception of organisational inclusion	0.335	0.189	0.246	0.081
Perception of life-balance	-0.024	0.095	-0.028	0.803
Perceived gap between importance and availability of job characteristics	-0.007	0.006	-0.118	0.253

* The effect on career commitment is significant at the 0.05 level; ** The effect on career commitment is significant at the 0.01 level

