ARE SINGAPOREANS READY FOR THE FUTURE OF WORK?

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Executive Summary

EXECUTIVE SUMMARY

The Future of Work (FOW) survey by the Institute of Policy Studies was designed to gather data that would provide insights into specific research issues, namely:

➢ How prepared Singapore's workforce is for the FOW.

➢ What Singapore workers care about in their jobs and careers, which job aspects they prioritise, their values and attitudes towards emerging issues such as workplace diversity and sustainability, and the meaning they find in their work.

➢ Singapore's social mobility thus far, by focusing on Singapore workers' individual lived experiences and their perceptions of their own socio-economic progress compared with their parents and peers.

➢ Areas of vulnerability and demographic groups that may be more at-risk as Singapore's workforce transitions to the FOW.

The survey was conducted in October 2022 with 1,010 economically active Singapore citizens and permanent residents that were representative of Singapore's workforce. Initial highlights of the survey were released at the 2023 Singapore Perspective Conference on "Work", with the full study presented in this report. Key findings of the survey are summarised below.

PREPAREDNESS FOR THE FUTURE OF WORK

We examined preparedness by asking respondents two sets of questions. The first set gauges respondents' attitudes or mindsets towards impending changes in the FOW, namely their level of awareness about these changes, their openness to as well as anxiety about these changes, and their self-efficacy in adapting to FOW changes. These are broadly termed as "*change attitudes*" in this study.

The second set of questions measures the extent to which respondents are likely to pursue and excel in critical core skills relevant in the FOW, namely, *creativity* and *career self-management*.

Findings suggest that Singapore workers are, on average, reasonably well-positioned to tackle future changes in the labour landscape. The majority are aware that there is a high chance that their jobs and work roles may change significantly in the near future, and that they may need to learn new skills or pivot to different roles or even occupations as part of the adaptation. Most

are open to such transitions and confident that they will be able to handle these successfully.

One of the trends about future jobs and work tasks is they will likely require more creative inputs. Employers, too, will place increasing emphasis on hiring, training and retaining employees who can deliver creativity and innovation. In this aspect, the prospects for Singapore workers are relatively encouraging, as most appear to display a decent level of interest and confidence in creative tasks.

Singapore workers fare less favourably, however, in career self-management, which includes actions and activities in networking, lifelong learning and reputation-building. Only about half or fewer than half indicate that they are moderately or actively taking action in these areas. These results point to a significant gap between awareness and action.

While Singapore workers are generally prepared for and aware of the need to adapt to FOW changes, such awareness is not translating into individual action. People seem to be far less enthusiastic about taking initiative to manage and inoculate their careers for the FOW. This awareness-action gap is statistically significant across almost all demographic groups — whether male or female, young or old, highly or less-educated.

Change Attitudes

Educational attainment and age are the two statistically significant predictors for *change awareness* and *openness to change*. In general, respondents who are more highly educated — especially those who have completed at least post-secondary education; and those who are younger are more aware about impending changes in the FOW, and more open to embracing such changes. Between the two demographic predictors, educational attainment has a much larger effect size (i.e., a far greater impact on awareness and openness about FOW changes) compared with age.

➢ At least 66% of respondents with degrees, diplomas or professional qualifications and post-secondary (non-tertiary) education believe that how work is done in their current role will change significantly in 5 to 10 years. In contrast, only about half or below half of respondents with secondary and below secondary education believe so.

➢ Fewer than 60% of those aged 55 and above believe that that they will need to reskill themselves to adapt to work changes, compared with almost 80% of respondents in younger age groups.

- ➢ More than 70% of respondents with at least post-secondary education consider themselves open to changes in their work or jobs, compared with only 53% of those with below-secondary education, and 65% of those with secondary education.

- ➢ Fewer than half of those aged 55 and above are open to changing their occupations, compared with 63% of those aged 35–54 and 69% of those aged 21–34.

Educational attainment — not age — also predicts *change self-efficacy* (i.e., how well people expect to cope with changes), while gender and ethnicity are the other predictors for this measure.

- ➢ At least 74% of respondents with post-secondary or higher education believe they have the skills needed to adapt to changes at work. Only 60% of those with secondary education and 50% of those with below-secondary education believe so.

- ➢ Almost 2 in 3 males do not anticipate any problems adjusting to changes at work, while only half of the females feel this way.

- ➢ Malays and Indians feel significantly more confident about adjusting to changes at work, compared with Chinese respondents. Eurasians and Others do not differ significantly from Chinese respondents in this aspect.

Occupation group is the main significant predictor for *change anxiety* (i.e., how anxious people feel about changes at work). Non-PMETs are significantly more anxious about changes than professionals, managers, executives and technicians (PMETs).

- ➢ Overall, about 4 in 10 admit to feeling anxious about the implementation of changes at work and the prospect of working in a different job.

- ➢ This figure goes up to almost half for clerical, sales and services workers (CSSWs), and those working as production and transport operators, cleaners and labourers (PTOCLs), i.e., non-PMETs.

- ➢ Only about 1 in 3 PMETs feel the same.

FOW Relevant Skills and Actions

Our survey did not measure actual creative ability but instead, gathered responses for two creativity-related attitudes (*creative interest* and *creative self-efficacy*) that can predict people's inclination to pursue creativity-related skills and work, as well as their potential performance in creativity at work. Educational attainment, gender, occupation groups and childhood socio-economic circumstances are the key predictors here. Diploma and degree-holders are significantly more likely than others (i.e., those with below-secondary, secondary or post-secondary education) to demonstrate greater interest in creative work and greater creative self-efficacy. Compared with males, females rate themselves lower in creative interest and creative self-efficacy. Likewise, non-PMETs rate themselves lower in these measures, compared with PMETs. Finally, those who grew up in lower social class are more likely to report lower creative interest and creative self-efficacy than those who grew up in middle and upper-class backgrounds, even if they now share similar income and education levels.

➢ Close to 70% of respondents with post-secondary, diploma or degree-level education like creating new procedures for work tasks, compared with just over 50% of those with secondary or below secondary-level education.

➢ Almost 80% of diploma and degree-holders are confident that they can solve problems creatively at work, compared with 74% of respondents with post-secondary education, 65% of those with secondary-level education, and 61% of respondents with below secondary education.

➢ About 63% of females indicate at least some enjoyment in working in a job that requires them to be creative, compared with 71% of males.

➢ Only about half of females believe that they are good at generating novel ideas at work, compared with almost 2 in 3 males.

➢ About 7 in 10 PMETs like coming up with novel ways of doing things at work, compared with fewer than 6 in 10 CSSWs, and only about half of PTOCLs.

➢ About 82% of those who indicated that they grew up in upper social class enjoy or somewhat enjoy improving existing processes or products at work, compared with 75% from middle class and 62% of those from lower social class.

> ➢ About 3 in 4 who report growing up in upper social class believe they have a knack for developing the ideas of others at work, compared with about 3 in 5 of those who hail from middle class backgrounds and only about half of those who grew up in lower social class.

We measured *career self-management* by asking respondents to rate the extent to which they engage in actions in three relevant areas: *networking*, *practical activities* and *reputation building*.

Survey findings point to gender as a predictor in all three dimensions, with females consistently lagging behind males as to how much they perceive themselves to be engaged in these three areas

Occupation group is another significant predictor, with PMETs significantly more pro-active in career self-management compared with workers in the other two groups.

Ethnicity is significantly associated with practical and reputation building actions, but not with networking activities. Malays and Indians report engaging in activities in the first two areas more extensively than the Chinese, while Eurasians and Others do not differ significantly from the Chinese in any of the career management dimensions.

Educational attainment is significantly associated with practical actions. those with secondary or below-secondary qualifications lag others in this area. There are no significant differences between respondents of different education levels with regard to their responses on networking actions and reputation building actions.

Finally, childhood social class is also associated with how Singaporeans approach career self-management. Those who grew up in poorer circumstances tend to rate themselves lower in all three aspects of career self-management, compared with their peers from better-off backgrounds — even if they now share similar income and education levels.

WORK VALUES, PRIORITIES AND MEANING

When it comes to what they value and prioritise in their jobs, Singapore workers are generally still pragmatic*. Pay adequacy* (i.e., being paid adequately and fairly for work done) and *comfortable work conditions* rank among the top three most important job characteristics for Singapore workers. Singapore workers also care about doing the right thing. *Workplace ethics* ranks second out of the list of 15 job aspects or characteristics that respondents on this survey were asked to rate.

Singapore workers also care about sustainability issues.
  ➢ About 7 in 10 indicate that it is moderately important or very important that their jobs allow them to contribute to environmental and sustainability causes.

Diversity priorities are valued as well.
  ➢ At least 2 in 3 indicate that it is moderately or very important that organisations maintain diversity-friendly work environments and that diverse perspectives are valued in their work groups.

  ➢ Survey respondents agree that *persons with mental health conditions* and *persons of disability* are the top two priority categories for workplace diversity, equity and inclusion (DEI) efforts.

  ➢ The other six DEI categories are: age (3), social class or income (4), race (5), gender (6), sexual orientation (7) and finally religion.

  ➢ Similar patterns are observed across the different age groups and ethnic groups.

Finally, for this segment, the survey examines the meaning that people find in their work. Occupation group, ethnicity, and childhood social class are the key significant predictors here.

PMETs are significantly more likely to find meaning and purpose in their work, compared with CSSWs, as well as PTOCLs.
  ➢ Just over 40% of CSSWs and PTOCLs say it is true that they have a meaningful career, compared with 64% of PMETs.

Malays and Indians are significantly more likely than the Chinese to believe that their work is meaningful; Eurasians and Others do not differ significantly from the Chinese in this aspect
  ➢ About 70% of Indians and Malays believe it is true that the work they do serves a greater purpose, compared with 58% Chinese and 52% Eurasians and Others.

Those who grew up in higher social class are more likely to find greater meaning in their work, compared with those who grew up in lower social class, although the effect size of childhood socio-economic status (SES) is much smaller, compared with the effect sizes from occupation and ethnic groups.

➢ About 7 in 10 who grew up in upper social class say it is true that they have found work that has a satisfying purpose. In contrast, about 6 in 10 of those who grew up in middle class families and just over half of those who grew up in lower social class say the same.

SOCIAL MOBILITY

In understanding how Singaporeans are likely to fare in jobs in the future and where vulnerabilities may lie, the survey also takes stock of social mobility thus far.

Scholars typically conceptualise social class in two main ways. The first approach takes an objective perspective, using objective measures such as income levels, education attainment, housing type or neighbourhoods, etc. The second approach adopts a subjective perspective, whereby social class is measured as the perceptions people have of their own standing in society and access to resources relative to others, e.g., whether they feel themselves to be part of lower-, middle-, or upper-class groups. Our focus in this study is on the subjective perspective as we are interested in how much Singaporeans personally feel their lives have improved since childhood and over the course of their careers.

A well-established subjective measure is the MacArthur Scale of Subjective Social Status, or MacArthur ladder, whereby respondents are presented with an image of a ladder with 10 rungs (numbered 1 to 10) and asked to imagine that it represents their society. The top rung (number 10) represents people with the most wealth, education and respected jobs, while the bottom rung (number 1) represents the most impoverished and least educated with the least respected or no jobs. Respondents are then asked to rank themselves on this ladder relative to others.

In the IPS survey, respondents are first asked to recall their childhood circumstances at age 18 or earlier and provide a "ladder ranking" or "ladder score" (between 1 and 10). They are then asked to consider their present circumstances and provide a current ranking. An increase in "ladder scores" from childhood to present circumstances suggests upward social mobility, and vice versa for a decrease in "ladder scores". The survey further classifies

the ladder scores or ranks into three social class brackets: lower (ranks 1–4), middle (ranks 5–7) and upper (ranks 8–10).

➢ 61% respondents report higher scores now — i.e., experiencing upward social mobility compared with childhood, while 24% report no change in scores and only 16% report a decrease in scores.

➢ Close to 90% who report growing up in the lower social class brackets (1–4) report higher scores now, compared with about 51% of those who grew up in middle class brackets (5–7) and 13% of those who grew up in upper class brackets (8–10).

➢ Older respondents are more likely to report upward mobility (70% of those aged 55 and above, compared with 61% of those aged 35–54 and 52% of those aged 21–34).

➢ PMETs are significantly more likely to report upward mobility when compared with CSSWs and PTOCLs. Almost 2 in 3 PMETs report higher "ladder" scores now, compared with just over half of CSSWs and PTOCLs.

➢ No statistical differences in upward mobility were found across gender or race.

ROLE OF UNIONS GOING FORWARD

In recent years there have been emerging labour market-related issues and trends that unions globally have been called upon to consider. We examine the extent to which Singapore workers believe Singapore's labour movement should engage in these causes. We asked respondents to rate, on a scale of 1 to 5, the level of priority they believe unions should accord to each of six different issues (identified through a literature review).

The top two priorities are to promote workplace diversity and inclusion (ranked first) and support environmental policies (ranked second). The next two priorities are to: cover platform and gig economy workers (ranked third) and provide guidance for employees working from home (ranked fourth). The last two priorities are to: provide guidance for employees of online businesses (ranked fifth) and union coverage for migrant workers (ranked sixth).

Chapter 1

Introduction

CHAPTER 1: INTRODUCTION

1.1 BACKGROUND

In 2023 the Institute of Policy Studies (IPS) chose "Work" as the theme for our annual flagship Singapore Perspectives conference. To augment the conference with further insight, we conducted a survey with more than 1,000 Singapore citizens and permanent residents who are representative of Singapore's workforce. Initial highlights of the study were released at the conference, and the full study is presented in this report.

We designed our survey specifically to address research questions (RQs) in five areas critical to the Future of Work (FOW) for Singapore. These are: (i) Singapore workers' preparedness for the FOW; (ii) their work values and priorities; (iii) their perceptions and personal lived experiences of social mobility; (iv) their views of the role of unions going forward; and (v) whether their respective backgrounds and demographics make a difference in their responses, to assess if there are groups that may be more at-risk of lagging behind.

1.2 SUMMARY OF RESEARCH OBJECTIVES

I.   Preparedness for Future of Work
RQ1. How prepared are Singapore workers to adapt and succeed in a labour landscape increasingly fraught with rapid disruptions and major restructuring?
We measured level of preparedness through the following questions:
  ➢ What is the level of awareness among Singapore's workforce about how jobs and work in general will change in the coming years?

  ➢ How open are they to adapting to such changes? How much confidence or anxiety do they have in their own abilities to cope with changes?

  ➢ What appropriate, tangible actions are they taking to ensure they can adapt and stay ahead — particularly in skills critical in the FOW?

II.   Work values, priorities and meaning
RQ2. How much do Singaporeans value and prioritise different aspects in their work and careers?
In this section of the survey, we examined:

- ➢ How important do Singapore workers rate different job aspects such as pay, career advancement prospects, and recognition, etc.? What do they value most and what least?

- ➢ How much do they care about emerging issues such as social, environmental and diversity causes in the workplace? How meaningful do they find their work to be?

- ➢ To what extent are they willing to consider trade-offs between their careers and family priorities or social contributions?

III.   Social Mobility
RQ3. To what extent do Singaporeans feel that their lives have improved now, compared with what life was like in their childhood?

In seeking to understand the future work and career prospects of Singaporeans, we felt it would also be important to take stock of Singapore's social mobility thus far. In this study we focus more on Singaporeans' perceptions of their personal social mobility and individual lived experiences, rather than using objective economic and material indicators such as income growth, wealth distribution, education levels, etc. We wanted to understand how much do Singaporeans personally feel that they have truly made socio-economic progress, compared with their parents and peers?

IV.   Role of unions going forward
RQ4. How much priority should unions in Singapore place in addressing new, emerging economic and labour trends?

With the significant rise of the gig economy and platform work, remote work arrangements and online businesses, in tandem with rising concern over climate change issues, how much attention should unions devote to emerging trends in the world of work? Given the importance of tripartism in Singapore's economic development, it was important to understand to what extent Singaporeans felt it was an imperative for unions to engage in such trends.

V.   Demographics and vulnerable groups
RQ5. In examining Singapore workers' preparedness for the Future of Work, which are the groups that may be more vulnerable?

To what extent might demographic factors such as social class, ethnicity, and gender be associated with significant differences in Singapore workers' preparedness for the FOW, their work values and priorities, as well as their individual experiences of social mobility? Which of these groups have fared less well, are more vulnerable and likely to be less equipped to survive — let alone thrive — in the FOW? In which areas would they require more help and support?

Chapter 2

Literature Review and Methodology

CHAPTER 2: LITERATURE REVIEW AND METHODOLOGY

2.1 LITERATURE REVIEW

To understand how prepared Singaporeans would be for the Future of Work (FOW), we start first with examining the key defining features of the future labour landscape, followed by the skills and qualities that would be necessary for surviving and thriving in such an environment.

Numerous international and local research reports predict massive turbulence in the world's labour markets in the coming years, driven by an unprecedented combination of technological disruptions, demographic changes and intensifying environmental pressures and compounded by geopolitical volatility and global economic uncertainty. Many jobs will be redesigned. Many more are expected to be rendered obsolete and replaced by newly created ones, with the rapid rise of automation and artificial intelligence (AI) technologies in tandem with the emergence of new sectors such as the green, care and digital economies (SkillsFuture Singapore, 2021; WEF, 2020a, 2023). The latest World Economic Forum (WEF) report in 2023 predicts that by 2027, 83 million jobs will be eliminated while 69 million new jobs created globally. Six in 10 workers will need to be trained in the next four years, but only half are likely to have the opportunity to access the requisite training, according to the same report (WEF, 2023).

In this new labour landscape fraught with changes, hardly anyone can expect to work at the same place for long, and people are expected to make multiple career transitions not just across organisations but also across occupations and industries. A recent McKinsey report (Manyika et al., 2017) projects that by 2030, up to 14% of the global workforce will need to change occupational categories altogether. As career uncertainty increases, career paths become less linear and career transitions become more frequent, people will need to take more initiative in improving their own employability and shaping their own careers, rather than rely on their organisations or other external stakeholders to manage their training and career development (Strauss et al., 2012). Gone are the days when one enters a job and climbs a straight path up the corporate ladder. Instead, workers need to navigate and negotiate more complex individual career matrices.

Singapore too, will be affected by these trends and the government is acutely aware of the issues at hand. Prime Minister (PM) Lee Hsien Loong at his 2023 National Day Rally addressed this head on. Noting that uncertain and turbulent global economic conditions were expected to persist, he encouraged Singaporeans to also seize opportunities from new jobs created

in new sectors. "We can certainly expect more job disruptions. More of our workers will be affected by such disruptions and may lose their jobs several times throughout their careers," he cautioned in his Malay speech at the rally. The government would therefore step up support for workers to gain new skills and transition to new sectors, PM Lee promised, urging Singaporeans to also do their part by putting effort into reskilling themselves.

2.1.1 Preparedness for FOW — Change Attitudes

Whether and how the world's workforce can keep pace with the wave of changes sweeping through the FOW is a question keeping scholars and policymakers up at night. A recent report by Yale professor and economist Dirk Bergemann and his colleagues reviewed different arguments from various experts and prominent thinkers, focusing on the disruptions to work that are expected to be brought on by AI (Bergemann et al., 2003). The report highlighted one school of thought from renown economist Lawrence Summers and former head of Aspen Institute and CNN CEO Walter Isaacson, who separately expressed that their major concern centres on people's severe lack of preparedness for changes, in what they perceive to be an historically unprecedented workforce disruption. Even the most powerful and elite workers would not be spared, they noted to Bergemann et al. Isaacson, who ran the Aspen Institute from 2003 to 2018, argued that displacement would be most severe for professional knowledge workers (Bergemann et al., 2003).

How do we gauge a workforce's preparedness for a FOW that would be characterised by frequent and substantive changes? In developing an appropriate framework to study and measure this, we took inspiration from existing literature on change management and organisational change. The framework centres on a set of attitudes towards managing and coping with changes, broadly termed as "change attitudes".

Awareness of change

First, people need to have sufficient information about the changes to come. It is not possible to be prepared for something if one is not aware of it to begin with. Furthermore, research has shown that employees who receive adequate information about impending organisational changes — through both formal and informal sources — are likely to be more receptive to those changes (Miller et al., 1994; Oreg, 2006). As such, we developed a four-item scale to measure awareness of likely general changes in the FOW. Based on our review of existing research on the future labour landscape, we identified key characteristics of impending changes and asked survey respondents to rate, on a scale of 1 to 5, how likely they felt these changes would take place. Examples of the items include "The core skills needed to perform my current role will change in the next 5–10 years" and "I will need

to reskill myself to adapt to changes in my work or career". (See Table 1 or a full list of question items and response anchors for this scale, as well as details for all subsequent multi-item measures applied in the survey.)

Openness to change

Being aware is the precondition for being prepared for impending changes. One must also be receptive or open to those changes, rather than resist them. Research has shown that positive employee attitudes towards new policies, processes and systems in organisations — in short, their openness or willingness to participate — are critical to successful implementation of these changes (Sinval et al., 2021). We thus adapted existing measures from Miller et al. (1994) and Sinval et al. (2021) to develop a four-item scale for this survey. Sample items include asking participants to rate, on a scale of 1 to 5, how much they agree or disagree with statements such as "I look forward to changes in my work or job" and "I am open to changing my occupation or career".

Change anxiety

While people may be aware of and even open to changes, they could be apprehensive about how they could cope with these changes, and this would have consequences on their health and wellbeing (Miller et al., 1994). Being stressed or tensed about impending changes could also lead to heightened resistance to these changes (Oreg, 2003). To gauge change anxiety, we adapted a measure from Miller et al. (1994) and developed a five-point scale with three items. Sample items include: "The thought of working in a different job worries me" and "I am anxious about the implementation of changes at work".

Change self-efficacy

How confident people feel about their own ability to cope with changes is also critical to how prepared they would be for a future fraught with changes. The salient concept here is self-efficacy about changes (or "change self-efficacy"). Bandura, who developed self-efficacy theory, defined general self-efficacy as "beliefs in one's capabilities to organize and execute the courses of actions required to produce given attainments" (Bandura, 1997, p. 3). According to self-efficacy theory, how well people expect to perform or succeed (i.e., their perceived level of self-efficacy) in a particular area or activity will influence whether they will embark on that activity, how much effort they will devote to that activity, and how long they will persist in that activity, especially in the face of adversity (Bandura, 1997). In fact, evaluations of self-efficacy are often deemed as "the best predictors of behavioral initiation and persistence" (Maddux & Stanley, 1986, p. 250). As such, expectancies of performance have a significant impact on actual performance; when people underestimate their own ability and performance,

they are likely to perform more poorly than those with similar levels of competency but higher expectancies of their own success.

Researchers have also found that self-efficacy is important when it comes to coping with career changes, layoffs, and other significant career developments, and is particularly pertinent in situations that people consider to be unpredictable, stressful, or new (Judge et al., 1999). Thus, we felt it would be relevant to measure Singaporean workers' perceived efficacy in coping with changes, i.e., change self-efficacy. We adapted a measure developed by Holt et al. (2007) and ask participants to rate on, a scale of 1 to 5, the extent to which they agree or disagree with four different statements. Sample items or statements include "If changes are adopted at work, I do not anticipate any problems adjusting to them" and "I have the skills that are needed to adapt to changes at work".

2.1.2 Preparedness for FOW — Critical Core Skills

Having the right mindsets for managing or coping with change is only part of the battle won. Another major part depends on whether one has the relevant core skills to thrive in the future workscape. These core or cross-functional skills refer to foundation skills that are transferable or generalisable across job roles and industries, which employers deem to be helpful in supporting enterprise transformation and making their businesses become more competitive (WEF, 2020b). Since 2016, the WEF has published bi-annual reports tracking the impact of the Fourth Industrial Revolution on labour markets. Titled *The Future of Jobs*, this series monitors cross-functional skills that are increasingly in demand by employers. Two of the top 10 core or cross-functional skills in recent years (WEF, 2020b; WEF, 2023) relate to:
   a) **creative thinking and innovation**; and
   b) **career self-management**
In Singapore, government agency SkillsFuture Singapore (SSG) has also published recent research highlighting creative thinking and self-management as among the most in-demand critical core skills for the FOW (SSG, 2021). We have therefore chosen to focus on these two sets of skills in our survey.

Creativity and Innovation

As developed economies such as Singapore move increasingly towards knowledge-based sources of value creation, there is growing emphasis on individual creativity in today's workforce (Kremer et al., 2019). Good jobs are often labelled as "creative" to attract strong candidates and typically highlight opportunities for individual creative expression and attractive future prospects (Koppman, 2016). To meet this rising demand from employers and ensure that they remain competitive, it is critical that Singapore workers

boost their creative skills and actively embrace — rather than shy away from — work that involves or even prioritises creative skills and abilities.

Our study did not measure participants' actual ability in creative thinking and innovation as this was neither practical nor feasible in a 20-minute survey administered to respondents in public spaces, where our survey was conducted. Assessing individuals' creativity would have required a separate and far more thorough mode of assessment, preferably in a classroom or private setting. What we did, however, was to measure people's attitudes towards creative thinking in the work context, namely, their *creative interest* (i.e., interest in creative tasks or innovation at work), and their *creative self-efficacy*. These two attitudes can help to predict people's inclination or tendency to pursue creative endeavours, and their potential creative performance at work.

Creative interest (i.e., interest in creative tasks/innovation at work). The theory of planned behaviour explains that people are more likely to pursue a particular behaviour or course of action if they hold positive attitudes towards that specific behaviour or action (Ajzen, 1991). Thus, people who demonstrate higher interest levels towards creative tasks or greater enjoyment of creative work are more amenable and likely to pursue such work and would be more likely to hone their skills in creativity at work. To measure this, we adapted seven question items from scales developed by Gilson and Shalley (2004), Shin et al. (2017) and Tierney et al. (1999). Sample items include asking respondents to rate, on a scale of 1 to 5, the extent to which they enjoy or dislike "finding solutions to complex problems at work" and "coming up with novel ways of doing things at work".

Creative self-efficacy. As discussed earlier in section 2.1.1, self-efficacy refers generally to people's beliefs in their ability to perform or succeed in certain tasks or roles. Creative self-efficacy reflects specifically people's confidence or beliefs that they can be creative in their work and are able to produce creative outcomes (Tierney & Farmer, 2002). Research has shown that an increase in creative self-efficacy is associated with an increase in creative performance (Tierney & Farmer, 2011). In short, people who demonstrate higher levels of creative self-efficacy are likely to perform better in creative tasks. To measure this, we adapted three question items from existing scales by Chen and Li (2019) and Tierney and Farmer (2002). Sample items include asking participants to rate, on a scale of 1 to 5, how much they agree or disagree with "I have confidence in my ability to solve problems creatively at work" and "I feel that I am good at generating novel ideas at work".

Career Self-Management

The WEF series of reports on the Future of Jobs describe self-management as a set of skills that involve active learning, stress tolerance, and flexibility (WEF 2020b; WEF 2023). In organisational research, scholars have noted that increasingly, as labour markets and organisational environments become more uncertain and volatile, people can no longer presume their careers would follow the traditionally expected linear trajectories, i.e., climbing steadily up the corporate ladder or hierarchy of an organisation over the course of one's career. Instead, more and more people are experiencing layoffs, lateral shifts within and across organisations, transfers across industries and geographics, and career interruptions due to various reasons (Eby et al., 2003). This has led to the concept of a "boundaryless career" whereby careers assume a variety of forms unbounded by a single organisation or industry. In tandem with this concept is the rise of the need for career self-management — as opposed to organisational career management — whereby people take responsibility and personal action in furthering their individual careers rather than depend largely on their organisations to do so (Eby et al., 2003; Sturges et al., 2000).

In this context, how should one go about effecting career self-management? What are the types of behaviours and activities that define career self-management and lead to success in career self-management? Hirschi and Koen (2021) describe career self-management as a dynamic process in which people proactively explore, learn, and network to achieve certain career goals. Eby and colleagues (2003) found that to succeed in a boundaryless career and enhance their marketability both internal and external to the organisation, people need to engage in career self-management across different areas of competencies. First, they need to discover their own career motivations and be open to new possibilities and experiences. Second, they need to build career-related networks with peers and mentors within and outside their organisations. Such networks act as resources for learning, expert consultation, support, as well as visibility and reputation building. Finally, they need to develop a "broad and flexible skill base" transferable across organisations and industries (i.e., cross-functional skills) and to engage in continuous learning (Eby et al., 2003, p. 692).

Given the wide-ranging demands of career self-management, we adapted frameworks and measures from Eby et al. (2003) and Sturges et al. (2002) to develop an overall ***career self-management scale*** covering behaviours in three different areas or dimensions, namely: ***networking***, ***practical activities or actions***, and ***reputation building***. We used a five-point scale that asked participants to rate the extent to which they engage in the different actions described in the three dimensions.

Networking actions. This subscale has four items. Sample items include "I have built or am building contacts with people in areas where I would like to work" and "I ask for job or career advice from people even if it has not been offered".

Practical actions. This subscale comprises nine items, which include "I keep my CV up to date", "I seek out career-related training/development or qualifications outside my organisation", and "I have a diversified set of job-related skills".

Reputation building actions. This is measured using three items. Sample items include "I make sure I get credit for the work I do" and "I make my work accomplishments visible to others (e.g., through conversations, social media, etc.)".

2.1.3 Career Responsibility

Finally, we wanted to understand the mindset of Singaporeans regarding career responsibility — i.e., accountability over their personal career development and management. Existing research points overwhelmingly to the increasing need for the individual to take charge of their own career, and this has been discussed in detail earlier in this chapter (see section 2.1.2). But are people aware of this? Do they agree? Or do they believe that some other entity or authority should bear greater responsibility in helping them to build their careers? To this end, we developed a question asking participants to rate, on a scale of 1 to 5, how much responsibility (ranging from "not at all responsible" to "completely responsible") they as well as other stakeholders should bear in the development and management of their careers. The stakeholders listed were as follows: self, line manager or supervisor, employer, and the government.

In summary, to be prepared for the FOW, people need to have the right attitudes towards impending changes and challenges (i.e., change attitudes), and the relevant skills to adapt and manage these challenges. The figure below maps out how the different concepts and variables discussed thus far relate to each other and ultimately, to preparedness for the FOW.

Figure 2.1: Nomological map for variables related to preparedness for FOW
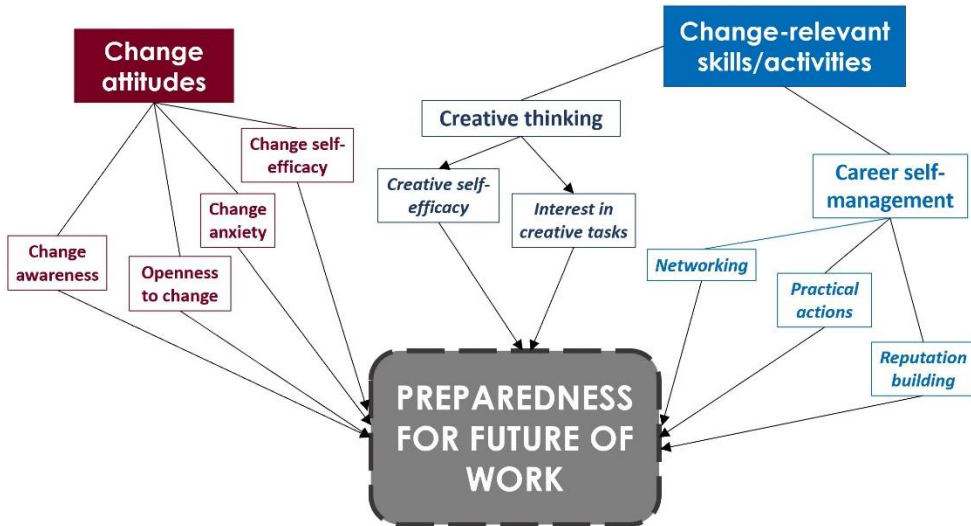
2.1.4 Work Values, Priorities and Meaning

In this segment, we examine how much Singaporeans value different job characteristics or aspects and whether their priorities differ across different groups. This helps us to understand what the Singapore worker looks for in a job and could provide insights into recruiting and retaining talent.

In line with growing emphasis on environmental, social and governance (ESG) factors and the corporate social responsibility (CSR) agenda in the corporate environment (Clementino & Perkins, 2021; Pérez et al., 2022), we also probed respondents more deeply on workplace ethics, diversity and inclusion issues, as well as sustainability priorities at work.

Additionally, our study examines what work means to Singaporeans, whether they find their work meaningful, and the extent to which they would be willing to forgo income or career opportunities for family or social contributions.

Preferences in Job Aspects/Characteristics

Through five decades of research on job design, organisational researchers have developed a relatively consistent list of job aspects or characteristics across a wide range of jobs. We draw from the literature and adapted measures by Campion (1988), Hackman and Oldman (1974), and Manhardt (1972) to develop a scale describing 13 different job characteristics ranging

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from pay adequacy and job security to career advancement and task significance. To this list we adapted research on ethics, ESG and CSR from Trevino and colleagues (2008) as well as McKay and colleagues (2007). This adds two more job aspects, i.e., workplace ethics and workplace diversity, to account for the rising prominence of sustainability issues accompanied by activism and advocacy in these areas (Pérez et al., 2022).

In the survey, we presented descriptions for a total of 15 job aspects or characteristics and asked participants to rate, on a scale of 1 to 5, the extent to which they personally felt each aspect was important in a job. For a full list of the 15 job characteristics and accompanying descriptions, refer to Appendix A.

Diversity and Inclusion Priorities

While the job characteristics scale measures Singaporeans' attitudes towards general or overall workplace diversity, we felt there was value in drilling deeper into how people prioritise different diversity categories or groups. Diversity initiatives at the workplace generally refer to "the implementation of one or more practices aimed at improving the workplace experiences and outcomes of groups that face disadvantage in society" (Portocarrero & Carter, 2022, p. 2).

Traditional literature on diversity issues and initiatives — especially for US-based research — tend to focus on discrimination of racial minorities. However, increasingly the discourse on diversity and inclusion has expanded to include other categories (Blanck et al., 2020; Patrick & Kumar, 2012; Tompa et al., 2022). Based on a review of the literature, we developed a list of eight different diversity categories and asked participants to rate, on a scale of 1 to 5, how important it would be to consider each of these categories in workplace diversity, equity and inclusion (DEI) efforts. These eight categories are: age, race, gender, religion, social class or income groups, persons of disability, persons with mental health conditions, and sexual orientation.

Sustainability Priorities

Likewise, given growing concerns globally over climate change, environmental and sustainability issues, we examined the extent to which Singaporeans feel it is important that these issues are reflected in their workplace goals and priorities. We were also interested to find out if any significant generational differences exist for views on sustainability matters.

The popular media often depict younger generations — millennials and Gen Z — as champions of climate change and environmental issues (Ro, 2022; Thomas, 2015). However, social science research across different countries

increasingly suggest that the older generations may not lag behind youths in their level of awareness, concern and action around environmental and sustainability issues (Gray et al., 2019; Shi et al., 2016; Visschers et al., 2017).

What is the case in Singapore? Do Singaporeans young and old share similar levels of concern? To measure this, we adapted Turker's 2009 measure for a four-item scale. Two of the question items focused on the environment, while the other two focused on actions oriented towards benefitting future generations. We asked participants to rate, on a scale of 1 to 5, how important it is that their work gives them opportunities to participate and achieve goals in areas such as "minimise negative impact on the natural environment" and "sustainable growth which considers future generations".

Meaningful Work

The discourse on work and career is devoting increasing attention to the importance of meaningful work. Meaningful work is defined as "work experienced as particularly significant and holding more positive meaning for individuals" (Rosso et al., 2010, p. 95), or more succinctly "work that is personally significant and worthwhile" (Lysova et al., 2019, p. 374).

Research in this area has found that people who experience their work to be meaningful are more likely to be engaged and motivated at work, feel more satisfied with their jobs, and have better career development (Lysova et al., 2019). These outcomes have a positive impact on job performance and, ultimately, organisational productivity. As such, it was important to examine the extent to which Singaporeans feel that their jobs or careers are meaningful.

We used a six-item scale adapted from the Work and Meaning Inventory (WAMI) developed by Steger and colleagues (2012). Participants rated, on a scale of 1 to 5, how true each of the six question items reflect their work and career at the time of the survey. Sample items include "I have found a meaningful career" and "I know my work makes a positive difference in the world".

Trade-offs

Finally for this section, we wanted to understand how much priority Singaporeans place on work compared with other meaningful pursuits, such as family considerations or social contribution; whether they would be willing to trade off work benefits and opportunities for these non-material benefits

(i.e., attitude towards trade-offs); and whether they have ever in reality done so (i.e., actions related to trade-offs).

First, participants rated, on a scale of 1 to 5, how much they would be willing to accept less pay or a lesser work role for the benefit of their family or personal life. Next, we asked them how much they would be willing to make a trade-off for work that contributes to something more important or meaningful. Having measured their attitudes on trade-offs, we then asked participants whether they have actually made such trade-offs in real life, and whether they would be willing to do so again.

2.1.5 Social Mobility

In understanding how Singaporeans are likely to fare in jobs of tomorrow and where vulnerabilities may lie, our survey also takes stock of social mobility. Social mobility is broadly defined as the movement between higher and lower social classes, whether upwards or downwards (Kasarda & Billy, 1985).

Scholars typically conceptualise social class in two ways. The first approach measures social class through objective indicators of SES such as income levels, educational attainment, occupation, housing type or neighbourhoods, etc., which reflect individuals' economic resources and material conditions (Adler et al., 2000; Krause et al., 2009). The second approach adopts a subjective perspective, whereby social class is measured as the perceptions people have of their own standing in society and access to resources relative to others in the social hierarchy, e.g., whether they feel themselves to be part of lower-, middle-, or upper-class groups (Krause et al., 2009; Oesch & Vigna, 2023).

We have designed our survey to measure both objective SES indicators (such as income, education levels and housing-type) as well has subjective social class or SES perceptions. Our main focus here, however, is on the subjective perspective of social class and along with that, perceived social mobility. Perceived mobility refers to people's "tendencies to view society as a place where socio-economic opportunities and mobility are both attainable and within one's control" (Browman et al., 2019, p. 214). Together, subjective SES and perceived social mobility reflect Singaporeans' individual lived experiences of socio-economic progress and their personal beliefs and understanding of that process, rather than numbers and categories assigned to them.

There are two underlying reasons for our decision to focus on the subjective perspective of social class and social mobility. First, social and behavioural science research has shown that subjective measures of social class can

often be stronger predictors of social cognitive and even health outcomes compared with objective measures, because these subjective measures bring into focus people's perceived position, resource constraints or privileges within a socio-economic hierarchy.

Second, how people perceive their social mobility shapes their views about the redistribution of wealth and resources, and their belief in social justice; in other words, their beliefs about how equitable society is (Chan et al., 2021). If they feel that they have not experienced upward social mobility and that they have been excluded from social mobility opportunities which they perceive to be minimal, this will damage their beliefs about whether they can get ahead in their careers and in society at large simply by working hard. Relatedly, it may impair their motivations for learning, training, and self-improvement, which are behaviours crucial for attaining socio-economic success, and in particular for adapting to and surviving in the FOW. As Browman and colleagues (2019) noted in their paper, "inequality weakens people's belief in socio-economic opportunity, thereby reducing the likelihood that low-SES young people will engage in behaviours that would improve their chances of upward mobility" (p. 214). Thus, the ability and ease with which Singaporeans believe they have in achieving upward social mobility will have important implications on how much effort they would be willing to invest in preparing for future labour market challenges, how long they would persist in such efforts, and ultimately, how well they can transcend these challenges.

One well-established subjective social class measure is the **MacArthur Scale of Subjective Social Status**, also known as the **MacArthur ladder** (Adler et al., 2000; Goodman et al., 2001). In this measure, survey participants are presented with an image of a 10-rung ladder and asked to imagine that the ladder stands for a specific community or society; the top rung (rung 10) represents people with the greatest wealth and resources in that community, while the bottom rung (rung 1) represents those with the least. Participants are then asked to rank themselves on this ladder relative to others in the community or society. Refer to Appendix B for details on how this question was presented in our survey to participants.

Our study used the MacArthur ladder to measure participants' perceptions of their social class or SES at two points in their lives:
  a) during their youth or childhood at age 18 or earlier;
  b) current circumstances at the time of the survey (fourth quarter of 2022).

An increase in "ladder scores" from childhood SES to current SES suggests perceived upward social mobility, and vice versa for a decrease in "ladder

scores". In presenting our findings, we also further classify the ladder scores into three social class brackets: lower (rungs 1–4), middle (rungs 5–7) and upper (rungs 8–10). This helps us to understand and visualise a more substantive movement of survey respondents up or down the MacArthur ladder, i.e., between social classes rather than just absolute, incremental changes in ladder scores.

2.1.6 Unions

Unions play an important role in Singapore's model of tripartite governance, in which the labour movement, businesses and employers, together with the government, act jointly as social partners "to create an economic policy through cooperation, consultation, negotiation and compromise" (Le Queux & Kuah, 2020, p. 390). This tripartite model is deemed to be central in Singapore's economic strategy and pivotal in helping Singapore achieve successful industrial relations, paving the way to "investment growth, economic competitiveness, mutual trust, industrial peace and social justice" (Wan, 2010, p. 126).

As demographic, environmental and technological developments drive substantive disruptions in labour markets and the world of work, labour researchers are calling on unions to rethink their roles and update the causes and groups they champion (Otieno et al., 2021). New issues and causes recommended include: guidance for employees of online businesses; guidance for those working remotely or teleworking (Ford & Ward, 2021); protection or coverage for workers in the informal sector and gig economy; protection for migrant workers; support for workplace diversity and inclusion policies (e.g. gender equality, rights of workers with disabilities); and support for policies on environmental protection and climate change mitigation (Otieno et al., 2021). We examined which of these are salient in the Singapore context by asking participants to rate, on a scale of 1 to 5, how much priority unions should place on engaging in or supporting each of these six issues or social causes.

2.1.7 Vulnerable Groups

As changes unfold rapidly in the world of work, would some demographic groups face greater difficulty and disadvantages in adapting? MIT economist Daron Acemoglu warned in a recent interview that the changes brought on by AI and automation could push down earnings and further aggravate income inequality in the coming years (Bergemann et al., 2023). Acemoglu's research has found that rapid automation was the main culprit that depressed real and relative earnings of less skilled workers for over three decades since the 1980s, causing a sharp rise in wage inequality in the US in that period (Acemoglu & Restrepo, 2022). Analysing data between 1980

and 2016, Acemoglu and his co-author Restrepo demonstrated that automation was responsible for 50% to 70% of changes in US wage structure, driving down wages of those in blue-collar jobs and clerical roles in particular. These workers were being displaced by machines, industrial robots, or software-based automation from a large share of the routine tasks in which they used to specialise. Their plight was in stark contrast to workers who did not suffer any task displacement, such as those with postgraduate degrees, whose wages increased instead (Acemoglu & Restrepo, 2022). Implicit in these findings is that these less-skilled workers did not or were unable to acquire skills necessary for new tasks that could mitigate or replace their "lost" work.

In the Singapore context, it would be important for us to ascertain whether and to what extent workers from disadvantaged groups (e.g., lower SES backgrounds) have the attitudes and behaviours necessary for coping with the FOW (e.g., attitudes and actions towards upskilling or reskilling as outlined in Sections 2.1.1 and 2.1.2), in comparison with workers from more privileged groups. Any significant differences in these areas would suggest differential levels of preparedness for FOW between these groups. This is a potential risk that could lead to income gaps widening and pose a further threat to social mobility.

Apart from social class, our survey also probes the extent to which other demographic factors such as race/ethnicity, gender and age could be associated with significant differences in attitudes and behaviours in this area. Results from a gender analysis of survey responses, for instance, could provide further insights into the gender pay gap.

The gender pay gap in Singapore is driven largely by the phenomenon of occupational segregation by gender (Lin et al., 2020), described as "the tendency of men and women to work in different occupations" (Lin et al., 2020, p. 4). Invariably, women tend to select jobs or occupations that pay less than those favoured by men, and this happens for various reasons. Potential factors include:

➢ women conforming to social norms and expectations (and thus opting out of competitive roles that are traditionally perceived as more "aggressive" and suitable for males, for instance);

➢ personality and psychological traits (i.e., preferring people-oriented occupations and shying away from roles that emphasise sensory, motor and spatial aptitudes, being more risk averse and selecting "safer" occupations); or

> ➤ simply because women are more bogged down by primary caregiving duties and thus compelled to select roles that offer more flexibility or demand fewer work hours but compromise on pay (Lin et al., 2020).

Given this context, it would be important to examine if women demonstrate significant differences compared with men in their attitudes towards skills and behaviours necessary for succeeding in the FOW. This could provide an indication of whether the gender pay gap would narrow or widen in the future.

Ultimately, findings from this segment of the survey help us predict whether disadvantaged groups risk falling even further behind. An understanding of who these vulnerable groups may be and where particular areas of weaknesses may lie would be beneficial towards developing insights on possible ways to arrest any such unfavourable trends.

2.2 METHODOLOGY

2.2.1 Sampling and Fieldwork
We focused our survey on Singapore citizens and permanent residents (PRs) aged 21 and above who were economically active (i.e., working or actively seeking work) at the time of the survey. Full-time students holding part-time jobs or serving internship programmes were excluded from the survey unless they had worked in full-time jobs previously, as we wanted to ensure that our participants were economically active.

In addition to the requirements for nationality/residential status, age, and employment status, our survey sample also took into consideration adequate representation across gender, ethnic groups, occupation types and education levels. Overall, our sampling frame was based on the most updated Singapore labour force profile available at the point when fieldwork was conducted, which we obtained from annual statistics published by the Ministry of Manpower (Manpower Research and Statistics Department, 2021).

Fieldwork for the survey was conducted in October 2022 via central location-based quota sampling. Surveyors contracted by IPS identified eligible survey participants at different public locations across Singapore, including transport hubs, entrance areas of shopping malls, office buildings and industrial parks. Each surveyor would approach eligible respondents individually and brief them about the study, invite them to take part and show them the participant information sheet and consent form. Upon obtaining participants' consent, the surveyor would hand a tablet to participants, who

would self-complete the survey using the tablet. Surveyors had no visibility of participants' responses during the process. However, they would be on standby in case participants needed clarification for any of the questions or aspects of the survey. The survey was administered only in English and designed to be about 20 minutes long, so that it could cover the issues set out in Section 2.1 within an acceptable length of time before participants become fatigued or lose attention. Participants who completed the survey were paid S$15 in cash for their time and effort.

We chose a self-administered survey process to ensure participants had greater privacy and would not have to reveal their responses to others (i.e., surveyors). This helps to minimise the likelihood of social desirability bias, which is a tendency among people to present socially desirable attitudes and behaviours and deny those that are socially undesirable, to display themselves more favourably to others (Nederhof, 1985).

2.2.2 Demographic Profile

In total we collected 1,010 valid responses from economically active Singapore residents (citizens and PRs) aged 21 to 84. While surveyors had been instructed to gather a sample that reflected as closely as possible the demographic profile of the Singapore labour force, our final sample yielded a slightly lower proportion of males, younger workers and degree-holders, compared with the sampling frame. As such, weights were applied for gender, age groups, and education levels to ensure that the survey sample matched more closely the profile of the Singapore labour force in 2021. We present below five charts (Figures 1.2 to 1.6) providing an overview of the actual profile of survey respondents as well as the weight-adjusted profile, compared with the sampling frame (2021 Singapore labour force). As the Ministry of Manpower does not provide ethnic breakdowns in its annual labour force statistics, we referenced the national resident population (Department of Statistics, 2022) for the ethnic profile of the survey sample.

Figure 2.2: Representation by gender

	Female	Male
IPS Survey	51%	49%
IPS Survey (weighted)	47%	53%
SG Labour Force	47%	53%

■ Female ■ Male
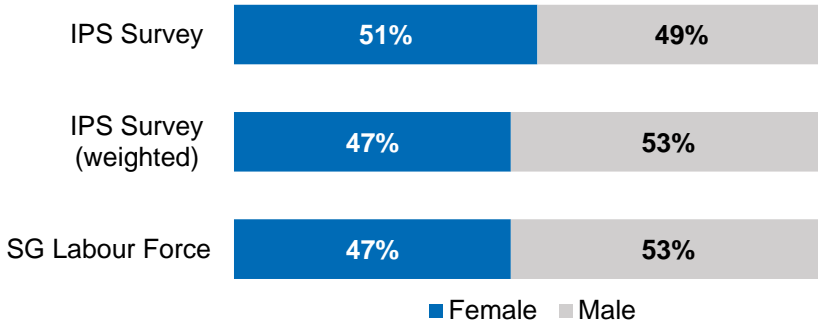
Figure 2.3: Representation by age group

	Under 35	35 to 54	55 & above
IPS Survey	29%	39%	32%
IPS Survey (weighted)	30%	44%	26%
SG Labour Force	30%	44%	26%

■ Under 35 ■ 35 to 54 ■ 55 & above
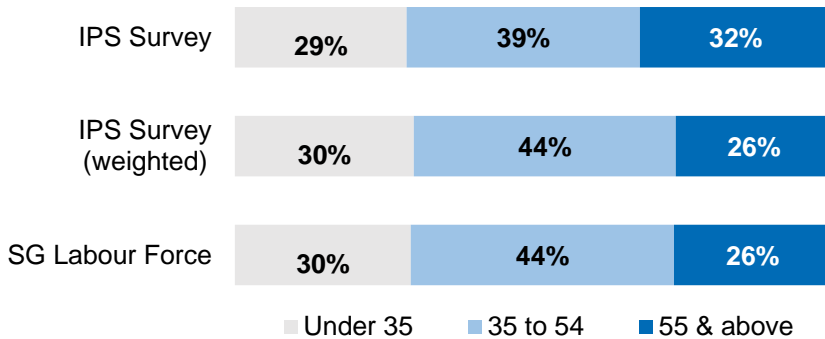
Figure 2.4: Representation by ethnic group

	Chinese	Malay	Indian	Eurasian & Others
IPS Survey	74%	14%	9%	3%
IPS Survey (weighted)	75%	13%	9%	4%
National	74%	14%	9%	3%

■ Chinese ■ Malay ■ Indian ■ Eurasian & Others
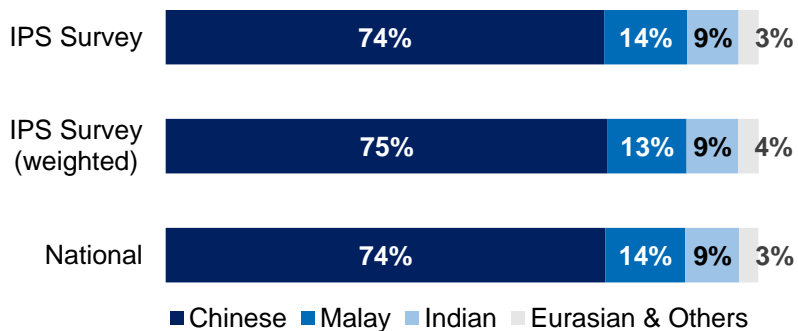
Figure 2.5: Representation by highest education level completed

Category	Below Secondary	Secondary	Post-Secondary (non-tertiary)	Diploma/professional qualifications	Degree
IPS Survey	13%	22%	11%	21%	33%
IPS Survey (weighted)	13%	14%	11%	20%	41%
SG Labour Force	13%	14%	11%	20%	41%

- Below Secondary
- Secondary
- Post-Secondary (non-tertiary)
- Diploma/professional qualifications
- Degree
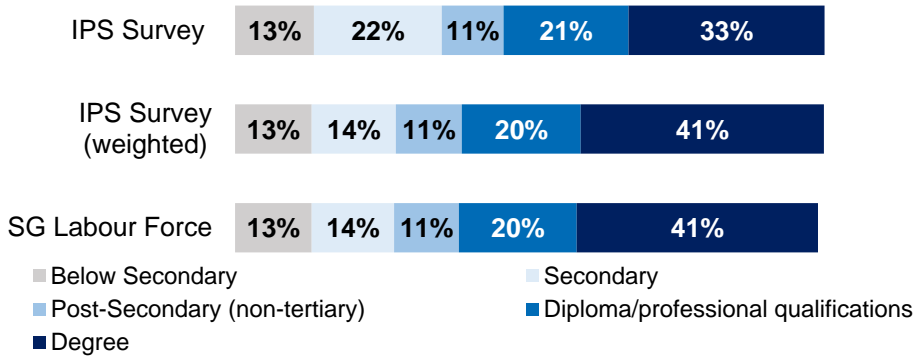
Figure 2.6: Representation by occupation group

Category	Professionals, Managers, Executives & Technicians (PMETs)	Clerical, Sales & Services Workers (CSSWs)	Production & Transport Operators, Cleaners & Labourers (PTOCLs)
IPS Survey	57%	27%	16%
IPS Survey (weighted)	61%	24%	15%
SG Labour Force	62%	20%	18%

- Professionals, Managers, Executives & Technicians (PMETs)
- Clerical, Sales & Services Workers (CSSWs)
- Production & Transport Operators, Cleaners & Labourers (PTOCLs)

2.2.3 Survey Design and Analysis Strategy

To the greatest extent possible we adapted psychometric measures validated in prior research. Most of the measures in the survey used a five-point Likert scale, with each of the five points labelled with descriptions relevant for that specific scale (e.g., 1 = Strongly disagree, 2 = Disagree, 3 = Neither agree nor disagree, 4 = Agree, 5 = Strongly agree). Using verbal labels for each scale point clarify the meanings of the scale points and help respondents interpret or envision the continuum of each measure into units of equivalent size (Klockars & Yamagishi, 1988). This significantly improves the reliability and validity of the survey measures, compared with using rating scales with only the endpoints labelled with words (Krosnick, 1999).

Most of these psychometric measures were composite measures comprising at least two or more question items. We conducted standard tests for internal reliability and only composite scales with good internal reliability were adopted for analysis. Ten out of 14 of our composite measures had Cronbach's Alpha (α) of .80 or higher, while alphas for the

remaining four measures ranged from .613 to .754; Spearman-Brown reliability coefficients (ρ) for the two measures with just two items were above .700. This is largely in line with widely accepted academic standards for establishing a degree of certainty that the scale items within each measure would be sufficiently related to each other in measuring similar concepts (Cortina, 1993; Eisinga et al., 2012; Field, 2013). All question items, Cronbach's alphas and Spearman-Brown reliability coefficients are reported in Table 1.

In analysing the data, apart from examining descriptive statistics and frequency distributions, we also performed statistical analyses to test for significant relationships associated with different demographic variables for each focal outcome measure. The demographic variables or predictors were:

➤ Social class or socio-economic status (SES), operationalised as:
  ➤ Monthly income levels measured in 26 income brackets (starting from no income, then less than S$1,000, and then in increments of S$499 for each subsequent bracket to S$4,999, followed by increments of S$999 for subsequent income brackets, ranging from S$5,000 to S$20,000 and above) [1]

  ➤ Highest education level achieved, measured as a categorical variable and sorted into five categories: below secondary, secondary, post-secondary (non-tertiary), diploma or professional qualification, degree

  ➤ Subjective social class measure (i.e., MacArthur ladder, measured as a continuous variable from 1 to 10; see section 2.1.5 for details)

➤ Ethnic groups, measured as a categorical variable with four categories: Chinese, Malay, Indian, Eurasian and Others

➤ Gender, measured as dichotomous variable (females compared with males)

➤ Age, measured as a continuous variable

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[1] Monthly income was measured in brackets rather than exact amount to encourage participants to respond to this question. As personal income is considered highly sensitive information, allowing them to choose from income brackets rather than asking them to specify exact salary quantum would provide a greater sense of privacy. Based on our past experiences, respondents are more forthcoming with their income details if given this choice.

- ➢ Occupation, sorted according to three categories (consistent with categories used in the Labour Force in Singapore 2021 report)
    - ➢ Professionals, managers, executives and technicians (PMETs)

    - ➢ Clerical, sales, and services workers (CSSWs)

    - ➢ Production and transport operators, cleaners and labourers (PTOCLs)

We performed a mix of *t*-tests and analyses of variance (ANOVAs) first to test for significant relationships between the demographic predictors and each focal outcome measure, and also to test for any significant differences between the groups or factors within each categorical variable. This is followed by categorical regressions using linear regression models to obtain regression coefficients for each group or factor in the predictor variables. Analyses were largely performed on the weight-adjusted survey data, unless otherwise specified. **Only significant relationships are discussed.**

Chapter 3

Preparedness for FOW – Findings

CHAPTER 3: PREPAREDNESS FOR FOW — FINDINGS

3.1 ATTITUDES ABOUT CHANGES

3.1.1 Change Awareness and Openness

Based on our findings, **educational attainment** and **age** are the two statistically significant predictors for awareness and openness about changes in the FOW. In general, respondents who are more highly educated — especially those who have completed at minimum post-secondary education — and those who are younger, are more aware about impending changes in the future market, and more open to embracing these changes. Between the two demographic predictors, educational attainment has a much larger effect size. This means that the level of workers' education has a far greater impact on their awareness and openness about FOW changes, compared with their age.

Simply looking at frequency distributions of responses by age groups may, at first glance, suggest that a much higher percentage of older respondents are considerably less aware of and less open to FOW changes, compared with younger respondents. But this is before controlling for the effect of education. In reality, a larger proportion of older Singapore workers are also less educated compared with younger workers. So, part of the effect of lower change awareness and openness associated with older Singapore workers is also driven by the fact that they have simply received less formal education than younger workers. Performing a regression analysis helps us to tease apart the effects of educational attainment versus age. The different effect sizes show that while each of the two factors has a significant statistical relationship with change awareness and openness, it is largely educational attainment[2] that is driving that effect, with age[3] playing a much smaller role.

We measured educational attainment by asking respondents to provide information on the highest education level they have completed. Based on their responses, we sorted them into five categories: below secondary,

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[2] Reference categories: Female, Chinese, below secondary education, PMET. Subscripts 2, 3, 4, and 5 for the regression coefficient "*b*" refer to *b* representing participants with educational attainment at secondary, post-secondary, diploma/professional qualification, and degree level, respectively. Regression results for change awareness: $b_2 = .163$, $SE_2 = 0.094$, $p = .085$; $b_3 = .240$, $SE_3 = 0.114$, $p < .05$; $b_4 = .346$, $SE_4 = 0.100$, $p < .05$; $b_5 = .363$, $SE_5 = 0.101$, $p < .01$).
[3] Regression results for change awareness with age as predictor: $b = -0.016$, $SE = .002$, $p < .01$

secondary, post-secondary (non-tertiary), diploma or professional qualification, and degree.

Results from our analyses show a clear divide in the impact of educational attainment on change awareness and openness to changes — between those with secondary or below secondary-level education, versus those with higher educational attainment (post-secondary, diploma or professional qualification, and degree). The former are significantly less likely than the latter to be aware of and open to such changes. Among the more highly educated group, respondents tend to share similar response rates with no significant statistical differences, whether they are degree or diploma-holders or those with post-secondary education. In short, Singapore workers who have had at least a post-secondary education (e.g., completed their Institute of Technical Education (ITE) diploma courses or more) would have similar levels of awareness and openness to FOW changes. Even though frequency distribution charts may show slight differences in percentages among participants in these higher education categories, such differences are not statistically significant.

We measured the actual age of participants (rather than splitting age into discrete age brackets) and preserved age as a continuous independent variable (i.e., predictor) in our regression analyses for this set of outcome variables (as well as all subsequent regression analyses for other outcome variables). This avoids losing considerable individual-level variation in the predictor variable and variance in the outcome variables (e.g., change awareness and change openness). A reduction in variances would have diminished the precision with which we predict the relationships between the demographic predictors and outcome variables, and could increase the risk of false positive results (Royston et al., 2006; Rucker et al., 2015).

Nevertheless, for simplicity of presentation to the general audience, we have sorted age into three brackets: 21 to 34, 35 to 54, and 55 and above. We use these age brackets only for presenting frequency distributions in our report (e.g., Figures 2.1 to 2.4 in this section and similar charts in subsequent sections of this report). However, all of our actual statistical analyses for significant relationships were performed using age as a continuous variable rather than these age categories.

Gender, ethnicity, and occupation group do not have any significant influence on change awareness and openness to changes. In general, between 60% and 75% of survey respondents are aware of and open to impending major changes to FOW. Linear regression results for these two outcome measures against age, education and other factors are presented in Table 2.1.

➢ At least 66% of respondents with degrees, diplomas or professional qualifications and post-secondary (non-tertiary) education believe that how work is done in their current role will change significantly in the next 5 to 10 years. In contrast, only about half or fewer of respondents with secondary and below secondary education believe so (Figure 3.1).

➢ Fewer than 60% of those aged 55 and above believe that that they will need to reskill themselves to adapt to work changes, compared with almost 80% of respondents in younger age groups (Figure 3.2).

➢ More than 70% of respondents with at least post-secondary education consider themselves open to changes in their work or jobs, compared with only 53% of those with below-secondary education and 65% of those with secondary education do so (Figure 3.3).

➢ Fewer than half of those aged 55 and above are open to changing their occupations, compared with 63% of those aged 35-54 and 69% of those aged 21-34 (Figure 3.4).

Figure 3.1: Change awareness by education level

How work is done in my current role will change significantly in the next 5-10 years.

Category	Unlikely/very unlikely	Neutral	Likely/very likely
Overall	15%	21%	64%
Below secondary	22%	30%	49%
Secondary	18%	26%	56%
Post-sec (non-tertiary)	11%	24%	66%
Diploma/professional qual.	13%	21%	67%
Degree	15%	16%	69%
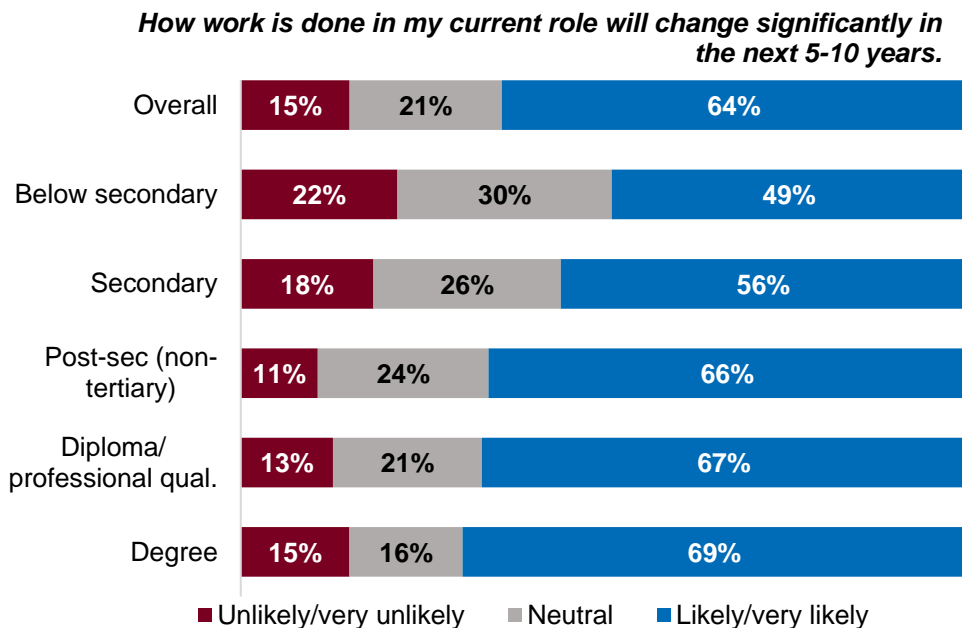
Figure 3.2: Change awareness by age group

I will need to reskill myself to adapt to changes in my work or career.

	Unlikely/very unlikely	Neutral	Likely/very likely
Overall	11%	16%	73%
21 to 34	6%	15%	79%
35 to 54	8%	15%	77%
55 & above	22%	20%	58%
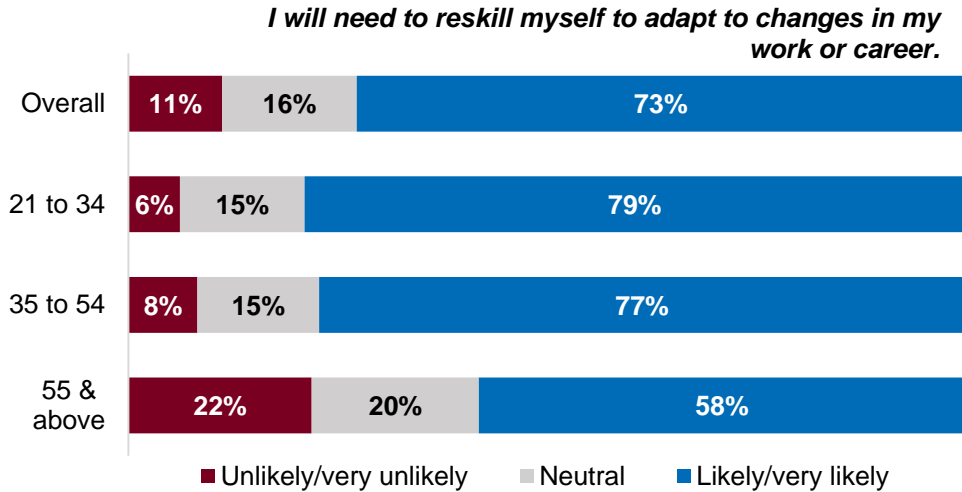
Figure 3.3: Openness to change by education level

I would consider myself to be open to changes in my work or job.

	Disagree/Strongly disagree	Neither agree nor disagree	Agree/Strongly agree
Overall	8%	17%	75%
Below Secondary	18%	29%	53%
Secondary	12%	23%	65%
Post-sec (non-tertiary)	6%	19%	74%
Diploma/ professional qualifications	6%	14%	80%
Degree	5%	11%	84%
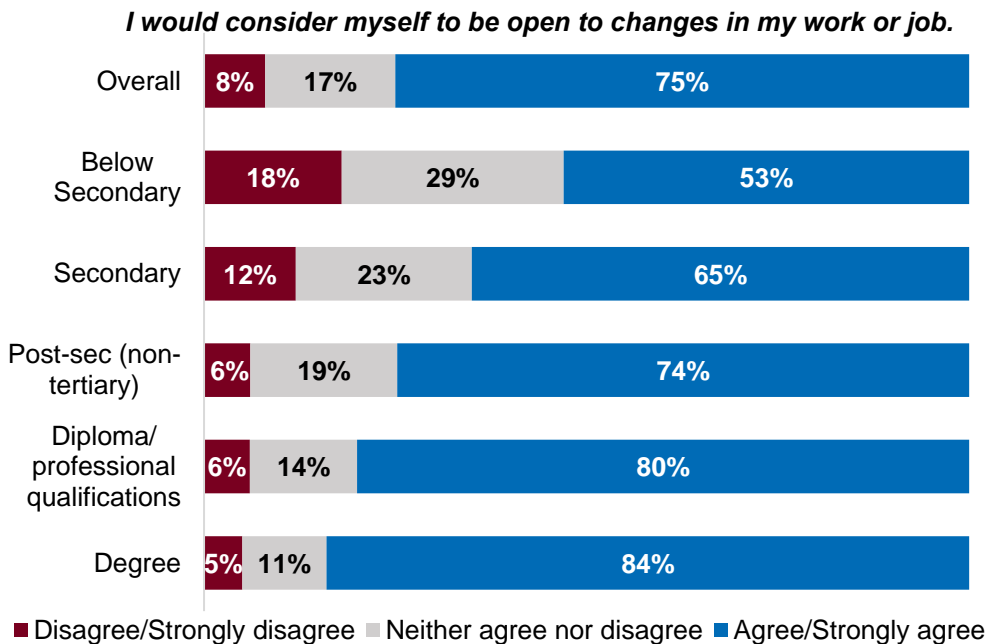
Figure 3.4: Openness to changes by age group

I'm open to changing my occupation or career.

Overall	16%	23%	61%
21 to 34	12%	19%	69%
35 to 54	13%	25%	63%
55 & above	27%	25%	47%

■ Disagree/Strongly disagree ■ Neither agree nor disagree ■ Agree/Strongly agree
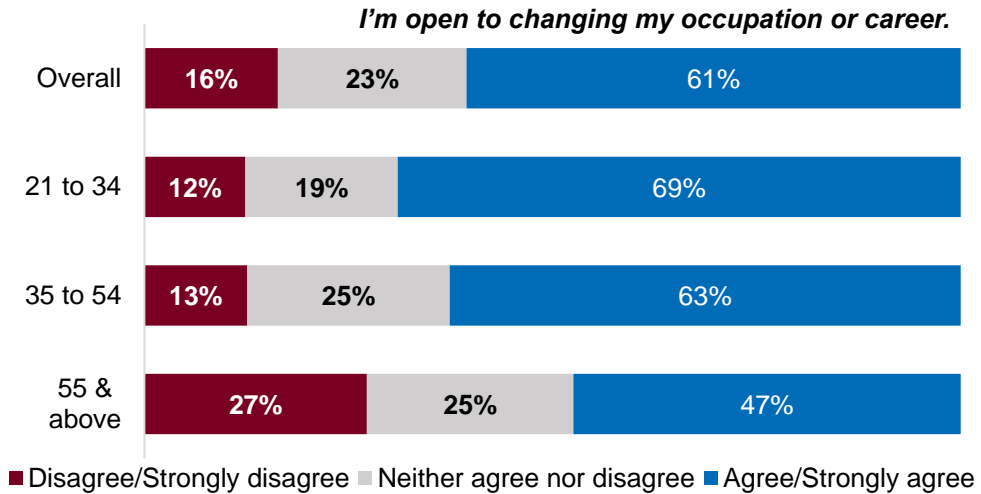
3.1.2 Change Anxiety

Occupation group is the main statistically significant predictor for how anxious people feel about changes at work. Overall, about 4 in 10 admit to feeling anxious about the implementation of changes at work and the prospect of working in a different job. This figure goes up to close to half for clerical, sales and services workers (CSSW), as well as those working as production and transport operators, cleaners, and labourers (PTOCL).

In contrast, only about 1 in 3 of those in PMET roles feel the same. In general, PMETs feel significantly less anxious about changes compared with workers in the other two occupation categories. Representative frequency distributions for change anxiety are presented in Figures 3.5 and 3.6. Linear regression results for change anxiety are presented in Table 2.1.

Figure 3.5: Change anxiety by occupation group

I'm anxious about the implementation of changes at work.

Overall	27%	33%	40%
PMET	32%	32%	36%
CSSW	22%	34%	45%
PTOCL	16%	35%	49%

■ Disagree/Strongly disagree ■ Neither agree nor disagree ■ Agree/Strongly agree
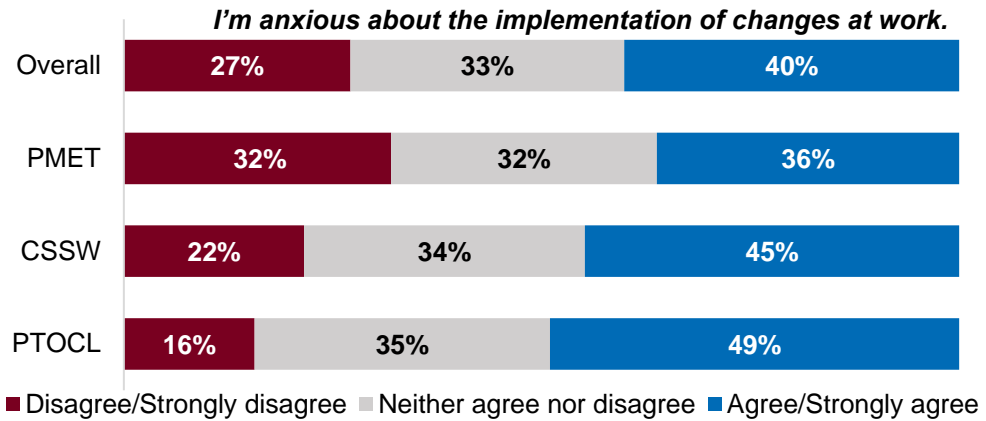
Figure 3.6: Change anxiety by occupation group

The thought of working in a different job worries me.

Overall	32%	30%	38%
PMET	37%	31%	33%
CSSW	26%	29%	45%
PTOCL	20%	32%	48%

■ Disagree/Strongly disagree ■ Neither agree nor disagree ■ Agree/Strongly agree
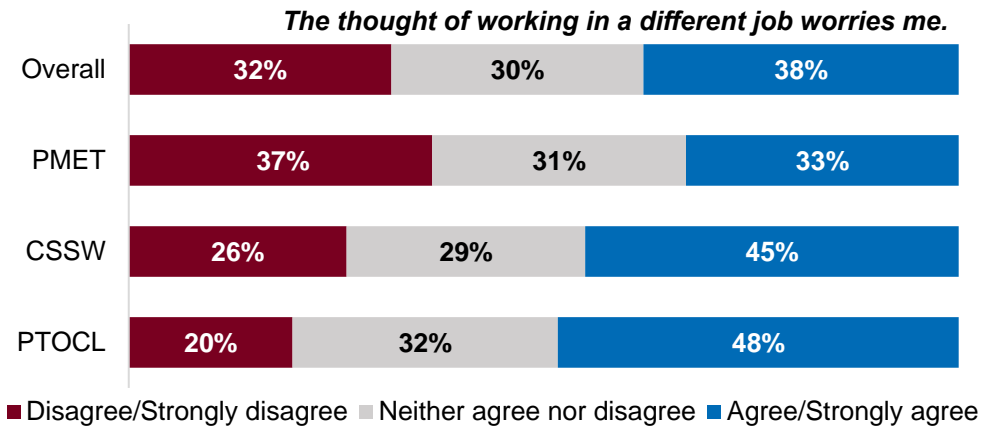
3.1.3 Change Self-Efficacy

As with the other change attitudes, **educational attainment** is a significant predictor for change self-efficacy. Here too, the main divide is between those with secondary or below-secondary education, versus those with higher levels of education. Among the latter, response rates do not different significantly among those with post-secondary, diploma or degree-level education.

Additionally, **gender** and **ethnicity** are key significant predictors. Males are more likely than females to report higher levels of change self-efficacy ($b = .100$, $SE = .038$, $p < .01$). This is consistent with findings in self-efficacy

literature. Regardless of actual abilities, women tend to report lower estimates of their own abilities (compared with men) in situations that compel them to compete with others, or when there is lack of clear feedback on their abilities and performance (e.g., when encountering new or uncertain tasks on which they lack information of their competency on this task) (Lenny, 1979; Stevens et al., 1993). Interestingly, ethnicity also makes a significant difference. The minority ethnic groups are statistically more likely than Chinese respondents to report higher levels of change self-efficacy.

While we had originally developed four question items to measure change self-efficacy, reliability tests showed that the Cronbach's alpha for a scale comprising all four items was .521 for unweighted data and .555 for weighted data. Analyses for item-test and item-rest correlations showed that one of the items ("There may be some new tasks required with work changes that I don't think I can do well") did not correlate as well with the scale compared with the other items. After removing this item from the measure, Cronbach's alpha for the revised three-item scale improved to .606 (.613 for weighted sample). Linear regression results for change self-efficacy are presented in Table 2.1.

➢ At least 74% of respondents with post-secondary or higher education believe they have the skills needed to adapt to changes at work. Only about 60% of those with secondary education and 50% of those with below-secondary education believe so (Figure 3.7).

➢ Almost 2 in 3 males do not anticipate any problems adjusting to changes at work. Only about half of the females feel this way (Figure 3.8).

➢ More than 60% of Malays and Indians, and 75% of Eurasians and Others, do not anticipate problems adjusting to changes at work, compared with 57% of Chinese respondents (Figure 3.9).

Figure 3.7: Change self-efficacy by educational attainment

I have the skills that are needed to adapt to changes at work.

Category	Disagree/Strongly disagree	Neither agree nor disagree	Agree/Strongly agree
Overall	7%	21%	72%
Below Secondary	17%	33%	50%
Secondary	10%	30%	60%
Post-sec (non-tertiary)	2%	24%	74%
Diploma/ professional qualifications	4%	19%	77%
Degree	5%	16%	79%

■ Disagree/Strongly disagree ■ Neither agree nor disagree ■ Agree/Strongly agree
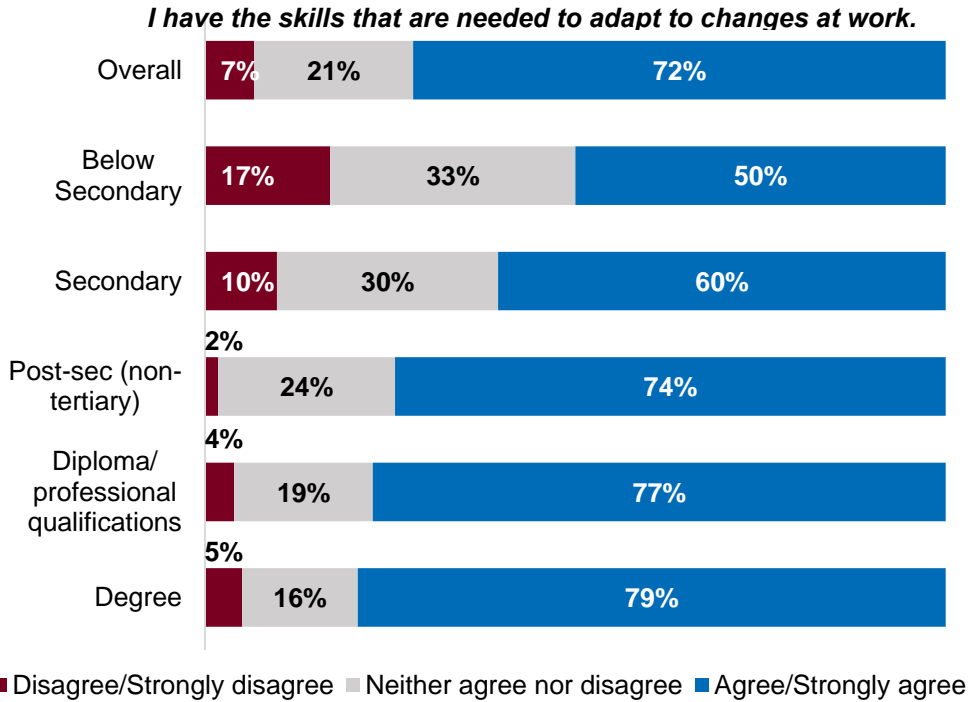
Figure 3.8: Change self-efficacy by gender

If changes are adopted at work, I do not anticipate any problems adjusting to them.

Category	Disagree/Strongly disagree	Neither agree nor disagree	Agree/Strongly agree
Overall	13%	27%	59%
Male	12%	23%	65%
Female	14%	33%	53%

■ Disagree/Strongly disagree ■ Neither agree nor disagree ■ Agree/Strongly agree
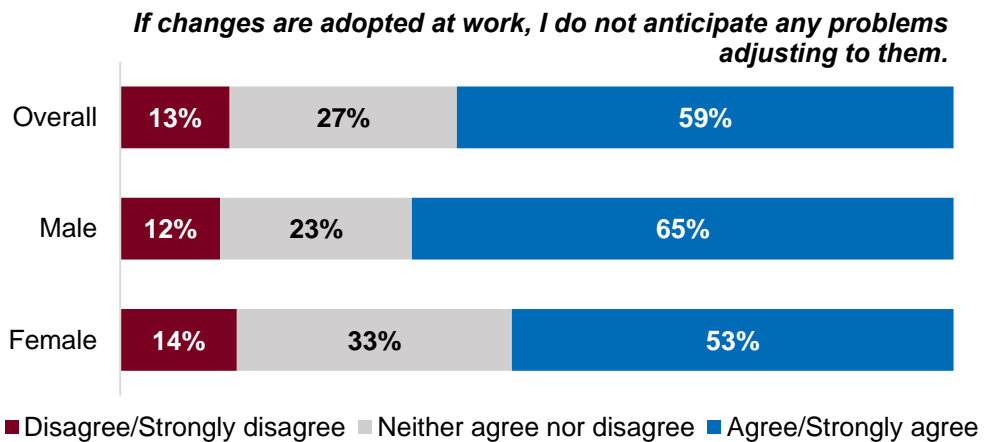
Figure 3.9: Change self-efficacy by ethnicity

If changes are adopted at work, I do not anticipate any problems adjusting to them.

	Disagree/Strongly disagree	Neither agree nor disagree	Agree/Strongly agree
Overall	13%	27%	59%
Chinese	15%	27%	57%
Malay	8%	28%	64%
Indian	7%	40%	62%
Eurasian & Others	6%	20%	74%
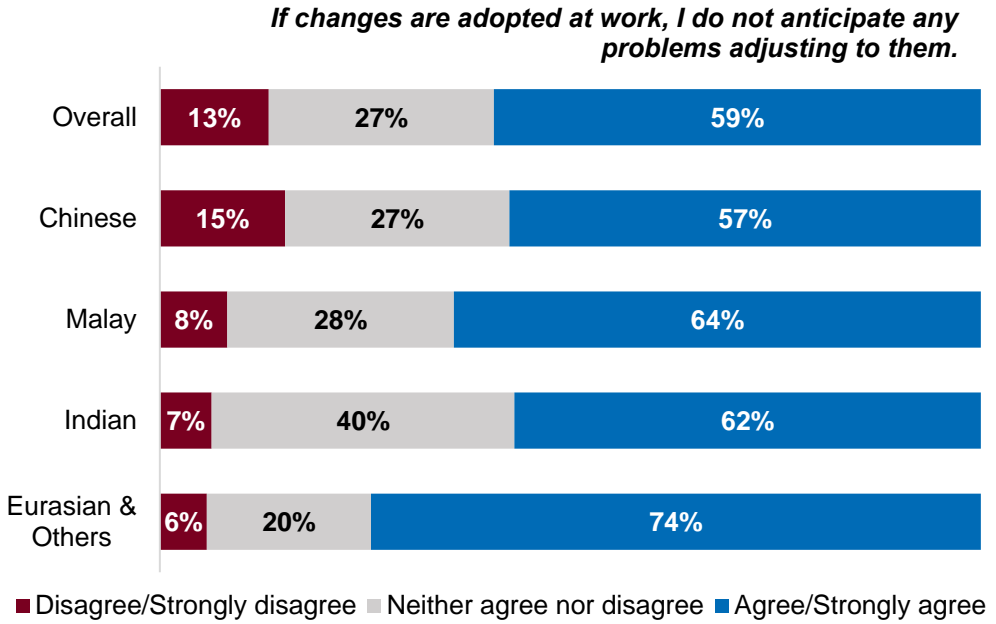
3.2 CRITICAL CORE SKILLS

3.2.1 Creativity and Innovation

As discussed earlier in section 2.1.2, our survey did not measure actual creative ability but instead, gathered responses for two creativity-related attitudes (*creative interest* and *creative self-efficacy*) that can predict people's inclination to pursue creativity-related skills and work, as well as their potential performance in creativity at work. **Educational attainment** is again a significant predictor for both measures. Diploma and degree-holders are significantly more likely than others (i.e., those with below-secondary, secondary or post-secondary education) to indicate greater interest in creative work[4] and higher creative self-efficacy[5] (i.e., confidence in their own creative ability and creative performance at work).

In addition, **gender** and **occupation group** also emerged as significant predictors for both measures. Compared with males, females tend to rate themselves lower in creative interest and creative self-efficacy. This is consistent with existing research that found that females tend to report lower ratings for general self-efficacy (Stevens et al., 1993), as well as specifically for creative self-efficacy (He & Wong, 2021). For instance, a 2021 study of 398 Hong Kong undergraduates (49.8% female) found that compared with female students, male students reported statistically higher ratings in creative self-efficacy and also exhibited larger variance in the ratings (i.e., wider range or spread of self-ratings) (He & Wong, 2021). In our current study, compared with PMETs, those in the other two occupation groups (clerical sales and services workers, or CSSWs; production and transport operators, cleaners and labourers, or PTOCLs), rate themselves significantly lower in creative interest. However, for creative self-efficacy, only those in the PTOCLs group demonstrate statistically lower ratings compared with the other two groups; CSSWs do not differ significantly from those in PMET jobs.

Interesting, **ethnicity** is associated with some differences as well for these two measures. Both Malays and Indians rate themselves significantly higher in creative interest compared with the Chinese. Respondents who are Eurasian or of other ethnicities do not exhibit significant differences compared with the Chinese. However, the sample size for Eurasians and

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[4] Reference categories: Female, Chinese, below secondary education, PMET. Diploma-holders: b = .312, SE = 0.095, p <.01; degree-holders: b = .291, SE = 0.099, p <.01. No significant difference between diploma and degree-holders.

[5] Diploma-holders: b = .334, SE = 0.091, p <.001; degree-holders: b = .335, SE = 0.089, p <.001. No significant difference between diploma and degree-holders.

Others is rather small, comprising only 34[6] in the total survey sample population of 1,010. Therefore, analyses for this group may not be as robust or conclusive compared with analyses for the other ethnic groups (Chinese: 747 respondents; Malays: 141; Indians: 88). For creative self-efficacy, only Indian respondents report significantly higher ratings than all other ethnic groups.

Finally, **childhood socio-economic circumstances** (childhood SES or childhood social class) also emerged as a significant predictor, albeit with a smaller effect size than the other predictors listed earlier. This implies that those who grew up in the lower social class are more likely to report lower ratings in creative interest and creative self-efficacy compared with peers who grew up in better-off families, even if they eventually achieve similar education levels and income later in life. The effects of childhood SES[7] remain statistically significant after controlling for existing income levels and highest education level completed.

These findings in no way point to gender, ethnic, occupation group or social class differences in innate creative potential and ability. However, interest levels predict the extent to which people pursue, develop, and cultivate these skills, and also the extent to which they self-select into jobs that emphasise creative ability (which are increasingly valued by employers). All these have implications for eventual career success in the FOW. Research has also found creative self-efficacy to be important for creative performance because creative efforts require individuals to pursue endeavours that are different from usual norms or to challenge mainstream ideas and beliefs. Having strong self-efficacy beliefs in one's own creativity will enhance people's internal motivation to sustain and ultimately succeed in such efforts (Farmer & Tierney, 2017).

Linear regression results for creative interest and creative self-efficacy are presented in Table 2.2.

Creative Interest (interest in creative tasks/innovation at work)
➢ Close to 70% of respondents with post-secondary, diploma or degree-level education like creating new procedures for work tasks, compared with just over 50% of those with secondary (or below secondary-level education (Figure 3.10).

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[6] Survey respondents in the "Eurasians and Others" category comprised 14 Eurasians and 20 respondents of other ethnicities that are not Chinese, Malay, Indian or Eurasian.

[7] Effect of childhood SES on creative interest: b = .032, SE = .012, p < .01
Effect of childhood SES on creative self-efficacy: b = .038, SE = .012, p < .01

> ➢ About 63% of females indicate at least some enjoyment in working in a job that requires them to be creative, compared with 71% of males (Figure 3.11).

> ➢ About 7 in 10 PMETs like coming up with novel ways of doing things at work, compared with fewer than 6 in 10 CSSWs, and only about half of PTOCLs (Figure 3.12).

> ➢ About 70% of Malays and 71% of Indians relish working on projects or tasks that require them to be creative, compared with 66% of Chinese and 63% of Eurasians and others (Figure 3.13).

> ➢ About 82% of those who indicated that they grew up in upper social class (childhood SES ladder scores 8 to 10) in their childhood enjoy or somewhat enjoy improving existing processes or products at work, compared with 75% from middle social class (childhood SES scores 5 to 7) and 62% of those from lower social class (childhood SES scores 1 to 4) (Figure 3.14).

Figure 3.10: Creative interest by educational attainment

How much do you enjoy creating new procedures for work tasks?

Category	Dislike/Somewhat dislike	Neither enjoy or dislike	Enjoy/Somewhat enjoy
Overall	7%	29%	64%
Below Secondary	17%	31%	53%
Secondary	7%	36%	57%
Post-sec (non-tertiary)	6%	28%	67%
Diploma/ professional qualifications	4%	29%	67%
Degree	8%	25%	69%

■ Dislike/Somewhat dislike   ■ Neither enjoy or dislike   ■ Enjoy/Somewhat enjoy
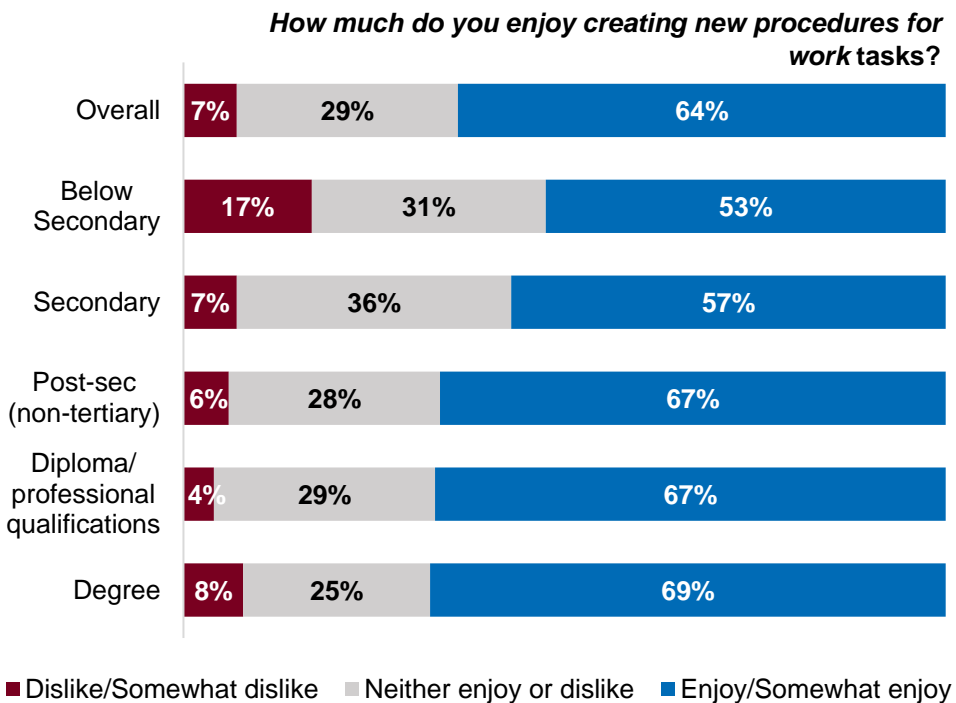
Figure 3.11: Creative interest by gender

How much do you enjoy working in a job that requires you to be creative?

	Dislike/Somewhat dislike	Neither enjoy nor dislike	Enjoy/Somewhat enjoy
Overall	8%	25%	67%
Male	6%	23%	71%
Female	19%	26%	63%

■ Dislike/Somewhat dislike ■ Neither enjoy nor dislike ■ Enjoy/Somewhat enjoy
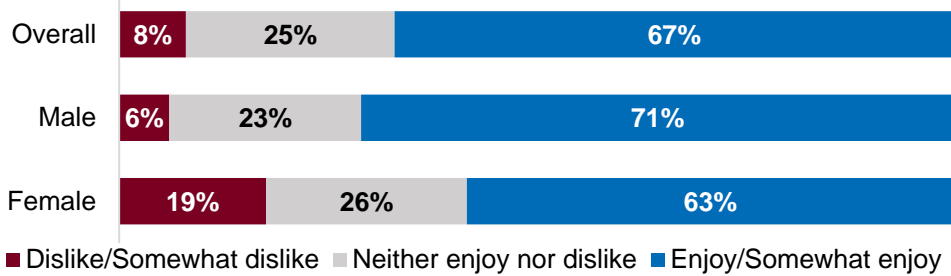
Figure 3.12: Creative interest by occupation group

How much do you enjoy coming up with novel ways of doing things at work?

	Dislike/Somewhat dislike	Neither enjoy nor dislike	Enjoy/Somewhat enjoy
Overall	7%	29%	64%
PMET	6%	25%	69%
CSSW	7%	36%	57%
PTOCL	14%	35%	52%

■ Dislike/Somewhat dislike ■ Neither enjoy nor dislike ■ Enjoy/Somewhat enjoy
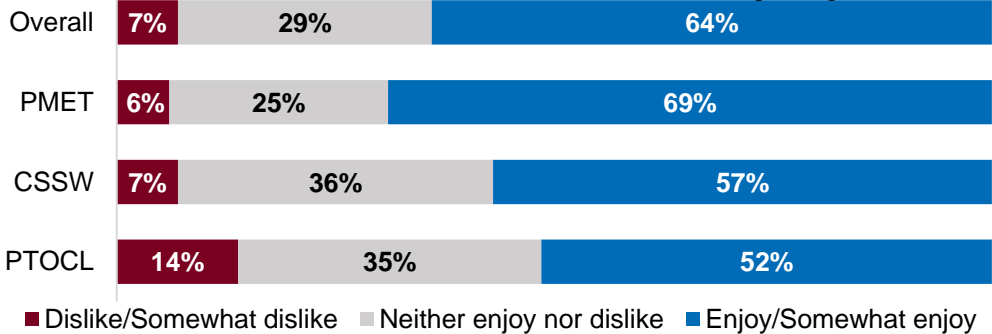
Figure 3.13: Creative interest by ethnicity

How much do you enjoy working on projects or tasks that require you to be creative?

	Dislike/Somewhat dislike	Neither enjoy nor dislike	Enjoy/Somewhat enjoy
Overall	8%	25%	67%
Chinese	9%	25%	67%
Malay	5%	25%	70%
Indian	5%	23%	72%
Eurasian & Others	9%	31%	60%

■ Dislike/Somewhat dislike ■ Neither enjoy nor dislike ■ Enjoy/Somewhat enjoy
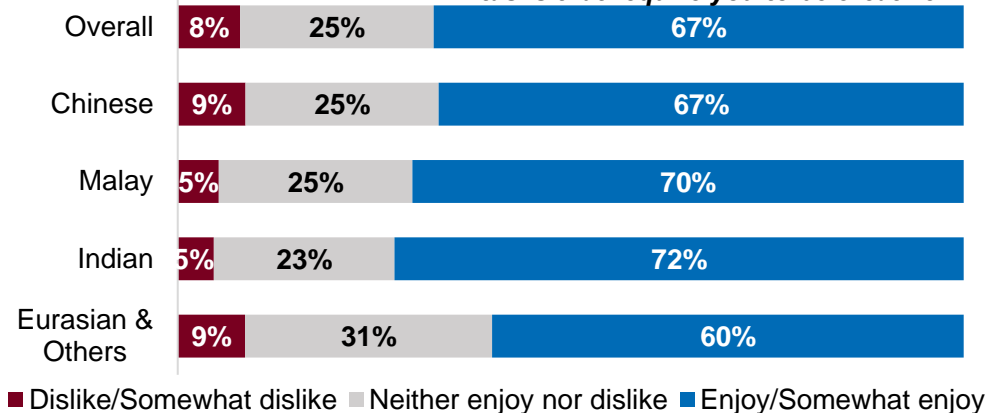
Figure 3.14: Creative interest by childhood social class

How much do you enjoy improving existing processes or products at work?

	Dislike/Somewhat dislike	Neither enjoy nor dislike	Enjoy/Somewhat enjoy
Overall	4%	21%	75%
Upper class	1%	18%	82%
Middle class	4%	21%	75%
Lower class	5%	23%	72%

■ Dislike/Somewhat dislike ■ Neither enjoy nor dislike ■ Enjoy/Somewhat enjoy
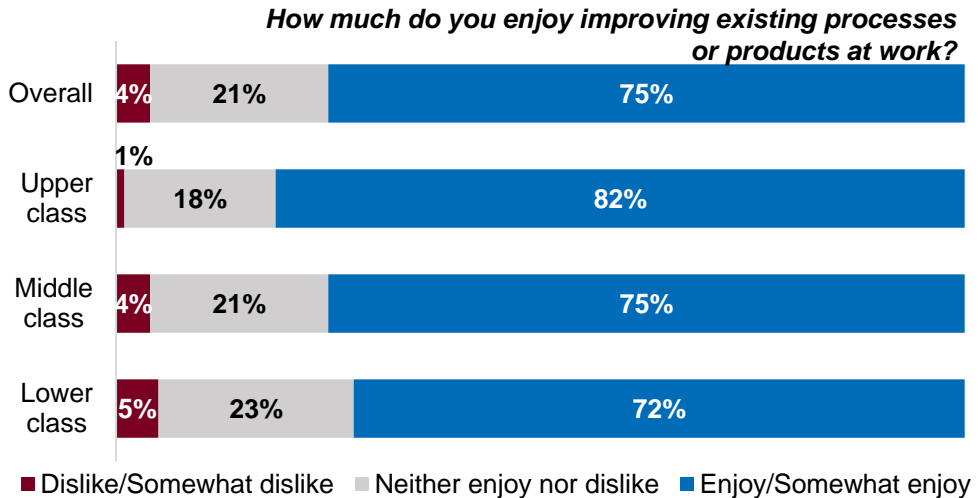
Creative Self-Efficacy

➢ Almost 80% of diploma and degree-holders are confident that they can solve problems creatively at work, compared with 74% of respondents with post-secondary education, 65% of those with secondary-level education, and 61% of respondents with below secondary education (Figure 3.15).

➢ Only about half of females believe that they are good at generating novel ideas at work, compared with almost 2 in 3 males (Figure 3.16).

➢ About 3 in 4 respondents who report growing up in upper social class (childhood SES "ladder scores" of 8 to 10) believe they have a knack for developing the ideas of others at work, compared with about 3 in 5 of those who hail from middle class backgrounds (childhood SES scores 5 to 7) and only about half of those who grew up in lower social class (childhood SES scores 1 to 4) (Figure 3.17).

Figure 3.15: Creative self-efficacy by education level

I have confidence in my ability to solve problems creatively at work.

Category	Disagree/Strongly disagree	Neither agree nor disagree	Agree/Strongly agree
Overall	4%	22%	73%
Below Secondary	11%	28%	61%
Secondary	4%	31%	65%
Post-sec. (non-tertiary)	2%	24%	74%
Diploma/professional qualifications	4%	18%	78%
Degree	3%	19%	78%

■ Disagree/Strongly disagree   ■ Neither agree nor disagree   ■ Agree/Strongly agree

Figure 3.16: Creative self-efficacy by gender

I feel that I am good at generating novel ideas at work.

Category	Disagree/Strongly disagree	Neither agree nor disagree	Agree/Strongly agree
Overall	9%	33%	58%
Male	7%	30%	63%
Female	11%	36%	53%

■ Disagree/Strongly disagree   ■ Neither agree nor disagree   ■ Agree/Strongly agree
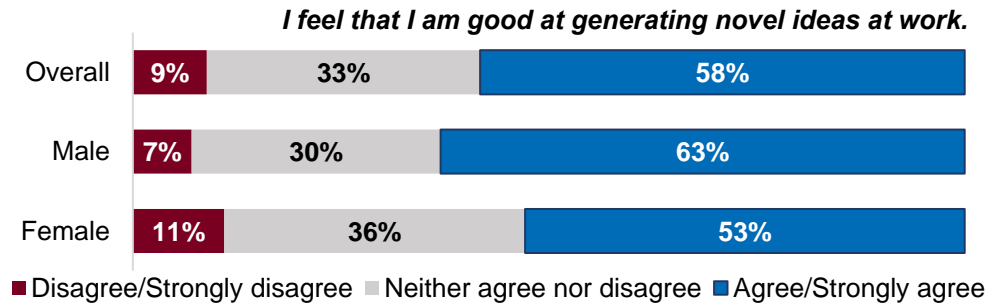
Figure 3.17. Creative self-efficacy by childhood SES

I have a knack for further developing the ideas of others at work.

Category	Disagree/Strongly disagree	Neither agree nor disagree	Agree/Strongly agree
Overall	7%	31%	62%
Upper class	2%	22%	76%
Middle class	6%	31%	62%
Lower class	8%	34%	58%

■ Disagree/Strongly disagree   ■ Neither agree nor disagree   ■ Agree/Strongly agree
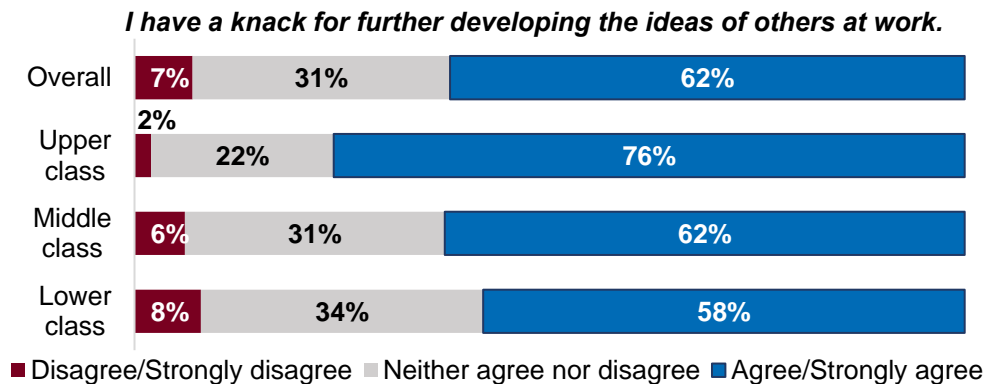
3.2.2 Career Self-Management

We measured career self-management by asking respondents to rate the extent to which they engage in actions in three relevant areas: networking, practical activities, and reputation building. How we derived these three dimensions of career management are outlined in detail in section 2.1.2.

Survey findings point to **gender** as a predictor in all three dimensions, with females consistently lagging behind males in the degree to which they perceive themselves to be engaged in these three areas of career self-management. The effect of gender is stronger for practical actions[8] and reputation building[9] compared with networking activities where the difference is smaller (marginally significant)[10] between females and males.

Occupation group is another significant predictor, with PMETs significantly more pro-active in career self-management compared with workers in the other two groups.

Ethnicity is significantly associated with practical and reputation building actions, but not with networking. Malays and Indians engage in activities in these two areas more extensively than the Chinese, while Eurasians and Others do not differ significantly from the Chinese in any of the career management dimensions.

Educational attainment has a significant association with practical actions. Those with secondary or below-secondary qualifications lag others in this area. There are no significant differences between respondents of different education levels with regards to their responses on networking actions and reputation building actions.

Finally, as with creative attitudes, **childhood social class**[11] is significantly associated with how Singaporeans approach career self-management. Those who grew up in poorer circumstances tend to rate themselves lower

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[8] Reference categories: Female, Chinese, Below-secondary education, PMET. For gender (male) as predictor, practical actions as outcome variable: $b =.145$, $SE = .053$, $p < .01$

[9] Gender (male) as predictor, reputation building as outcome variable: $b = .132$, $SE = .063$, $p < .05$

[10] Gender (male) as predictor, networking as outcome variable: $b = .098$, $SE = .058$, $p = .058$

[11] Networking actions: $b = .055$, $SE = .016$, $p<.01$; Practical actions: $b = .048$, $SE = .015$, $p < .01$; Reputation building: $b = .078$, $SE = .017$, $p < .001$

on these measures compared with their peers from better-off backgrounds — even if they now share similar income and education levels. The effect size of childhood SES is smaller than effect sizes of the other two predictors. Nevertheless, the findings suggest that people's childhood environment socialises them towards certain attitudinal and behavioural tendencies. This effect is sticky enough to persist well into adulthood and could continue to impact their careers, if they do not actively recognise and counter such tendencies. We examine this issue and its implications in greater depth in the discussion section in Chapter 7. Detailed linear regression results for career self-management are presented in Table 2.3

Networking Actions

➢ 43% of females have built or are building contacts — at a moderate or extensive level — in areas where they would like to work, compared with 51% of males (Figure 3.18).

➢ 44% of PMETs ask for feedback on their performance at a moderate or extensive level, compared with 31% of CSSWs and 35% of PTOCLs (Figure 3.19).

➢ About half of respondents who grew in upper social class (childhood SES scores 8 to 10) have moderately or actively linked up with contacts who can influence their careers, compared with 44% of those who grew up middle class families (childhood SES scores 5 to 7) and only 36% of those who grew up in lower social class (childhood SES scores 1 to 4) (Figure 3.20).

Figure 3.18: Networking actions by gender

I have built or am building contacts in areas where I'd like to work.

	Not at all/slightly	Somewhat	Moderately/to a great extent
Overall	23%	29%	48%
Male	22%	27%	51%
Female	25%	31%	43%
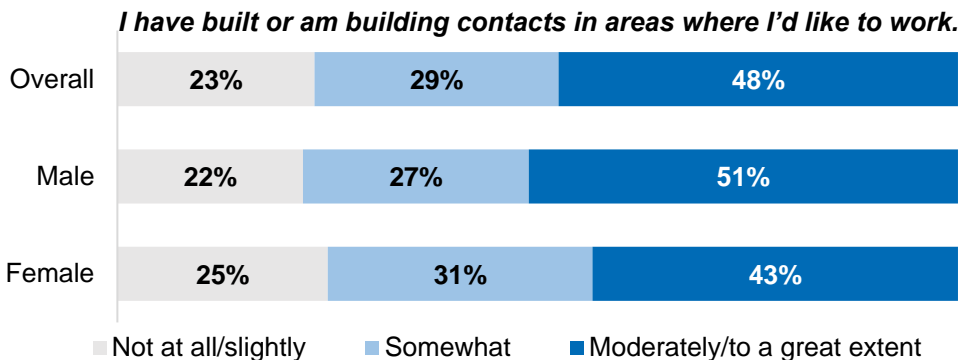
Figure 3.19: Networking actions by occupation group

I've asked for feedback on my performance when it was not given.

	Not at all/Slightly	Somewhat	Moderately/To a great extent
Overall	30%	31%	39%
PMET	25%	31%	44%
CSSW	38%	31%	31%
PTOCL	37%	28%	35%
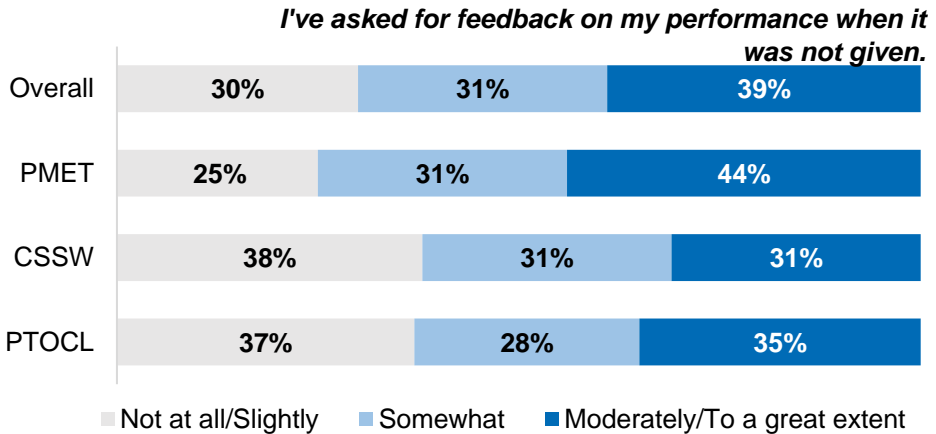
Figure 3.20: Networking actions by social class in childhood

I've linked up with people who may be able to influence my career.

	Not at all/Slightly	Somewhat	Moderately/To a great extent
Overall	28%	31%	42%
Upper class	17%	33%	50%
Middle class	24%	32%	44%
Lower class	36%	29%	36%
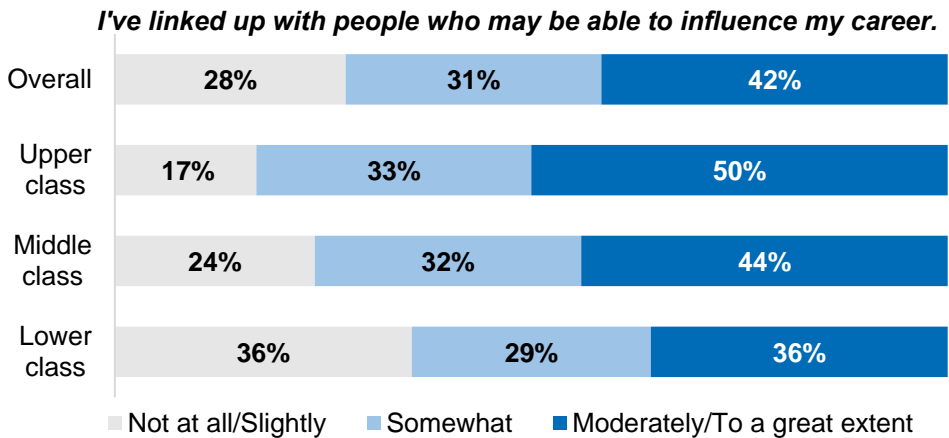
Practical Actions

➢ About 5 in 10 males update their job-related skills constantly at a moderate to extensive level, compared with 4 in 10 females (Figure 3.21).

➢ Close to half of PMETs moderately or extensively seek career-related training outside of their organisation, compared with about 1 in 3 CSSWs and PTOCLs (Figure 3.22).

➢ Between 50% and 61% of respondents with at least post-secondary level qualification remain moderately or significantly current on trends and developments in their field of work,

compared with below 40% of those with less education qualifications (Figure 3.23).

➤ At least 65% of Malays and Indians seek out opportunities for continuous learning at a moderate to extensive level, compared with just over 50% of Chinese and Eurasians and Others (Figure 3.24).

➤ 56% of those who grew in upper social class have a moderately to extensively diversified set of job-related skills, compared with 46% of those who grew up in middle class and 44% of those who grew up in lower class (Figure 3.25).

Figure 3.21: Practical actions by gender

I constantly update my job-related skills.

	Not at all/Slightly	Somewhat	Moderately/To a great extent
Overall	28%	26%	46%
Male	27%	23%	50%
Female	28%	30%	41%
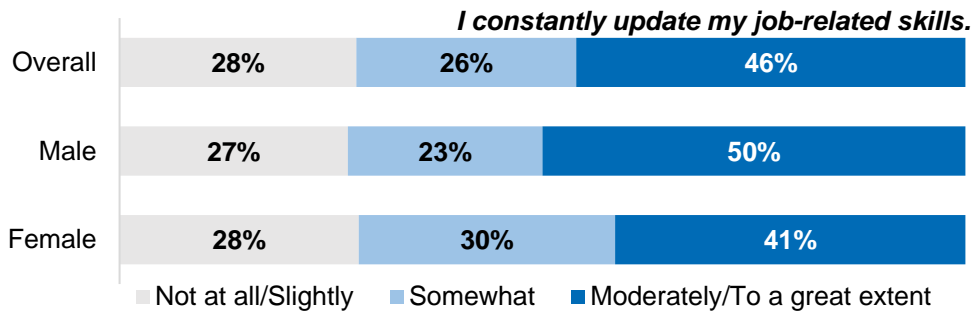
Figure 3.22: Practical actions by education level

I remain current on the trends and development in my field of work.

	Not at all/Slightly	Somewhat	Moderately/To a great extent
Overall	16%	30%	53%
Below Secondary	36%	30%	34%
Secondary	24%	36%	39%
Post-sec. (non-tertiary)	15%	35%	50%
Diploma/professional qualifications	11%	31%	58%
Degree	14%	26%	61%
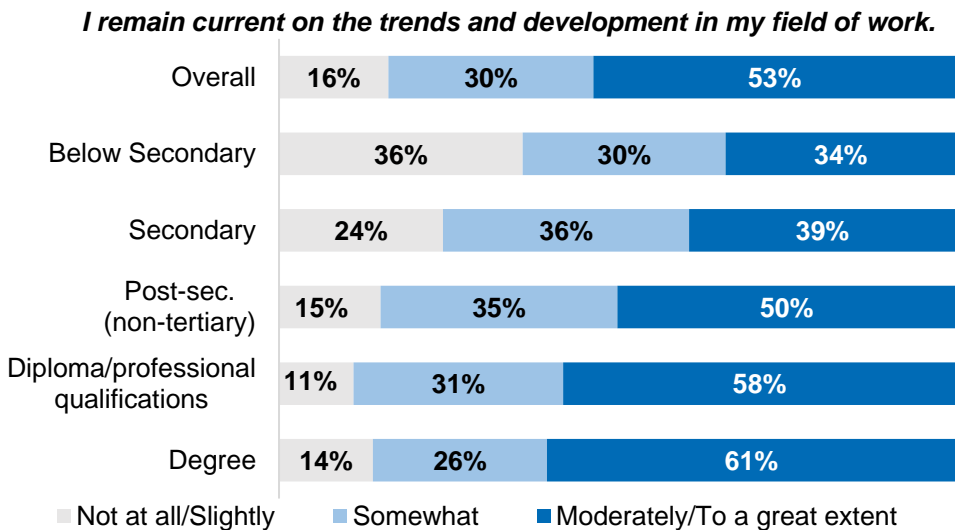
Figure 3.23: Practical actions by occupation group

I seek out career-related training/development or qualifications outside my organisation.

Group	Not at all/Slightly	Somewhat	Moderately/To a great extent
Overall	33%	24%	43%
PMET	29%	24%	48%
CSSW	39%	26%	35%
PTOCL	40%	25%	35%

■ Not at all/Slightly ■ Somewhat ■ Moderately/To a great extent
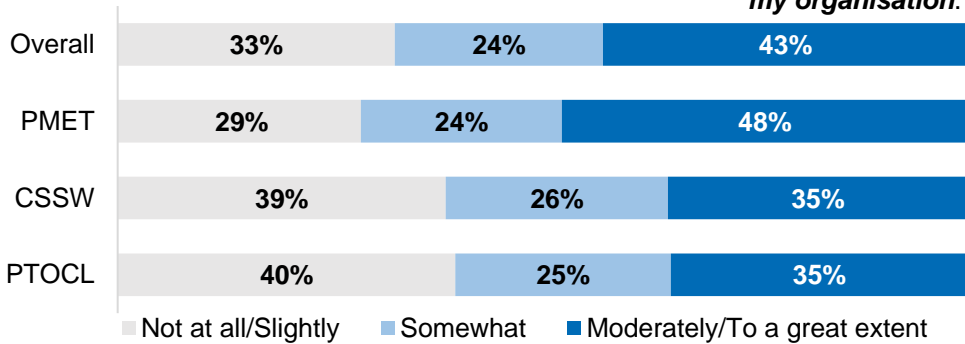
Figure 3.24: Practical actions by ethnicity

I seek out opportunities for continuous learning in my career.

Group	Not at all/Slightly	Somewhat	Moderately/To a great extent
Overall	19%	26%	55%
Chinese	20%	28%	53%
Malay	14%	21%	65%
Indian	25%	28%	67%
Eurasian & Others	23%	33%	45%

■ Not at all/Slightly ■ Somewhat ■ Moderately/To a great extent
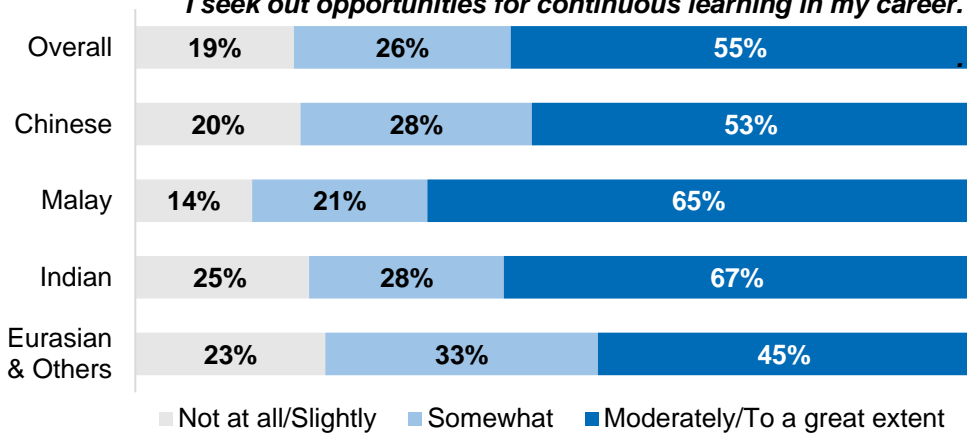
Figure 3.25: Practical actions by childhood social class

I have a diversified set of job-related skills.

Group	Not at all/Slightly	Somewhat	Moderately/To a great extent
Overall	24%	30%	46%
Upper class	11%	33%	56%
Middle class	26%	28%	46%
Lower class	24%	33%	44%

■ Not at all/Slightly ■ Somewhat ■ Moderately/To a great extent
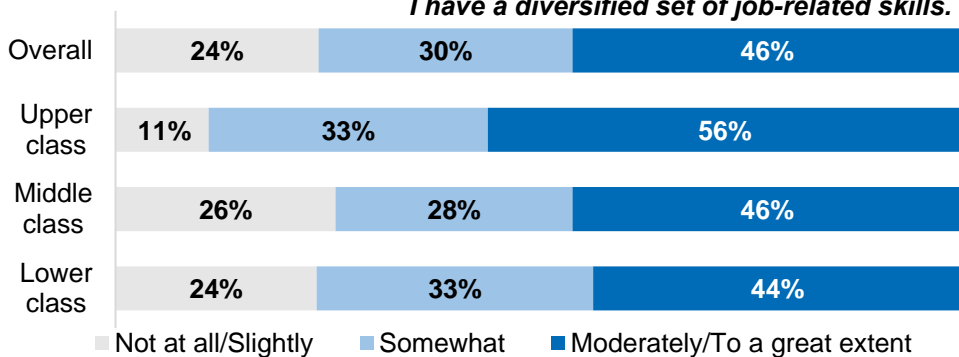
Reputation Building Actions

➢ About 37% of females make moderate to extensive efforts to ensure they get credit for the work they do, compared with 42% males (Figure 3.26).

➢ About 37% of Malays and 45% of Indians make at least moderate attempts to make their work accomplishments visible to others, compared with 31% Chinese and 17% of Eurasians and Others (Figure 3.27).

➢ About 59% of those who grew in upper social class have made at least moderate attempts to ensure their bosses are aware of their work accomplishments, compared with 46% of those who grew up middle class and 38% of those from lower social class (Figure 3.28).

Figure 3.26: Reputation building actions by gender

I make sure I get credit for the work I do.

	Not at all/Slightly	Somewhat	Moderately/To a great extent
Overall	27%	33%	40%
Male	28%	30%	42%
Female	27%	36%	37%
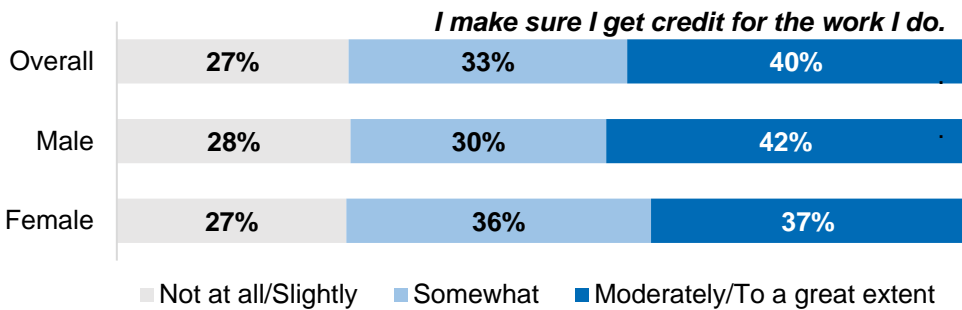
Figure 3.27: Reputation building actions by ethnicity

I make my work accomplishments visible to others (via conversations, social media).

	Not at all/Slightly	Somewhat	Moderately/To a great extent
Overall	39%	28%	33%
Chinese	40%	28%	31%
Malay	40%	23%	37%
Indian	23%	32%	45%
Eurasian & Others	46%	37%	17%
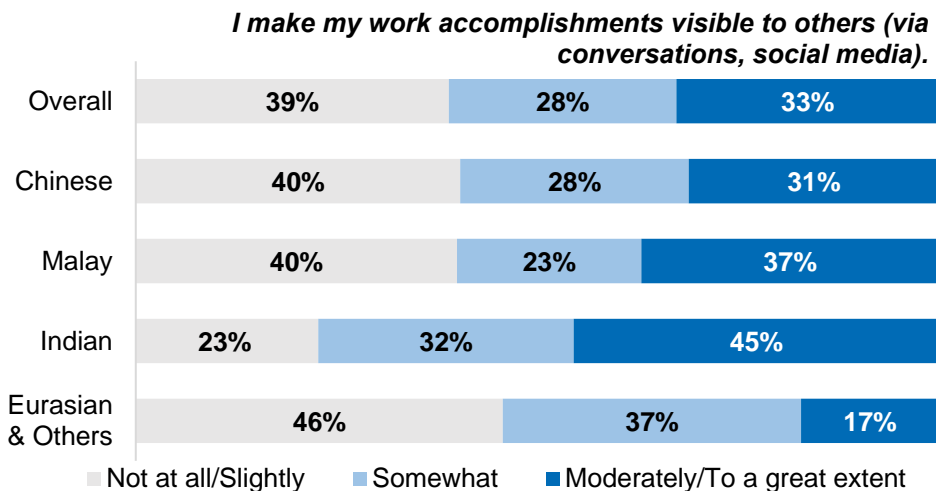
Figure 3.28: Reputation building actions by childhood SES

I've made my boss aware of my work accomplishments.

	Not at all/Slightly	Somewhat	Moderately/To a great extent
Overall	29%	26%	45%
Upper class	14%	27%	59%
Middle class	29%	25%	46%
Lower class	34%	28%	38%

■ Not at all/Slightly   ■ Somewhat   ■ Moderately/To a great extent
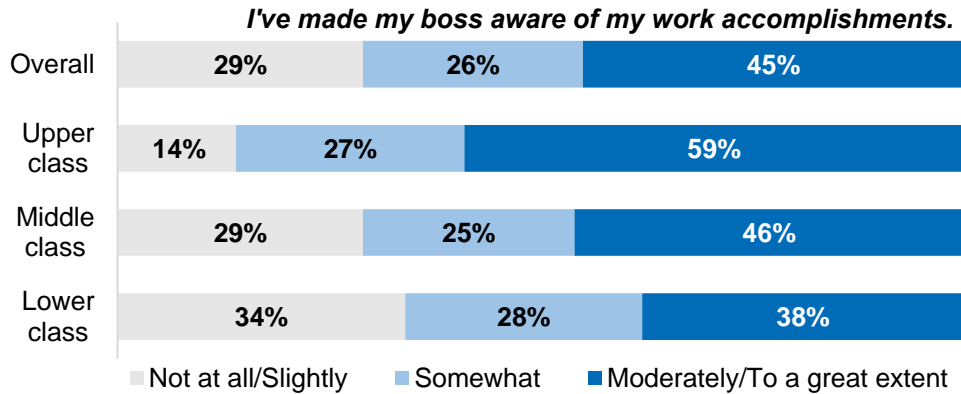
3.3 CAREER RESPONSIBILITY

Across all demographic groups, most people believe themselves to be primarily responsible for their own careers. In ascertaining this, we asked respondents to consider the development and management of their personal careers, and then rate, on a scale of 1 to 5, how much responsibility (ranging from "not at all responsible" to "completely responsible") each of the following four stakeholders should bear in that process: myself, line manager or supervisor, employer, the government.

More than 8 in 10 believe that the individual is mostly or completely responsible for their own career management, with the figure as high as 9 in 10 among degree-holders. This proportion declines as the level of educational attainment drops, to about 2 in 3 among those with the least formal education (below secondary-level) (Figure 3.29). Here, as with the findings presented earlier, there is a clear statistical difference between those with secondary-level or less education and those with post-secondary or higher educational attainment. The latter are far more likely to place greater emphasis on the individual (i.e., themselves) for career responsibility.[12] Within this group, responses from those with post-secondary, diploma or degree-level education do not differ significantly in how much responsibility the individual should bear in managing personal careers.

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[12] Reference categories: Female, Chinese, below-secondary education, PMET. For career responsibility attributed to "myself", regression coefficients according to different education levels are as follows: Secondary (b =.093, SE = .103, p = 357); post-secondary (b =.207, SE = .121, p = .088); diploma/professional qualification (b =.323, SE = .109, p < .01); degree (b =.401, SE = .110, p < .001).

Figure 3.29: Responsibility for career management attributed to "self" — by highest education level completed

Myself

	Not at all/Slightly	Somewhat responsible	Mostly/completely responsible
Overall	3%	14%	84%
Below Secondary	8%	26%	66%
Secondary	3%	25%	72%
Post-sec (non-tertiary)	5%	14%	81%
Diploma/professional qualifications	1%	10%	88%
Degree	2%	8%	91%
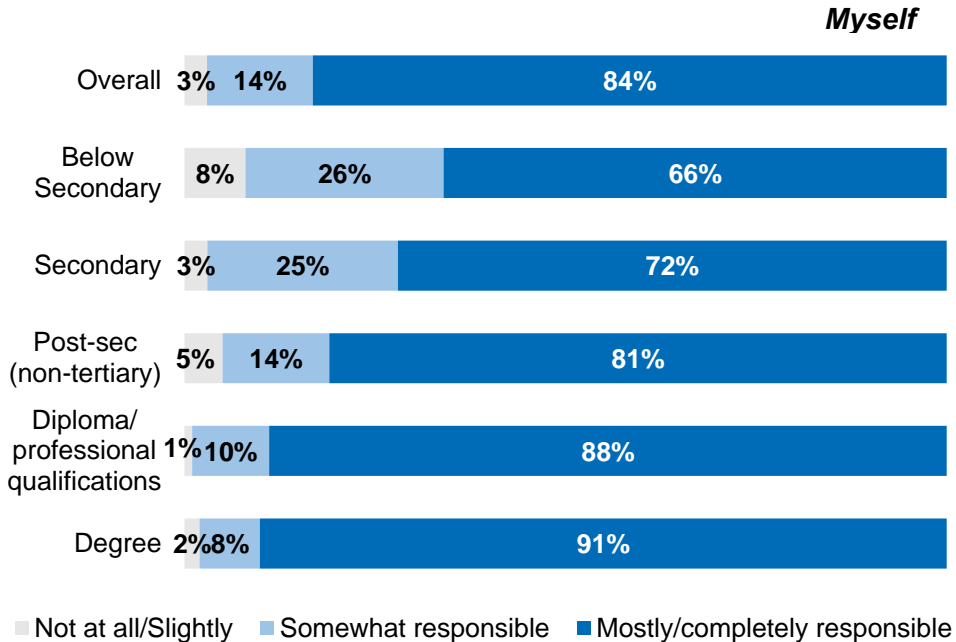
Where respondents differ most significantly is in their perception of the government's responsibility. Those with the least education qualification are more likely to believe that the government should take greater charge in managing their careers — more so even than their respective employers or line managers (Figure 3.30).

In contrast, those with higher education qualifications are more likely to hold their employers or managers more accountable (than the government) for their career management (Figure 3.31). Degree-holders[13] are significantly less likely to attribute career responsibility to the government, compared with respondents with other levels of educational attainment. Where half of those with below-secondary level education believe the government should be mostly or completely responsible, only about 1 in 4 degree-holders feel this way.

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[13] Reference categories: Female, Chinese, below-secondary education, PMET. Degree-holders significantly less likely to attribute career responsibility to "government", $b = -.303$, $SE = .150$, $p < .05$. For respondents with other levels of education qualification, $p > .05$

Figure 3.30: Career responsibility attributed to "government" — by highest education level completed

Government

	Not at all/Slightly	Somewhat responsible	Mostly/Completely responsible
Overall	28%	36%	36%
Below Secondary	27%	22%	51%
Secondary	22%	37%	42%
Post-sec. (non-tertiary)	24%	34%	42%
Diploma/ prof. qual.	24%	37%	38%
Degree	33%	40%	27%

■ Not at all/Slightly ■ Somewhat responsible ■ Mostly/Completely responsible
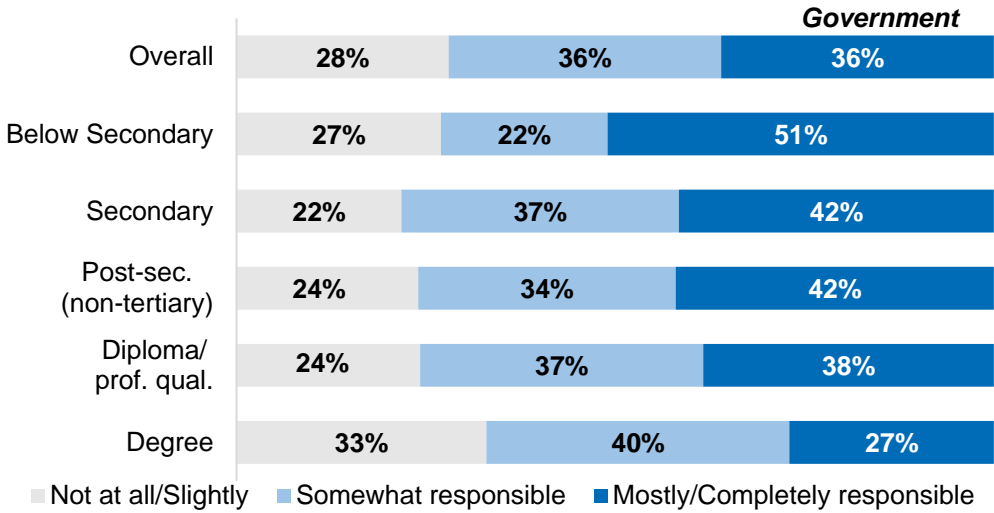
Figure 3.31: Career responsibility attributed to "manager or supervisor" compared with "employer", by education level

	My line manager/supervisor			*My employer*		
Overall	19%	35%	46%	14%	35%	52%
Below Secondary	27%	34%	39%	23%	33%	44%
Secondary	21%	36%	43%	15%	38%	47%
Post-sec. (non-tertiary)	21%	33%	46%	12%	37%	50%
Diploma/ professional qualifications	15%	34%	51%	10%	33%	57%
Degree	16%	37%	47%	12%	35%	53%

■ Not at all/Slightly
■ Somewhat responsible
■ Mostly/Completely responsible
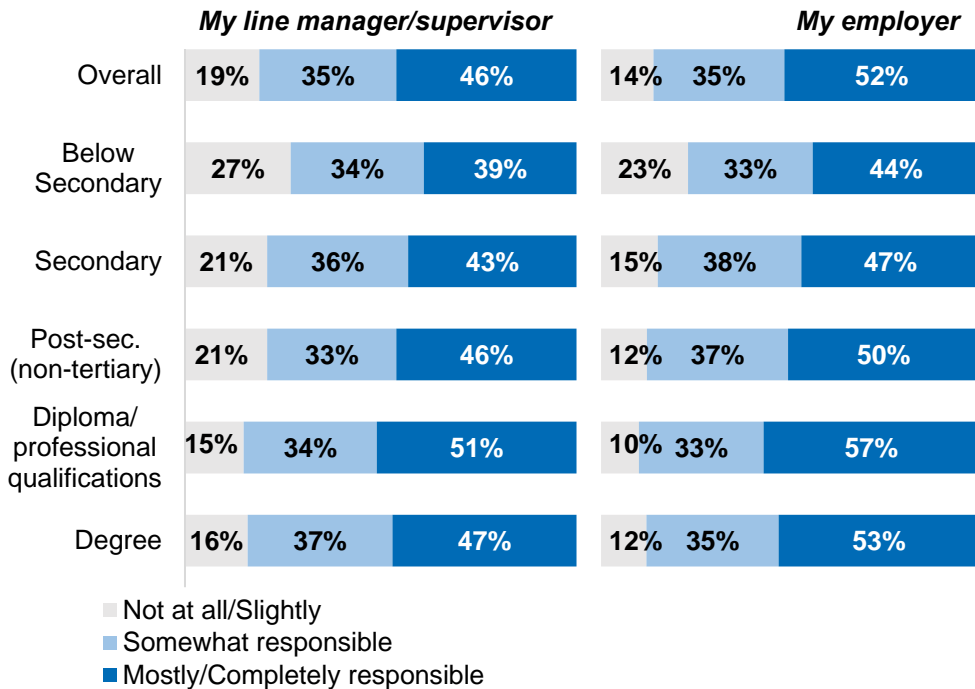
The different ethnic groups also differ in their beliefs on the extent to which government should support Singaporeans' career management. Minority groups — specifically Malays and Indians — are more likely than the Chinese to feel the government should take greater responsibility, whereas Eurasians and Others are the least likely to feel so (Figure 3.32).[14]

Nevertheless, when we calculated the mean scores assigned to each career stakeholder and ranked them in order of responsibility (from highest to lowest), there was no difference in ranking given by the different ethnic groups — all agreed that the individual should bear highest responsibility, followed by employers, then managers and supervisors, and finally the government.

However, when we analysed rankings according to educational attainment, the results differed across respondents with different levels of education (Figure 3.33).

Figure 3.32: Career responsibility attributed to "government", by ethnicity

Government

	Not at all/Slightly	Somewhat responsible	Mostly/Completely responsible
Overall	28%	36%	36%
Chinese	30%	35%	34%
Malay	18%	37%	45%
Indian	14%	36%	49%
Eurasian & Others	47%	35%	18%

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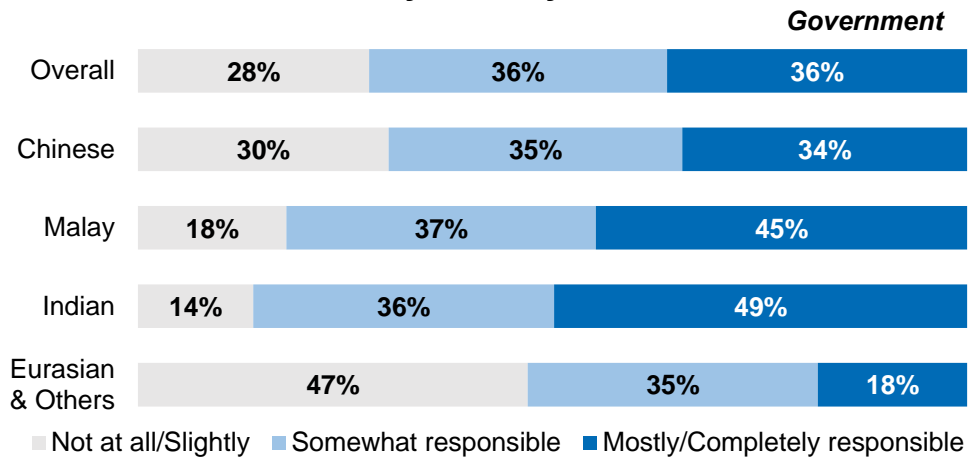
[14] Reference categories: Female, Chinese, below-secondary education, PMET
Malays: $b = .231$, $SE = .103$, $p < .05$; Indians: $b = .379$, $SE = .133$, $p < .01$;
Eurasians and Others: $b = -.445$, $SE = .185$, $p < .05$.

Figure 3.33: How Singapore workers across education levels rank career responsibility attributed to different stakeholders

Rank	Overall	Below Secondary	Secondary	Post-Secondary	Diploma/ Pro. Qual.	Degree
1	Myself	Myself	Myself	Myself	Myself	Myself
2	Employer	Government	Employer	Employer	Employer	Employer
3	Manager/ Supervisor	Employer	Government	Manager/ Supervisor	Manager/ Supervisor	Manager/ Supervisor
4	Government	Manager/ Supervisor	Manager/ Supervisor	Government	Government	Government

Question: How much responsibility do you think each of these stakeholders should bear in the development and management of your career? (1 = Not at all; 5 = Completely responsible).

3.4 SIGNIFICANT AWARENESS-ACTION GAP

In analysing Singapore workers' attitudes towards FOW changes and critical core skills, we found one trend to be of potential concern. While most Singapore workers are highly aware of impending FOW changes that would require them to refresh their skillsets (whether to reskill, upskill, or diversify their skills), and most also profess to being open to changes at work, far fewer admit to taking actions to prepare for such changes.

In general, between 60% and 75%[15] agree that job-related changes will be likely or very likely in the next 5 to 10 years and are open to such changes (Figure 3.34). However, only between 35% and 55% are actively taking practical actions in career management to prepare for such changes. For instance, just over half of Singapore workers are actively seeking continuous learning or acquiring new skills beyond what their current jobs require, while only just over 4 in 10 are constantly updating their job-related skills (Figure 3.35).

We performed paired samples *t*-tests comparing the means for two relevant measures (i.e., change awareness and career management practical

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[15] The two exceptions are questions relating to the likelihood of having to change their occupation (49%) and whether they look forward to changes in their work or jobs (57%). This suggests that people feel that incremental changes are likely to happen (e.g., changes in certain work tasks) but drastic career switches would be unlikely. And while people may feel themselves to be open to changes, they tend to be less likely to welcome or look forward to such changes.

actions) and found the level of practical actions (M = 3.14, SD = .92) to be significantly lower than awareness levels for the average survey respondent (M = 3.52, SD = .81), t(1010) = 12.91, p <.001.

Further statistical analyses were conducted to determine if such a gap is significant in all demographic groups, or only in some groups but insignificant in others. We focused our analyses initially on educational attainment, occupation group and gender. We based this on our earlier findings on change attitudes and critical core skills, whereby three demographic factors were most frequently associated with significant differentials in responses. Paired samples t-tests show that statistically significant differences between awareness and action exist for respondents across all levels of educational achievement, for both females and males, and also workers from all three occupation groups (i.e., PMET, CSSW and PTOCL). Detailed results for these t-tests are presented in Table 2.4 and Table 2.5 . In summary, our analyses suggest that this persistent, significant gap between awareness and actual exists significantly for all Singapore workers, regardless of education levels, occupation groups, or gender. Figure 3.36 on the following page illustrates this gap for Singapore workers across different education levels.

To probe further on whether these differences are more severe for certain groups than others, we derived a variable that represents the gap between awareness and action by calculating the difference between each respondent's mean score in career management practical actions and mean score in change awareness. Using this variable (i.e., "awareness-action gap") as the outcome variable, we performed linear regression analyses against demographic predictors.

Results show that **occupation groups** and **childhood social class** are the two main significant predictors. This means that the awareness-action gap is significantly wider among non-PMET workers compared with PMETs, and among those who grew up in lower social class backgrounds compared with those from wealthier backgrounds (although the effect size of childhood SES is relatively small, compared with occupation groups). In most of the other demographic areas (e.g., age, gender, etc.) there are no significant differences in the awareness-action gap. This means that Singapore workers across different age groups and education levels, whether male or female, etc., share similar gaps between awareness and action. Detailed regression results are presented in Table 2.6.

Figure 3.34: Relatively high levels of awareness of FOW changes and openness to such changes

Core skills needed to perform my role will change in 5-10 years	61%
How work is done in my current role will change significantly in 5-10 years	64%
Between now and retirement I will change my occupation at least once	49%
I will need to reskill myself to adapt to changes in my work or career	73%
I would consider myself open to changes in my work or job	75%
I look forward to changes in my work or job	57%
I am open to changing my occupation or shifting to a different career	61%

■ Items for "Change Awareness" | % "Likely/Very likely"   ■ Items for "Openness to Change" | % "Agree/Strongly Agree"

Question (change awareness): Please rate how likely or unlikely this might happen to you (1 = Very unlikely, 5 = Very likely). Question (openness to change): Please indicate how much you agree or disagree with each of these statements. (1=Strongly disagree; 5= Strongly agree).

Figure 3.35: Only half or fewer than half taking practical actions in career self-management

Action	Moderately/To a great extent
Keep CV up to date	40%
Monitor job ads to see what's available outside	35%
Read work-related articles/blogs/books	40%
Seek out career-related training outside my organisation	43%
Remain current on trends and developments in my field	53%
Constantly update my job-related skills	46%
Learning new skillsets beyond what my current job needs	52%
Seek out opportunities for continous learning	55%
Have diversified set of job-related skills	46%

■ Moderately/To a great extent

Question: Please rate the extent to which each of these activities/actions applies to you. (1=Not at all; 5=To a great extent)

Figure 3.36: Level of awareness about the need to improve and diversify skills is significantly higher than actual practical actions (in career self-management), across education levels

	AWARENESS*	ACTION**			
	Need to reskill to adapt to changes in work/career	Seeking training outside current organisation	Remaining current on trends in my field	Have diversified job-related skills	Seeking opportunities for continuous learning
Overall	73%	43%	53%	46%	55%
Below secondary	45%	24%	34%	33%	38%
Secondary	61%	34%	39%	36%	44%
Post-sec (non-tertiary)	72%	39%	50%	44%	55%
Diploma/ Professional qualifications	80%	49%	58%	50%	62%
Degree	82%	50%	61%	52%	61%

* % who indicated "Likely" or "Very likely"   *** % who indicated "Moderately" or "To a great extent"*

Chapter 4

Work Values, Priorities and Meaning

CHAPTER 4: WORK VALUES, PRIORITIES AND MEANING — FINDINGS

4.1 PREFERENCES IN JOB CHARACTERISTICS

What do Singaporeans care most about in a job? And what do they value least? We listed 15 common job characteristics[16] and asked people to rate the level of importance of each one on a scale of 1 to 5. We then ranked the mean scores for these 15 aspects (Figure 4.1). *Pay adequacy*, *workplace ethics* and *work conditions* are the top three priority job aspects for most Singaporeans. In contrast, recognition and task variety are accorded the least importance. Notably, career advancement is bottom on the list for the oldest age group (55 and above) and near bottom for those aged 35 to 54, but much higher in priority for younger people (aged 21 to 34).

In general, younger respondents (aged 21 to 34) value *growth and learning* as well as *career advancement* far more than older respondents (aged 35 to 54, and 55 and above). This is to be expected as growth and advancement would be far more salient to those at an early stage of their career development (i.e., younger workers) when compared with those at the peak of their careers or nearing retirement. For the oldest group of workers, pay adequacy is less important than workplace ethics, work conditions and social interaction.

Contrary to the dominant narrative that younger workers — compared with older generations — are more likely to pursue jobs that offer some meaning and purpose over those that offer purely material gains, our findings indicate no statistically significant age differences in such a preference. Singapore workers — young or old — place similar levels of priority on *task significance* (work that makes a significant impact on the lives and well-being of others). The youngest group of respondents (aged 21 to 34) rank this 11th in priority, those aged 35 to 54 place this marginally higher at 10th spot, and the oldest group (55 and above) rate this job aspect as 9th.

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[16] Refer to Appendix A for detailed descriptions of each job aspect.

Figure 4.1: Ranking of job aspects — overall and by age group

Rank	Overall	21 to 34	35 to 54	55 & above
1	**Pay adequacy**	Pay adequacy	Pay adequacy	Workplace ethics
2	**Workplace ethics**	Work conditions	Workplace ethics	Work conditions
3	**Work conditions**	**Growth/learning**	Work conditions	Social interaction
4	Social interaction	Social interaction	Social interaction	Pay adequacy
5	Job autonomy	Workplace ethics	Job autonomy	Job autonomy
6	Achievement	Achievement	Achievement	Achievement
7	Growth/learning	**Career advancement**	**Growth/learning**	Leisure
8	Leisure	Leisure	Leisure	Skill variety
9	Skill variety	Job autonomy	Skill variety	Task significance
10	Task significance	Skill variety	Task significance	Workplace diversity
11	Job security	Task significance	Job security	**Growth/learning**
12	Workplace diversity	Workplace diversity	**Career advancement**	Job security
13	**Recognition**	Recognition	Workplace diversity	Task variety
14	**Career advancement**	Job security	Recognition	Recognition
15	**Task variety**	Task variety	Task variety	**Career advancement**

Question: How important do you personally think each aspect is in a job?
scale of 1 to 5 (1 = Not at all important; 5 = Very important).

4.2 DIVERSITY AND INCLUSION PRIORITIES

In the overall job characteristics ranking (Figure 4.1 earlier), general workplace diversity ranks 12 out of 15 for importance. On average, about 2 in 3 Singapore workers believe that workplace diversity is important (compared with 8 in 10 who feel this way about pay adequacy, which was the top-ranked job aspect).

Workplace diversity is a broad label that covers a range of issues or disadvantaged groups. Which specific diversity issues do Singaporeans care more about? And which ones less so? Drawing on research in this area, we provided a list of 8 common workplace diversity issues and asked survey respondents to rate how important each should be included in workplace diversity, equity and inclusion (DEI) efforts, using a scale of 1 to 5.

We found remarkable similarity in their responses. Singaporeans invariably rank "persons with mental health conditions" and "persons of disability" as among the two or three priorities. This is the case across gender, age and most ethnic groups — where only minor differences are observed. Figures 4.2 and 4.3 present the rankings of workplace diversity priorities by age groups and by ethnic groups. Since there is negligible difference in the responses between females and males, whose rankings are almost identical to that of the overall sample population, we do not include rankings by gender. Finally, Figure 4.4 presents the frequency distribution of responses for each of the 8 workplace diversity issues.

Figure 4.2: Ranking of diversity priorities —by age group

Rank	Overall	21 to 34	35 to 54	55 & above
1	Persons with mental health conditions	Persons with mental health conditions	Persons with mental health conditions	Persons with mental health conditions
2	Persons of disability	Persons of disability	Persons of disability	Persons of disability
3	Age	Social class or income	Age	Age
4	Social class or income	Race	Social class or income	Social class or income
5	Race	Age	Race	Race
6	Gender	Gender	Sexual orientation	Gender
7	Sexual orientation	Religion	Gender	Religion
8	Religion	Sexual orientation	Religion	Sexual orientation

*Question: How important do you **personally** feel it is to include or consider each of these categories in **workplace diversity, equity and inclusion (DEI) efforts**? scale of 1 to 5 (1= Not at all important, 5 = Very important).*

Figure 4.3: Ranking of workplace diversity priorities by ethnicity

Rank	Chinese*	Malays*	Indians*	Eurasians & Others*
1	**Persons with mental health conditions**	**Persons with mental health conditions**	**Persons of disability**	**Persons with mental health conditions**
2	**Persons of disability**	**Persons of disability**	**Age**	**Age**
3	Age	Social class or income	**Persons with mental health conditions**	Social class or income
4	Social class or income	Age	Social class or income	Race
5	Race	Gender	Gender	Persons of disability
6	Sexual orientation	Race	Sexual orientation	Gender
7	Gender	Religion	Religion	Sexual orientation
8	Religion	Sexual orientation	Race	Religion

Distribution of citizens and permanent residents (PRs) in each ethnic group is as follows: Eurasians and Others (59% citizens, 41% PRs), Indians (80% citizens, 20% PRs), Malays (97% citizens, 3% PRs), Chinese (92% citizens, 8% PRs).

Figure 4.4: Level of importance Singaporeans accord to 8 issues relating to workplace diversity, equity and inclusion (DEI) efforts

	Not at all/Slightly important	Somewhat important	Moderately/Very important
Persons with mental health conditions	20%	28%	52%
Persons with disability	26%	27%	47%
Age	30%	28%	43%
Social Class	30%	27%	43%
Race	33%	26%	41%
Gender	35%	26%	39%
Sexual orientation	34%	30%	36%
Religion	38%	25%	37%

*Question: How important do you **personally** feel it is to include or consider each of these categories in **workplace DEI efforts**? scale of 1 to 5 (1= Not at all important, 5 = Very important).*

4.3 SUSTAINABILITY PRIORITIES
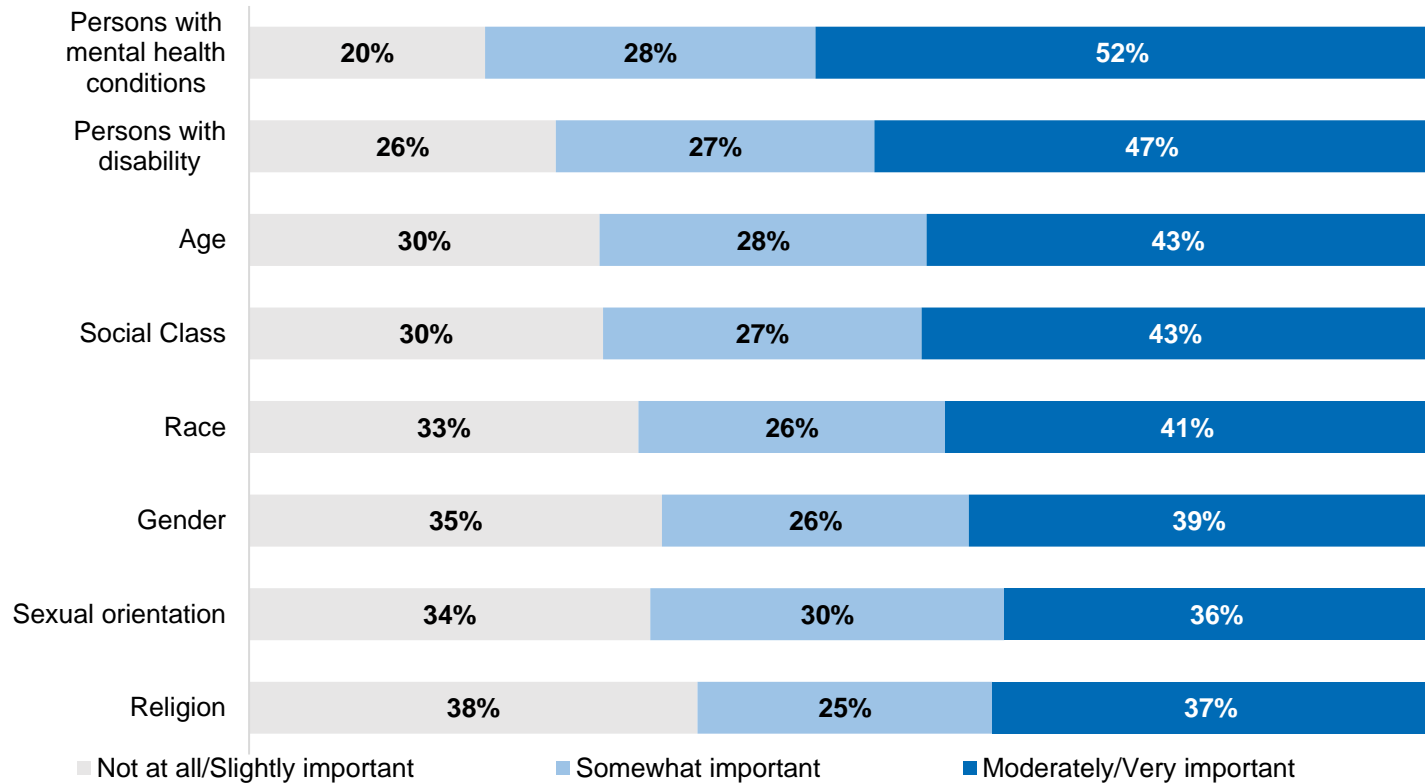
In this segment we presented to respondents 4 question items pertaining to sustainability — 2 items on climate change and environmental issues, and 2 on benefitting future generations. We asked respondents to rate how important it is for their jobs or work to give them the opportunity to contribute to these causes. Results from paired samples *t*-tests show that in general, people care significantly more about sustainable efforts for the benefit of future generations (*M* = 4.01, *SD* = .880) than efforts for the environment (*M* = 3.90, *SD* = .901), *t*(1009) = −5.79, *p* = .03. And this is the case for Singaporeans whether young or old. Results from ordinary least squares regression show that concern levels for both types of sustainability efforts (environmental as well as future-generation oriented) do not differ significantly across ages.[17] This means that when it comes to getting a chance to do their part for the environment, older Singaporeans care just as much as younger ones. This is contrary to popular perception that youths (i.e., millennials and Generation Z) are more concerned about environmental causes than older generational cohorts.

Our results indicate no significant differences either across gender, ethnicity or education levels on both types of sustainability concerns. As with diversity issues, Singaporeans from different groups share a high level of similarity in how they feel about the importance of sustainability priorities in their jobs and workplaces.

The lack of age-based or generational differences is consistent with studies conducted elsewhere in the world, e.g., Canada, China, Germany, Switzerland, the UK and the US (Shi et al., 2016). A paper published in 2019 by Gray and colleagues sampled United States citizens from four different cohorts: Silent Generation (born 1925–1945), Baby Boomers (born 1946–1964), Generation X (born 1965–1981), Millennials (born 1982–1999). The study focused on concern about declines in environmental health and willingness to support countermeasures. The authors found that age or generation alone were not significant predictors. Instead, political and value orientations were more strongly associated with environmental concern and action (Gray et al., 2019).

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[17] Age as a predictor for environmental sustainability concerns: *b* = .004, *SE* = .002, *p* = .061

Age as a predictor for future-generation oriented sustainability concerns: *b* = .003, *SE* = .002, *p* = .179

Figure 4.5: Sustainability priorities by age group (environmental concerns compared with actions to benefit future generations)

Activities that protect and improve the quality of the natural environment

Creating a better life for future generations

	Not at all/Slightly important	Somewhat important	Moderately/Very important		Not at all/Slightly important	Somewhat important	Moderately/Very important
Overall	8%	23%	69%		5%	20%	75%
21 to 34	7%	24%	68%		4%	21%	75%
35 to 54	8%	24%	68%		6%	18%	76%
55 & above	8%	21%	71%		6%	22%	72%

■ Not at all/Slightly important
■ Somewhat important
■ Moderately/Very important

Question: Please rate how important it is that your job gives you the opportunity to achieve or participate in the following.(1= Not at all important; 5 = Very important
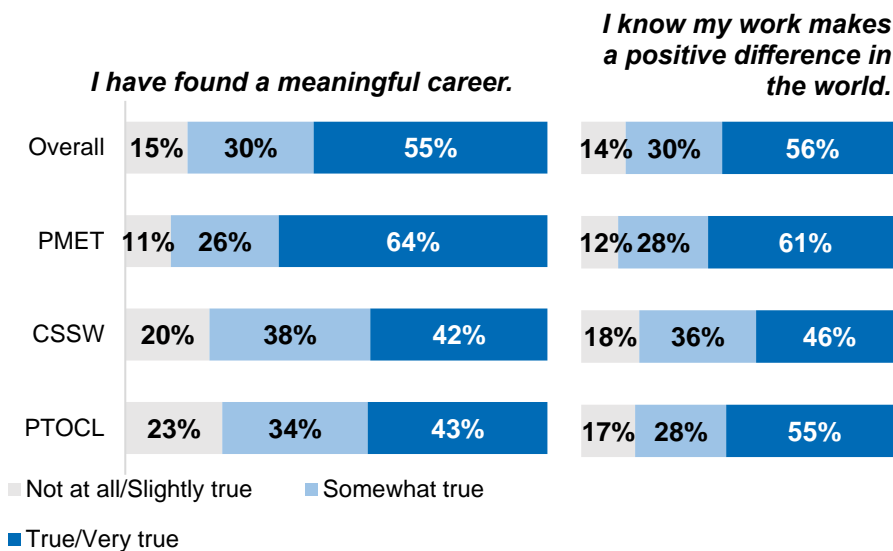
4.4 MEANINGFUL WORK

There are three significant predictors associated with the extent to which Singapore workers find their work meaningful: **occupation**, **ethnicity** and **childhood social class**. Clerical, sales and services workers (CSSWs), as well as production and transport operators, cleaners and labourers (PTOCLs) are significantly much less likely than PMETs to find their jobs and careers meaningful. Malays and Indians are significantly more likely than the Chinese to believe that their work is meaningful; Eurasians and Others do not differ significantly from the Chinese in this aspect.[18] Finally, those who grew up in higher social class are also more likely to find greater meaning in their work compared with those who grew up in lower social class, although the effect size of childhood SES is much smaller, compared with the effect

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[18] Reference categories: Female, Chinese, below-secondary education, PMET.
CSS workers: $b = -.331$, $SE = .069$, $p < .001$; PTOCL: $b = -.421$, $SE = .087$, $p < .001$
Malays: $b = .258$, $SE = .081$, $p < .01$; Indians: $b = .215$, $SE = .091$, $p < .05$; Eurasians and Others: $b = -.178$, $SE = .127$, $p = .160$

sizes from occupation and ethnic groups. Detailed linear regression results for meaningful work are presented in Table 2.7.

➢ Just over 40% of CSSWs and PTOCLs say it is true that they have found a meaningful career, compared with 64% of PMETs (Figure 4.6).

➢ About 7 in 10 Indians and Malays believe it is true that the work they do serves a greater purpose, compared with 58% Chinese and 52% Eurasians and Others (Figure 4.7).

➢ About 7 in 10 respondents who grew in upper social class (childhood SES "ladder" scores 8 to 10) say it is true that they have found work that has a satisfying purpose. In contrast, about 6 in 10 of those who grew up middle class families (childhood SES scores 5 to 7) and just over half of those who grew up in lower social class (childhood SES scores 1 to 4) say the same (Figure 4.8).

Figure 4.6: Perception of meaningful work, by occupation group

Question: Please read the following statements carefully and rate on a scale of 1 to 5 how much or how truly each statement reflects your work and career at this point. (1 = Not at all true; 5 = Very true)

Figure 4.7: Perception of meaningful work, by ethnic group

The work I do serves a greater purpose.

	Not at all/Slightly true	Somewhat true	True/Very true
Overall	11%	30%	60%
Chinese	10%	32%	58%
Malay	9%	23%	68%
Indian	11%	18%	70%
Eurasian & Others	16%	32%	52%

■ Not at all/Slightly true ■ Somewhat true ■ True/Very true
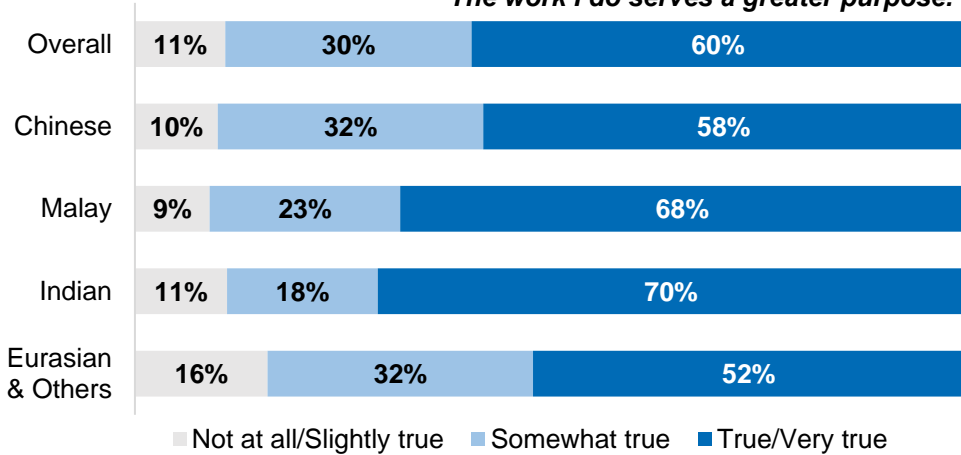
Figure 4.8: Perception of meaningful work, by childhood SES

I have discovered work that has a satisfying purpose.

	Not at all/Slightly true	Somewhat true	True/Very true
Overall	11%	28%	61%
Upper class	3%	25%	72%
Middle class	11%	26%	63%
Lower class	14%	31%	55%

■ Not at all/Slightly true ■ Somewhat true ■ True/Very true
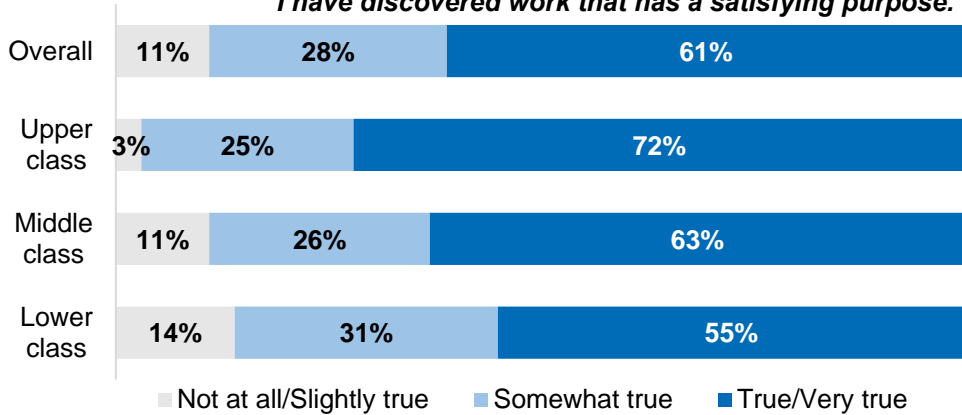
Upper class (childhood SES "ladder scores" 8–10), middle class (childhood SES scores 5–7), lower class (childhood SES scores 1–4).

4.5 TRADE-OFFS

We asked Singapore workers whether they would be willing to make income and career trade-offs for the benefit of family and personal life, or social contribution. Of the various demographic variables, **age** is the key significant predictor associated with willingness to make such trade-offs, but even so the effect size of age[19] is very small. In general, older workers are more willing to make trade-offs.

This corroborates with findings reported in section 4.1 on preferences in job characteristics. In that segment, we found pay adequacy to the most important out of 15 job aspects for respondents in the younger age groups (21 to 34 and 35 to 54); but it ranked fourth for those aged 55 and above. Similarly, career advancement ranked much higher (7th) for those aged 21 to 34 and a modest 12th for those aged 35 to 54, but right at the bottom (15th) for those aged 55 and above. In short, based on the rankings of job characteristics, we can see that pay adequacy and career advancement are comparatively lower priorities for older workers aged 55 and above; hence they would be more likely to make compromises in these areas, compared with younger workers.

➢ More than 6 in 10 of those aged 55 and above are willing to take less pay or a lesser work role for the benefit of family or personal life, compared with about half of those in younger age groups (Figure 4.9).

➢ Just over half of those aged 55 and above have actually done so, compared with under half of those aged 35 to 54 and under 4 in 10 of those aged 21 to 34 (Figure 4.10).

➢ About 6 in 10 of those aged 55 and above are also willing to accept less pay or a lesser work role to take up work that contributes to something more important or meaningful, compared with about 4 in 10 of those in younger age groups (Figure 4.11).

➢ More than 4 in 10 of those aged 55 and above have actually accepted pay or work role trade-offs for more meaningful work, compared with fewer than 4 in 10 of those in the younger age groups (Figure 4.12).

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[19] Reference categories: Female, Chinese, below-secondary education, PMET.
Age as predictor for willingness to make trade-offs (family/personal life): b = .007, SE = .003, p < .01
Age as predictor for willingness to make trade-offs (social contribution): b = .011, SE = .003, p < .001

Figure 4.9: Willingness to make trade-offs (family/personal life) by age group

I would be willing to accept less pay or a lesser work role for the benefit of my family or personal life.

	Disagree/Strongly disagree	Neither agree nor disagree	Agree/Strongly agree
Overall	21%	25%	54%
21 to 34	23%	24%	53%
35 to 54	21%	30%	49%
55 & above	18%	19%	63%
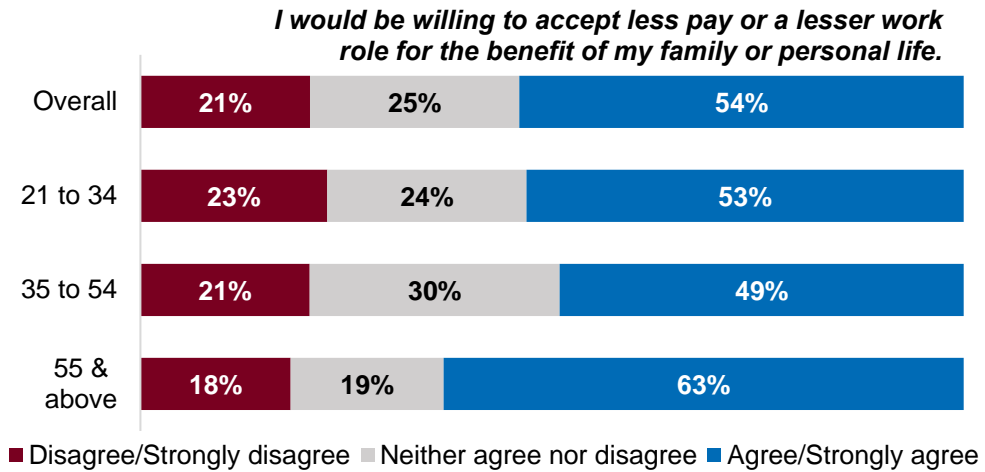
Figure 4.10: Actual trade-offs (family/personal life) by age group

Have you ever taken a job with less pay or given up better job opportunities for the benefit of your family or personal life?

	Yes and would do again	Yes but wouldn't do again	Yes	No but would prob do	No and wouldn't do	No	Don't Know
Overall	31%	14%	45%	25%	18%	43%	12%
21 to 34	22%	15%	37%	32%	19%	51%	12%
35 to 54	32%	14%	46%	23%	19%	42%	12%
55 & above	37%	14%	51%	22%	16%	38%	11%
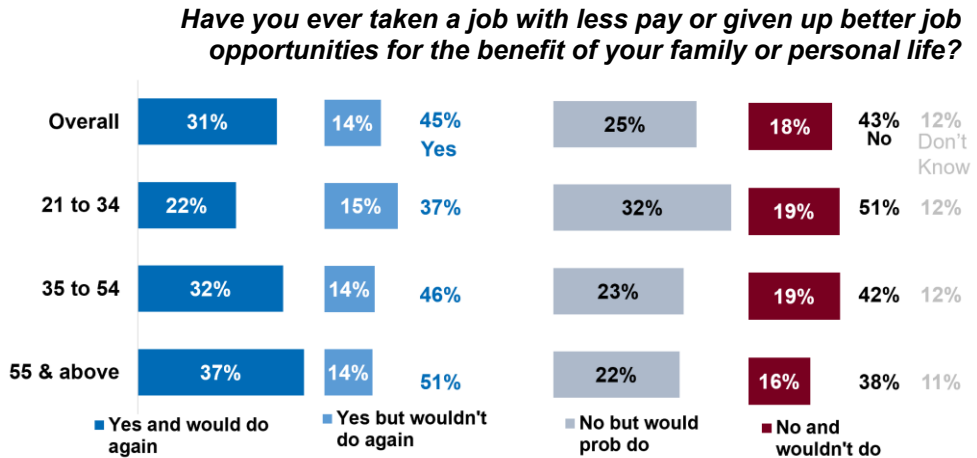
Figure 4.11: Willingness to make trade-offs (social contribution) by age group

I would be willing to accept less pay or a lesser work role for work that contributes to something more important or meaningful.

Age group	Disagree/Strongly disagree	Neither agree nor disagree	Agree/Strongly agree
Overall	25%	28%	47%
21 to 34	31%	29%	40%
35 to 54	25%	31%	44%
55 & above	20%	22%	59%

■ Disagree/Strongly disagree ■ Neither agree nor disagree ■ Agree/Strongly agree
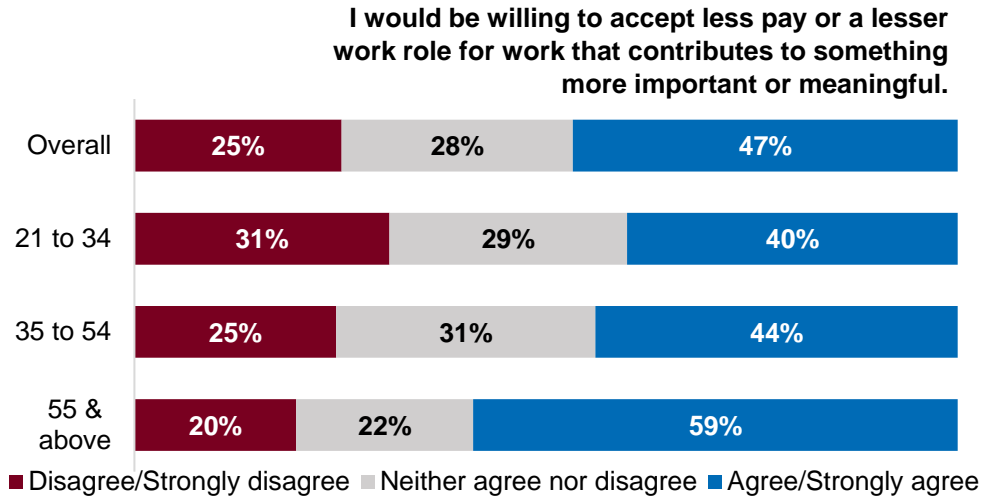
Figure 4.12: Actual trade-offs (social contribution) by age group

Have you ever taken a job with less pay or given up better job opportunities for work that contributes to something more important or meaningful?

Age group	Yes and would do again	Yes but wouldn't do again	Yes	No but would prob do	No and wouldn't do	No	Don't Know
Overall	26%	13%	39%	24%	24%	48%	13%
21 to 34	22%	14%	36%	27%	23%	50%	14%
35 to 54	27%	12%	39%	22%	25%	47%	14%
55 & above	30%	14%	44%	25%	22%	47%	9%

■ Yes and would do again ■ Yes but wouldn't do again ■ No but would prob do ■ No and wouldn't do

Chapter 5

Social Mobility — Findings

CHAPTER 5: SOCIAL MOBILITY — FINDINGS

5.1 OVERVIEW

The report card for social mobility appears to be healthy thus far, going by the personal experiences of Singaporeans. Majority of our survey respondents (61%) report living better lives now compared with their childhood. Older respondents, PMETs and those who report growing up in lower social class backgrounds are significantly more likely to experience a greater degree of upward social mobility.

As discussed in detail earlier in section 2.1.5, we measured social mobility using the MacArthur ladder. In this measure, an image of a 10-rung ladder is shown to respondents who are instructed to imagine the ladder as depicting different levels of their society (Figure 5.1). The top of the ladder (rung 10) represents people with the most wealth, resources and highest social standing, the bottom (rung 1) those with the least. Respondents then rank themselves on this ladder at two different stages in their lives: in childhood at age 18 or earlier, and at present (at the time of the survey in late 2022). An increase in "ladder scores" from childhood to current SES suggests upward social mobility, while a decrease represents downward social mobility.

Figure 5.1: MacArthur ladder for subjective social status


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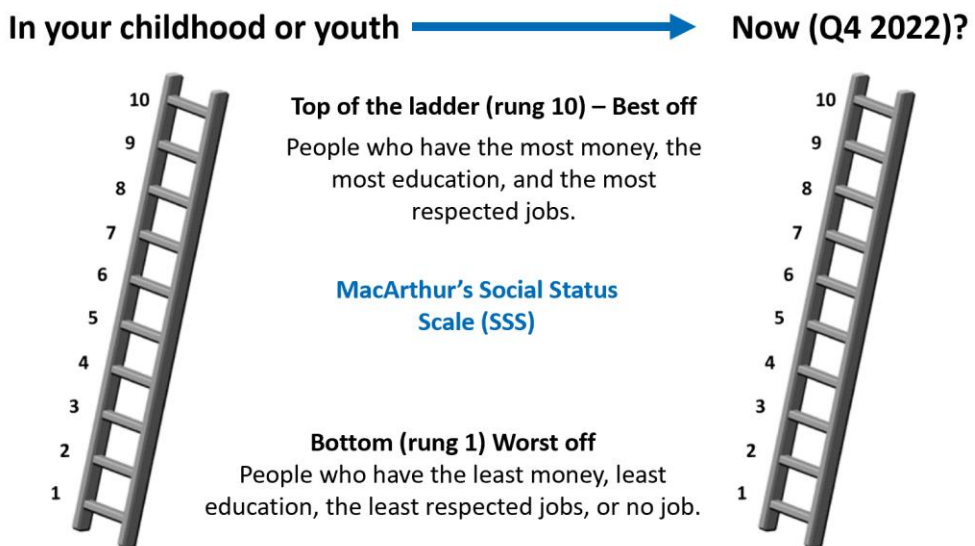
5.2 MAJORITY REPORT UPWARD MOBILITY

We calculated the difference in SES "ladder scores" reported by each respondent and found that majority of respondents have experienced upward social mobility.

At least 6 in 10 (61%) report higher SES "ladder" scores now compared with in their childhood. Just 1 in 4 (24%) report no change in scores, while 1 in 6 (16%) report a decrease in scores. Figure 5.2 illustrates these findings through a Sankey diagram that plots the flows in "ladder scores" between childhood and working adulthood of all the 1,010 respondents in our survey sample, representative of the Singapore labour force.

Figure 5.2: Sankey diagram shows majority of respondents believe they have achieved upward social mobility
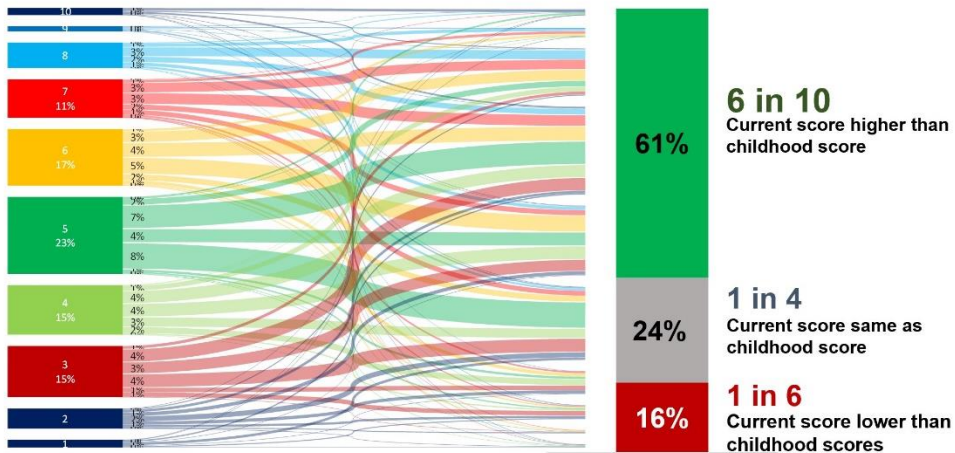

5.3 EXPANSION OF MIDDLE CLASS

We further classified ladder ranks or scores into three brackets: ranks or "ladder scores" of 1 to 4 represent lower social class, 5 to 7 middle class, and 8 to 10 upper social class. This helps to enrich our analyses by allowing us to have a better understanding of how Singaporeans distribute themselves in the different social classes (lower, middle or upper), and the extent to which they have made leaps between social classes in the period from childhood to working adulthood".

Our findings suggest that Singapore's middle class has expanded significantly over the years, accompanied by a smaller percentage-point increase in the upper-class and a reduction in the lowest social ranks. While only about half of our survey respondents (51%) classify themselves as middle class in their childhood, almost 7 in 10 (69%) of these economically active adults report that they are now middle class ("ladder scores" of 5-7). Compare this with about 1 in 10 (11%) who report growing up in upper-class families ("ladder scores" of 8-10) — there are now about 2 in 10 (19%) who consider themselves to be in the uppermost social backet. In contrast, those who consider themselves in the lowest social bracket ("ladder" scores 1-4) has shrunk significantly, from almost 4 in 10 (38%) in childhood to just over 1 in 10 (12%) now. Figure 5.3 illustrates the changes in proportion of the different social classes over time.

Figure 5.3: Larger proportion of respondents place themselves in middle or upper classes now compared with in their childhood
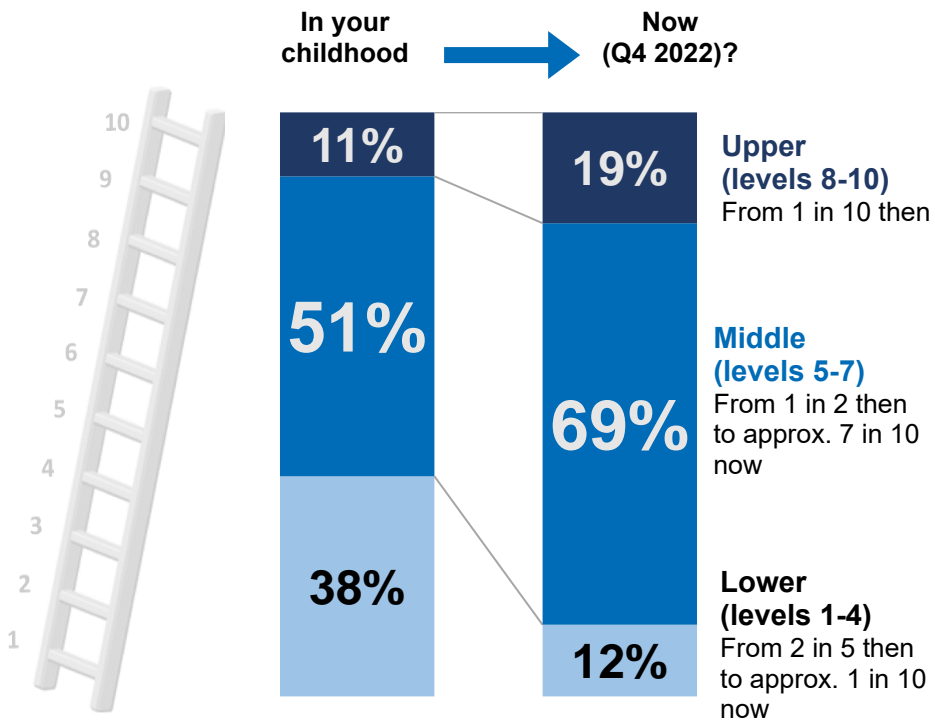
Where would you place yourself on this ladder? (n=1,010; weighted)

5.4 PREDICTORS OF SOCIAL MOBILITY

Who or which groups are more likely to have experienced upward mobility? Linear regression analyses of the change in SES scores against various demographic variables point to **age**, **occupation group** and **childhood SES** as the three key significant predictors.[20] Older respondents, PMETs and those who report lower childhood SES or "ladder" scores are more likely to experience greater upward social mobility, compared with younger respondents, non-PMETs and those who report growing up in more well-to-do families. Of the three predictors, the effect size for age is much smaller compared with the other two predictors. Upward mobility is not statistically different by ethnic group, gender, educational attainment or income. Detailed regression results are reported in Table 2.8.

One possible reason why **age** makes a difference could be because older workers simply have had more time to accumulate wealth and resources over the course of their career, compared with younger workers who would have spent much less time in the workforce. As illustrated in Figure 5.4 (left-side chart), 7 in 10 of those aged 55 and above report experiencing upward mobility, compared with 6 in 10 of those aged 35 to 54, and only half of those aged 21 to 34.

Another potential explanation could be that improvements in Singapore's social mobility in the few past decades have led to significant expansion in the middle class (Figure 5.3), such that a larger proportion of younger respondents are probably starting off on a higher base (higher childhood SES scores) compared with older respondents. Regression analyses indicate that those who report lower **childhood SES** are more likely to experience greater upward social mobility, possibly because they have greater scope or "room" for improvement compared with those who start off already in the middle or upper social brackets in childhood. Whether there could be further explanations for age-based differences in social mobility (e.g., whether social mobility processes have slowed down over time due to other external factors) is beyond the scope of this survey and would need to be addressed in a separate study.

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[20] Reference categories: Female, Chinese, below-secondary education, PMET. Regression coefficients for predictors of upward social mobility: Age (b = .016, SE = .004, $p < .001$); Clerical, Sales and Services Workers (b = −.464, SE = .128, $p < .001$); Production and Transport Operators, Labourers and Cleaners (b = −.629, SE = .185, $p < .01$); Childhood SES (b = −.694, SE = .029, $p < .001$)

As mentioned earlier, our survey findings suggest that those who hail from less privileged backgrounds are more likely to experience greater upward mobility than those who grew up better off. Almost 9 in 10 of our respondents who grew up in the lowest social bracket (SES ladder scores 1–4) report higher ladder scores now (see right-side chart in Figure 5.4). In fact, almost 8 in 10 report experiencing not just incremental increases in ladder scores, but an upward transition to middle (ladder scores 5–7) or upper (ladder scores 8–10) social brackets (Figure 5.5).

In comparison, 1 in 2 respondents who grew up middle class report higher ladder scores now, but most of them (7 in 10) have remained in the middle social class bracket, with a minority (1 in 5) moving up to the upper social bracket. For those who grew up in the upper social bracket, just over 1 in 10 (13%) report higher SES ladder scores now. Since this group is already in the highest social bracket, it is not possible for them to move up to an even higher tier. Instead, slightly over half (52%) report remaining in upper class, with just over 4 in 10 (44%) slipping down to middle class, and a very small minority (4%) dropping to the lowest social bracket (Figure 5.5).

Figure 5.4: Age and childhood SES are significant predictors for upward social mobility

Larger proportion of older respondents report upward mobility than younger ones.

9 in 10 with childhood ladder score in lowest bracket report higher scores now.

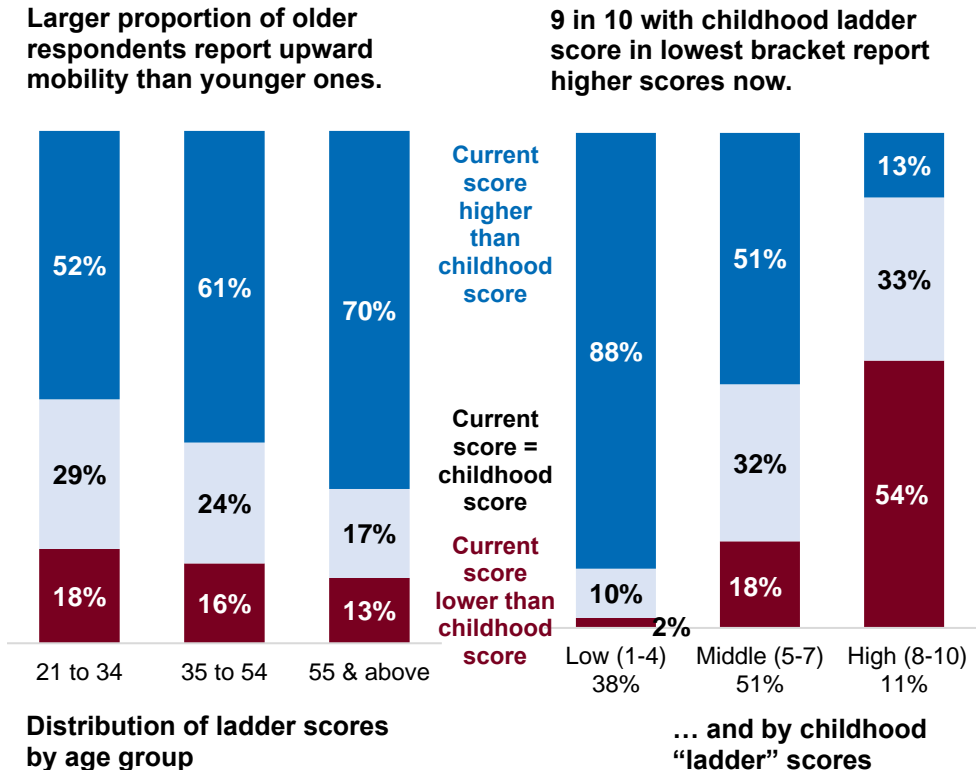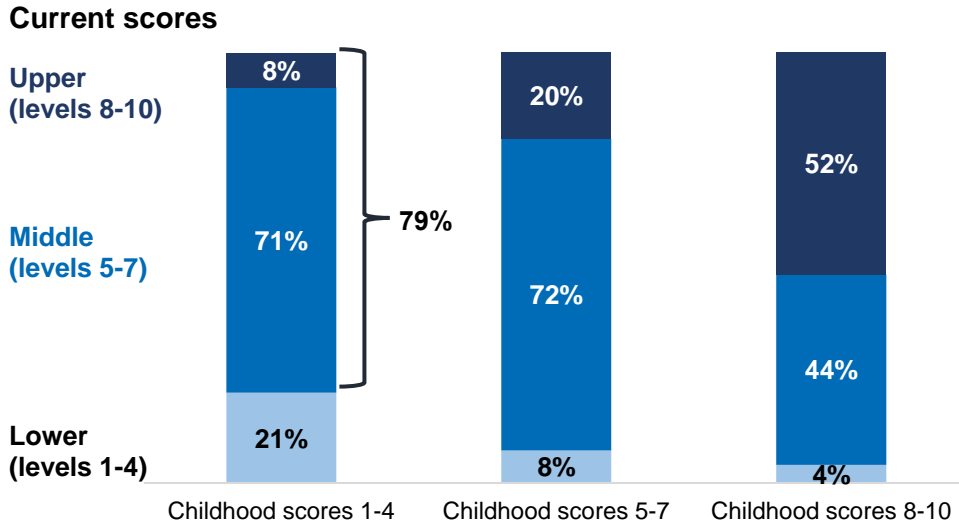**Distribution of ladder scores by age group**

… and by childhood "ladder" scores

Figure 5.5: Eight in 10 who report growing up in lower social class now report upward mobility to middle or upper social classes

Current scores

Distribution of current social class by childhood "ladder" scores

Finally, **occupation group** makes a difference as well. This implies that how much socio-economic progress one makes depends not so much on one's educational attainment, but more so the actual occupation category that one enters. According to the survey data, all things being equal, a Singapore worker with post-secondary or diploma-level education who chooses to go into a PMET role would fare significantly better than someone else with equivalent education but who took up a job in clerical, sales and services (CSS), or in production and transport operation, cleaning or labour (PTOCL).
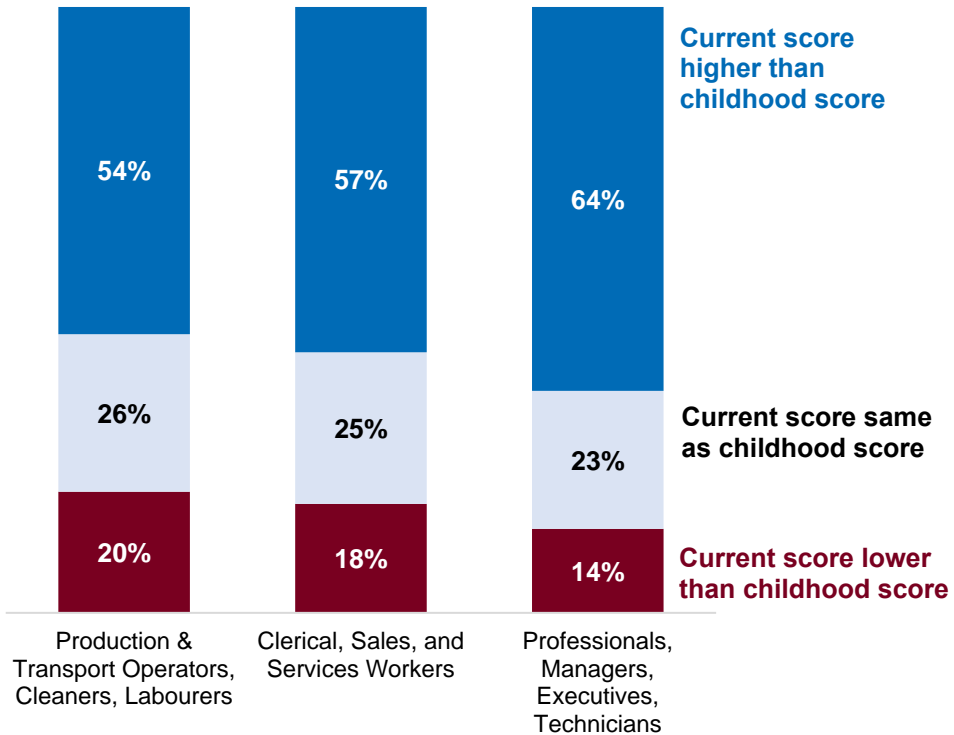
Almost 2 in 3 PMETs report higher "ladder" scores now compared with childhood. In contrast, just over half of non-PMETs have experienced upward mobility (Figure 5.6).

What are the implications for the differences in social mobility associated with occupation group? First, this suggests a likely significant disparity in income and career prospects between PMET and non-PMET roles. The implications are that non-PMET roles are probably paid less, with fewer opportunities for career growth and advancement over the long term. Consider the case in which someone from a lower SES background enters a non-PMET job and continues to stay in that occupation. Findings from the survey suggest that they would be less likely to accrue sufficient resources

to make the leap to middle or upper social class, compared with someone else with a similar background but chose to enter a PMET career.

Second, there is likely also a disparity in the status and respect accorded to PMET compared with non-PMET roles. Recall that in section 4.4 on meaningful work, findings reveal that non-PMETs are significantly less likely than PMETs to feel that their work makes a positive difference or that their career is meaningful. Given that social class ratings represent not just relative income but also relative standing in society, it is likely that working in jobs perceived to be of lower status or less social worth would detract from non-PMETs' perceptions of their own ladder scores.

Figure 5.6: Higher proportion of PMETs report upward mobility compared with non-PMETs

	Current score higher than childhood score	Current score same as childhood score	Current score lower than childhood score
Production & Transport Operators, Cleaners, Labourers	54%	26%	20%
Clerical, Sales, and Services Workers	57%	25%	18%
Professionals, Managers, Executives, Technicians	64%	23%	14%

Chapter 6

Role of Unions Going Forward — Findings

CHAPTER 6: ROLE OF UNIONS GOING FORWARD — FINDINGS

PRIORITY EMERGING ISSUES FOR UNIONS

In this chapter, we examine how Singapore workers feel about emerging labour market-related issues and trends, and the extent to which they believe Singapore's labour movement should engage in these causes. We asked them to rate, on a scale of 1 to 5, the level of priority they believe unions should accord to each of six different issues (identified through a literature review — see section 2.1.6). We then ranked the mean scores obtained for these six issues
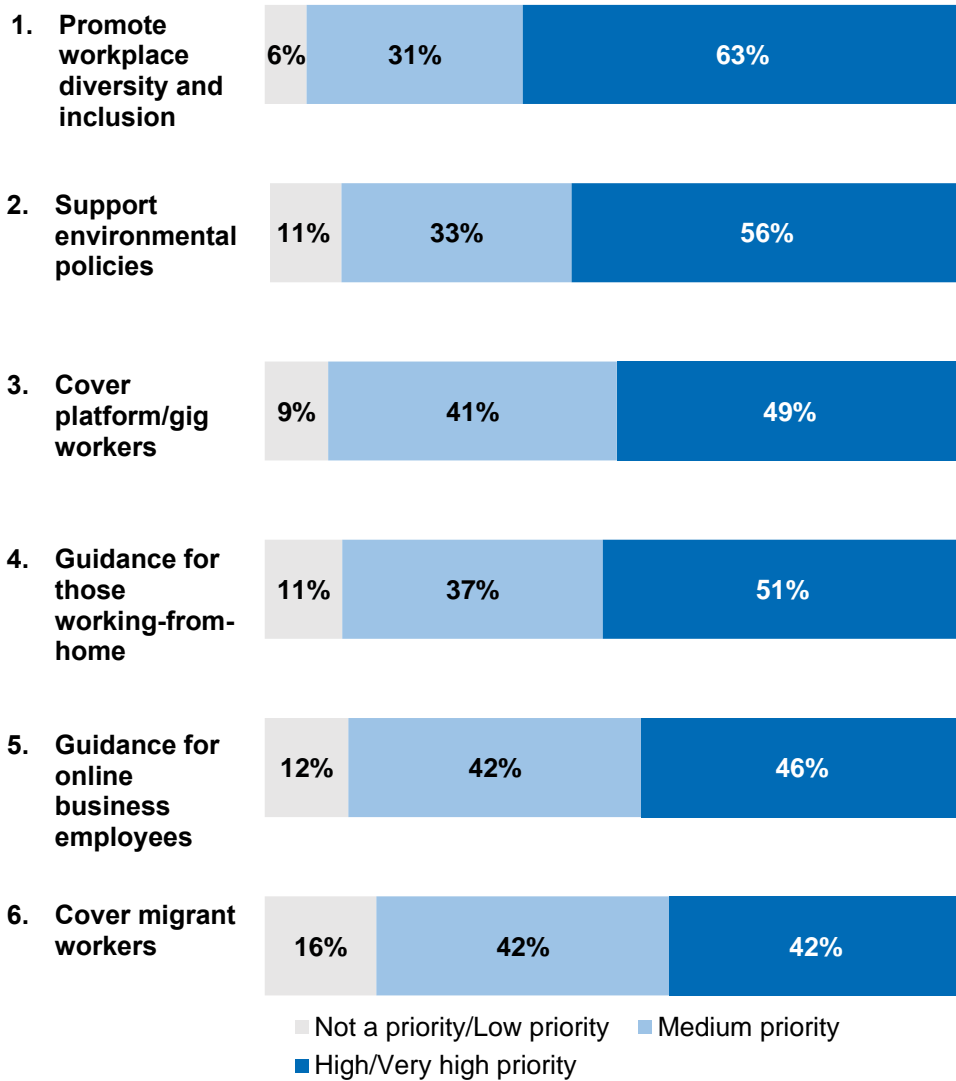
Going by the overall rankings, the top two priorities are to: promote workplace diversity and inclusion (ranked first) and support environmental policies (ranked second). The last two priorities are to: provide guidance for employees of online businesses (ranked fifth) and union coverage for migrant workers (ranked sixth). This ranking remains remarkably consistent across union members as well as non-union members,[21] and across age groups. There are slight variations in rankings only for the middle two priorities — union coverage for platform or gig economy workers, and guidance for work-from-home employees.

Given the high degree of similarity between the various demographic groups, we will not provide separate rankings for the various demographic groups. We present instead a chart (Figure 6.1) of overall rankings from all survey respondents, and with frequency distributions of the range of priority ratings for each issue.

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[21] Our weighted survey sample comprised 23% union members, compared with 77% non-members.

Figure 6.1: Frequency distribution of overall priority ratings for emerging labour market issues (in order of ranking)

	Not a priority/Low priority	Medium priority	High/Very high priority
1. Promote workplace diversity and inclusion	6%	31%	63%
2. Support environmental policies	11%	33%	56%
3. Cover platform/gig workers	9%	41%	49%
4. Guidance for those working-from-home	11%	37%	51%
5. Guidance for online business employees	12%	42%	46%
6. Cover migrant workers	16%	42%	42%

■ Not a priority/Low priority   ■ Medium priority
■ High/Very high priority

Question: How much of a priority should unions place on engaging in each of the above actions? Please rate the priority level (1 = Not a priority; 5 = Very high priority)

Chapter 7

Discussion and Conclusion

CHAPTER 7: DISCUSSION AND CONCLUSION

We set out in this study to address specific research questions outlined in detail in Section 1.2 and summarised below. Accordingly, our survey was designed to gather data that would help us understand:

➢ How prepared Singapore's workforce is for the Future of Work (FOW).

➢ Which aspects Singapore workers care most about in their jobs and careers, their values and attitudes towards emerging issues such as workplace diversity and sustainability, and the meaning they find in their work.

➢ Singapore's social mobility thus far — by focusing on Singapore workers' individual lived experiences and their perceptions of their own socio-economic progress compared with their parents and peers.

➢ Areas of vulnerability and demographic groups that may be more at-risk, as Singapore's workforce transitions to the FOW.

7.1 PREPAREDNESS FOR FOW

Our findings suggest that Singapore workers are, on average, reasonably well positioned for the FOW. Majority are informed about impending changes in the labour market. They are aware that there is a high chance that their jobs and work roles may change in the near future, that they may need to learn new skills, and pivot to different roles or even occupations, to adapt and survive. About 2 in 3 believe it is likely that the way work is currently done in their jobs will change significantly in the next 5 to 10 years, while more than 7 in 10 believe they will need to reskill themselves to adapt to such changes.

Singapore workers are also generally receptive to such changes and relatively confident that they will be able to handle transitions successfully. About 3 in 4 consider themselves to be open to changes in their work, while more than 7 in 10 believe they have the skills needed to adapt to these changes. Just under 4 in 10 admit that working in a different job worries them. Positive attitudes to changes are critical to the adoption of changes and adaptation to changes, as prior research has found.

One of the trends about future jobs and work tasks is they will likely require greater creative inputs. Employers, too, will place growing emphasis on hiring, training and retaining employees who can deliver creativity and

innovation. In this aspect, the prospects for Singapore workers are relatively encouraging as well, as most appear to display a decent level of interest and confidence in creative tasks. Between 64% and 75% indicate a fair degree of enjoyment in various aspects of creativity and creative demands at work. And majority reckon that they are good at it.

7.2. VALUES AND PRIORITIES

When it comes to what they value and prioritise in their jobs, Singapore workers are generally still pragmatic. Pay adequacy (being paid adequately and fairly for work done) and comfortable work conditions rank among the top three most important job characteristics for Singapore workers. What is heartening, though, is that Singapore workers also care about doing the right thing. Workplace ethics ranks second out of the list of 15 job aspects or characteristics that respondents on this survey were asked to rate.

Singapore workers also care about sustainability issues, with about 7 in 10 indicating that it is moderately important or very important that their jobs allow them to contribute to environmental and sustainability causes.

Diversity priorities are valued as well. On average, at least 2 in 3 indicate that it is moderately or very important that organisations maintain diversity-friendly work environments and that diverse perspectives are valued in their work groups.

As to the specific diversity issues or causes that are rated more highly, mental health came up tops. Across age groups, gender, and almost all ethnic groups, survey respondents agree that persons with mental health conditions are the top priority for workplace diversity, equity and inclusion (DEI) efforts. This is in line with the global trend of organisations paying increasing attention to employee mental health in recent years, especially coming out of the COVID-19 pandemic (Bersin, 2022; Masiga, 2022).

7.3 AREAS OF VULNERABILITY

While the overall prognosis appears to be relatively optimistic for Singapore workers heading into the FOW, nevertheless, survey findings identify certain weak spots and also groups that are significantly more at-risk of lagging behind. Left unaddressed, these issues may threaten the social mobility that Singapore has enjoyed thus far.

7.3.1 Awareness-Action Gap
Singapore workers are generally prepared and aware of the need to adapt, however, this awareness appears to be passive knowledge that is not

translating into individual action, despite numerous national initiatives in recent years to promote lifelong learning and skills training. People seem to be far less enthusiastic about taking initiative to manage and inoculate their careers for the FOW. On average, more than 6 in 10 are aware of impending changes and the need to reskill to adapt to these changes, but only about half or even fewer than half are taking relevant action. This awareness-action gap is statistically significant across almost all demographic groups — whether male or female, young or old, or highly or less-educated. The gap is even more pronounced for vulnerable groups who are at risk of being left behind further. On average, only about 1 in 4 or 1 in 3 among the less educated and those in non-PMET jobs are taking adaptive action, far below the general average of about 40–55%.

What accounts for this inertia? Setting aside those who may suffer from actual resource constraints, there could be a perceived lack of temporal immediacy or a perceived lack of magnitude of the changes. In other words, people know that broadly, changes are coming, but they may not think that these are immediate threats to them personally or that the consequences are severe enough to require prompt action.

One telling sign is the fact that while almost 2 in 3 agree that the way work is done in their jobs is likely to change in 5 to 10 years, fewer than half anticipate that they will need to change their occupation between now and retirement. In other words, Singapore workers anticipate that FOW changes may require them to learn some new skills, but they do not expect the changes to be so severe as to lose their jobs or that their occupations may disappear altogether. To be well prepared for serious disruptions, a longer lead time is necessary. One should, ideally, adopt a preventive rather than reactive mindset to FOW changes. To start considering reskilling or upskilling only when one is on the verge of losing a job or worse, only after one's profession has been eliminated, is almost too late.

As Deputy Prime Minister (DPM) Lawrence Wong observed in a 2022 speech that touched on investing in skills-building capacity for Singaporeans: "[S]hort bouts of upskilling from time to time will be enough to top up our skills. But, frankly, just going for sporadic, half-day courses cannot possibly be enough… it surely is not enough to build deep skills. In fact, for all of us, such short courses are insufficient, especially when the economic environment is undergoing such dramatic change and transformation."

Mr Wong, who was speaking at the 2022 Singapore Economic Policy Forum, noted that far more extensive efforts to upgrade skills would be necessary to remain relevant amid such major changes in the labour market (Wong, 2022).

7.3.2 Less Educated and Older Workers

Survey results point to a significant divide in preparedness between the less educated and the more highly educated. The critical point is often between secondary and post-secondary educational attainment. Those with secondary or below secondary education are significantly less likely to be informed about FOW changes and to be open to these changes. They also report significantly lower self-efficacy in coping with workplace changes and handling creative tasks, and lower interest in exercising creativity at work. In contrast, those who have achieved at least post-secondary education score significantly better in these areas.

To a lesser degree, older workers are also less aware of and open to changes at work, and less confident in their personal abilities to cope with such changes. But older workers are precisely at greater risk of career disruption because their training and skills are likely to be less current than those of their younger colleagues (Wong, 2022).

The less educated are also far more likely to depend on the government for career support. About half of those who have only below-secondary education feel that the government should be mostly or even completely responsible for developing and managing their careers, compared with about 1 in 4 degree-holders. In fact, this less-educated group (secondary or below education) tends to expect greater help from the government than their own employers and managers. This suggests that they do not expect much training or skills development support from their own employers and managers, which may reflect the actual experience they have had.

Indeed, this was the case according to a 2022 report by Ng and colleagues on young Singapore workers (Ng et al., 2022). The report surveyed 1,905 Singaporeans aged 21–38 and found that higher-educated respondents were far more likely to attend training compared with lower educated respondents, with the training of the former far more likely to be sponsored by their employers. Two-thirds of degree-holders attended training within the last 12 months of the survey, with almost all (92%) sponsored by employers. In stark contrast, only about a third of respondents with secondary or below educational qualifications had to chance to attend training in the same period, and of this group, 79% were employer-sponsored (Ng et al., 2022).

Thus, the less educated are doubly disadvantaged. They are far less likely to be aware of the need to reskill, and also far less likely to be sent for training and upskilling/reskilling by their employers. In contrast, the more highly educated are far more likely to understand the need for reskilling, and even if there are those among this group who do not, they would be significantly more likely to enjoy training arranged for and sponsored by their employers.

7.3.3 Non-PMETs

Those working in non-PMET roles, i.e., clerical, sales, and services workers (CSSW), as well as production and transport operators, cleaners and labourers (PTOCL) are significantly more at-risk, compared with PMETs.

Non-PMETs are far more anxious about encountering changes in their work and pivoting to different roles, compared with PMETs. One possible reason could be that CSSWs and PTOCLs may perceive their skills to be more job-specific or tied very tightly to specific sectors, whereas PMETs may feel that their skills are more transferable and may also have had more opportunities to apply their skills successfully across a wider range of tasks.

As with the less-educated respondents, non-PMETS are also significantly less interested in creative jobs and less comfortable with applying creativity at work compared with PMETs. In addition, PTOCLs rate themselves significantly lower in creative self-efficacy, compared with PMETs and CSSWs. What are the implications?

According to Ng and colleagues' 2022 report, most of the less educated respondents in their study hold jobs in clerical support, service and sales, or machine operation and assembly, i.e., most of them fall into the CSSW and PTOCL categories (Ng et al., 2022). Compared with their higher-educated peers holding PMET jobs, a significantly larger proportion of CSSWs and PTOCLs report having monotonous work with little decision latitude. This means that much of their work is routine and rule-bound, with little flexibility for independent initiative and making adaptive improvements.

So, compared with PMETs, CSSWs and PTOCLs probably have far fewer opportunities to apply creativity in their daily work tasks. Without the chance to practise improving work processes or coming up with new ideas in their day-to-day work, they are less likely to build up experience and confidence in their creative abilities at work.

CSSWs and PTOCLS are also significantly less likely than PMETs to be convinced that their careers are meaningful (42% and 43% compared with 64%, respectively); to feel that their work has satisfying purpose (50% and 50% compared with 68%, respectively); and makes a positive difference in the world (46% and 55% compared with 61%, respectively).

Whether people feel that their work or career is meaningful reflects to a certain extent the value that society places on their work or career, through tangible financial rewards or through the respect and social status accorded to such work. The fact that far fewer CSSWs and PTOCLs find their work to

be meaningful compared with PMETs suggests that current signals from society still leave these workers feeling under-appreciated. Our empirical findings support what the Singapore government has observed (Goh, 2023; Wong, 2022).

As DPM Wong commented previously (Wong, 2022):

> "[The Singapore economy] places too much of a premium on cognitive abilities — what we deem as 'head' work — and does not value sufficiently those engaging in other forms of work, such as technical roles which tend to be more 'hands-on' work, or service and community care roles which tend to be more 'heart' work."

Such a bias is reflected in the widely divergent starting pay for university graduates (most of whom enter PMET roles) versus polytechnic and ITE graduates, with the earnings gap continuing to widen over their lifetime careers (Wong, 2022).

Apart from the significant gaps in both reward and respect compared with PMET roles, non-PMET jobs are also characterised by larger proportions of monotonous tasks with less leeway for decision latitude or autonomy, and offer fewer opportunities for career progression (Ng et al., 2022; Wong, 2022). In other words, the job nature of non-PMET roles may not be sufficiently stimulating or interesting, offering little room for workers to make full use of their skills and competencies. This is exacerbated by poorer career prospects. All these factors would contribute to diminishing any meaning that CSSWs and PTOCLs perceive in their jobs and in turn, impair their motivation to perform or continue in these roles.

7.3.4 Gender Gap

Throughout the survey, females consistently lag behind males in their self-ratings for self-efficacy in creative ability and coping with changes. They also lag behind males in interest levels in creative tasks and proactivity in career self-management.

The disparity in self-efficacy ratings is consistent with long-established research on gender differences. Findings show that "women are more likely than men to express low self-confidence in achievement situations" (McCarty, 1986, p. 841). It is important to note that such expressions of low self-confidence or low self-efficacy are subjective perceptions which do not necessarily reflect true aptitude and ability. But low self-efficacy in specific activities or areas can hold back people from pursuing and persisting in these activities, such that it hinders eventual performance.

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If women feel less confident about coping with changes, believe that they will not perform well in creative tasks and do not enjoy such work, they are likely to shy away from roles that demand creativity and innovation. But these are precisely the type of jobs that are increasingly in demand and valued by employers in the FOW. Avoiding these roles or holding back from such work would disadvantage women in the FOW.

Another area of concern is the lower self-ratings in career self-management by female respondents, compared with male respondents. In particular, women report lower engagement in practical actions (which include lifelong learning behaviours) and reputation building. Given that taking greater initiative in managing individual careers is critical to succeeding in the FOW, those who engage less in career self-management will be at greater risk of lagging behind. What is inhibiting women from career self-management? Could it be an issue of gender role norms, with women spending more time on unpaid caregiving and family duties (compared with men), leaving them with less time and energy to devote to other activities? Or could there be other reasons? This is an area that is less understood and would benefit from further research.

A significant gender pay gap already exists in Singapore, driven largely by occupational segregation (i.e., women tend to choose jobs and occupations that pay less and have lower prestige) (Lin et all, 2020). This is similar to trends in the UK (Smith, 2019) and US (Blau & Kahn, 2017). This gender pay gap may widen in the FOW given our survey findings if mitigating measures are not taken.

7.3.5 Sticky Effect of Social Class

We observe a small yet persistent effect of childhood social class or SES on preparedness for the FOW. On the surface, people who grew up in less privileged families may appear to have caught up in educational attainment and perhaps even income. Indeed, majority of survey respondents report upward social mobility, with 8 in 10 who grew up in the bottommost social class (ladder scores 1–4) indicating that they have since upgraded to middle class (ladder scores 5–7) in adulthood.

However, this group from the least privileged background may still be held back in "unseen" ways because of the circumstances in which they grew up and the values with which they were socialised since young. Sociological research has long established that children who grow up in lower social class are inculcated with different values compared with those growing up in higher social class families (Kohn & Schooler, 1969; Kohn et al., 1986).

Studies on social class have documented evidence of how parents in lower SES families tend to emphasise tolerance and conformity with the status quo, less so on self-direction and self-expression (Kohn et al., 1990; Kohn & Schooler, 1969; Kohn et al., 1986). This is because conformity and tolerance help to preserve good relationships with people and can serve as an important substitute resource for families that lack material and financial means (Oishi & Kesebir, 2012). Growing up in such an environment and socialized in families that emphasise conformity can lead people to have interdependent orientations, which means that they prefer to make similar choices as friends and family members around them and feel less comfortable in positions that require them to be non-conforming and assertively self-expressive (Stephens et al., 2014).

Conversely, those who grow up in wealthier families (which tend to emphasize self-expression and self-direction) feel more comfortable with being independent and different from others. This suggests that people who grow up in lower SES backgrounds would show less interest and confidence in creative jobs compared with counterparts from higher SES backgrounds — which is supported by our survey data.

A tendency to conform and make choices similar with those of others or choices that accommodate others' expectations could also mean that those from less privileged backgrounds may end up choosing jobs and careers that are not necessarily the best fit for their personal interests or talents, but instead conform to what others expect or align with what other people around them are doing. This could explain why respondents with lower childhood SES tend to find their work to be less meaningful. In contrast, those who grow up in higher social class would be more likely to make choices — including career decisions — that are focused primarily on self-expression and more aligned with their individual interests. In other words, they are less hampered by group or social considerations and freer to seek full expression of their talent and potential. These interpretations on the influence of childhood social class refer to the general average rather than specific individuals — there are always outliers who defy the norms but they would be the exceptions rather than the rule.

7.4 POLICY IMPLICATIONS AND CONCLUSION

Since the Singapore government introduced the SkillsFuture movement in 2014, it has spent considerable resources through the movement to foster a culture of lifelong learning among Singaporeans, prodding them through awareness campaigns, assisting them with information and guides, and enticing them with funds for training. The ultimate goal has been to get Singaporeans to take ownership of their own skills enhancement and to

develop to their fullest individual potential. As one tagline on its website goes: "Your skills. Your asset. Your future."[22]

From our study, it appears that the SkillsFuture movement has achieved varying degrees of success with different groups — particularly on the awareness front. This suggests a need for a more variegated and targeted approach for different groups. Efforts to promote lifelong learning to those with the least educational attainment should continue and even be intensified, given the insights that this group is comparatively uninformed about FOW changes and expects to depend heavily on the government for career development. This is also the group that receives significantly poorer training opportunities and support from their employers. Unlike more highly educated workers and PMETs, the least educated workers cannot bank on in-house training. For this group, policymakers would first need to consider filling the information gap, offer more hand-holding, guidance and relevant supporting resources to get them started on training and upskilling. These are the initial hurdles to cross before taking the next leap, which is to encourage this group to take more ownership in self-improvement.

Efforts are also needed to help non-PMETs find greater meaning and fulfilment in their work. Singapore policymakers are already honing in on this issue. The recent Forward Singapore (Forward SG) report devotes an entire chapter to "Respecting and Rewarding Every Job", conveying a strong commitment to narrowing wage gaps across professions, improving training and career pathways for those engaged in "hands" and "hearts" jobs, and increasing respect for people in these roles (Wong et al., 2023).

To guard against a widening gender pay gap, more thought and resources will need to be devoted to boost women's interest and confidence in FOW relevant skills and growth areas. Globally and locally, there are now efforts to encourage more women to enter STEM (i.e., science, technology, engineering, and mathematics) occupations and groom female talent in these fields. In Singapore, there are partnerships between government agencies and industry partners to set up support networks, mentoring systems, etc. One such example is the SG Women in Tech initiative.[23]

Beyond these initiatives, efforts should also be introduced in schools and organisations to help women improve their self-efficacy, particularly in work-relevant aspects, as low self-confidence undermines work performance and prevents people from reaching their full potential. Research suggests that receiving constructive, external feedback early in their work helps to

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[22] See SkillsFuture website: https://www.skillsfuture.gov.sg/aboutskillsfuture
[23] See SG Women in Tech website: https://www.sgwomenintech.sg/

moderate women's tendency to under-estimate themselves and eventually improve their task performance (Lishinski et al., 2016; McCarty, 1986). Training in processes that help women feel they have better control and influence over outcomes has also been shown to be effective, specifically in narrowing the gap between women and men in salary negotiation (Stevens et al., 1993). Rather than viewing or framing such efforts as concessions granted to address "weaknesses", one needs to bear in mind that much of how organisations are organised today — including incentive structures, motivational levers, goal priorities, developmental programmes and even social processes — were designed or rooted in male-oriented settings. Consider the debate over Asian versus Western management and leadership styles. The same case can be made for gender. As we strive for greater gender equality in the workplace, these fundamentals will need to be revisited to ensure that organisational processes, systems, and logics are updated such that they do not structurally or systematically disadvantage any groups, but instead, are inclusive for all.

As for the persistent effects of social class, the first step is to recognise that different SES environments are associated with different values that are not easily shrugged off. These differential values are likely to influence behaviours, decisions, and choices over the long-term such that they can lead to profound differences in career outcomes. A better understanding of these behavioural drivers would enable policymakers to design effective interventions that help people overcome background constraints that may hamper success in the FOW.

Even the most privileged groups — the highly educated and those working in PMET jobs — are not entirely risk-free. Despite being more attuned to FOW developments, they too, appear to be plagued by a nagging inertia. What can be done to convert their passive endorsement of the lifelong-learning rhetoric into a proactive, practised reality? How can we help Singaporeans to be more self-motivated in continual learning beyond their formal school years?

Perhaps Singaporeans have become immune to the country's survivalist narrative such that the usual exhortations for people to constantly stay ahead of the game may be losing their persuasiveness. Or perhaps people may simply be too dependent on the government to lead *and* pave the way.

The latest Forward SG campaign appears to be shifting the narrative by encouraging Singaporeans to "embrace learning beyond grades". Singaporeans are urged to endorse a wider set of competencies that recognise individual talents and steer away from traditionally sanctioned definitions of success focused on academic performance. Above all,

Singaporeans are spurred to "take ownership of their learning throughout life", and this should be applied long-term over the full course of their careers, rather than as an immediate effort targeted at their present jobs (Wong et al., 2023, p. 36).

Even as it attempts to inspire Singaporeans by mentions of fulfilling individual potential and pursuing dreams, the Forward SG report has not veered too drastically from core narratives of learning as an instrumental means to an end. Much of the rhetoric still centres on learning to "stay relevant and versatile", and to prepare for changes looming in the next few decades. Lifelong learning is presented using the metaphor of a "lifelong journey" of "acquiring new skills and sharpening existing ones" (Wong et al., 2023, p.36, p. 32).

These are sensible guidelines that reflect serious economic realities. Yet policymakers could perhaps take a leaf from decades of studies on human motivation. The best and most enduring human performances spring from intrinsic motivation — doing something for the love and enjoyment of it. Thus, an alternative narrative can be considered to supplement existing framings. The joys of learning, the fun in acquiring new knowledge, the sense of accomplishment and satisfaction in mastering a new skill — these have not been adequately celebrated as yet. Not all learning needs to lead directly to a specific end-goal. Oftentimes, we forget that the journey itself is worth the while. This is not to detract from the value of learning with a purpose. But first, Singaporeans may be tempted to take that first step by the sheer pleasure of it.

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Tables

TABLE 1   COMPOSITE MEASURES

Measure	Items	Likert Scale
Change awareness α = .752 (.754)	The core skills needed to perform my current role will change in the next 5–10 years The work tasks or how work is done in my current role will change significantly in the next 5–10 years Between now and retirement, I will change my occupation at least once or more times I will need to reskill myself to adapt to changes in my work or career	1 = Very unlikely 5 = Very likely
Openness to change α = .690 (.685)	I would consider myself open to changes in my work or job I look forward to changes in my work or job I am quite reluctant to change the way I now do my work I am open to changing my occupation or career	1 = Strongly disagree 5 = Strongly agree
Change anxiety α = .677 (.687)	I am concerned that my job and the work I do now may not exist in the future The thought of working in a different job worries me I am anxious about the implementation of changes at work	1 = Strongly disagree 5 = Strongly agree
Change efficacy α = .606 (.613)	If changes are adopted at work, I do not anticipate any problems adjusting to them I have the skills that are needed to adapt to changes at work When I set my mind to it, I can learn everything that will be required when changes at work or in my career happen	1 = Strongly disagree 5 = Strongly agree
Creative interest α = .914 (.912)	Finding solutions to complex problems at work Coming up with new ideas for products or services Creating new procedures for work tasks Improving existing processes or products at work Working on projects or tasks that require me to be creative Coming up with novel ways of doing things at work Working in a job that requires me to be creative	1 = Dislike 5 = Enjoy

Creative self-efficacy α = .841 (.842)	I have confidence in my ability to solve problems creatively at work I have a knack for further developing the ideas of others at work I feel that I am good at generating novel ideas at work	1 = Strongly disagree 5 = Strongly agree
Career networking behaviours α = .803 (.800)	I have built or am building contacts with people in areas where I would like to work I ask for job or career advice from people even if it has not been offered I have asked for feedback on my performance when it was not given I have got myself introduced to or have search for and linked up with people who may be able to influence my career	1 = Not at all 5 = To a great extent
Career practical behaviours α = .909 (.904)	I keep my CV up to date I monitor job advertisements to see what's available outside my current organisation I read work-related articles, blogs, posts, journals, or books in my spare time I seek out career-related training/development/qualifications outside my organisation I remain current on the trends and development in my field of work I constantly update my job-related skills I have learned or am learning new skillsets beyond what my current role needs I seek out opportunities for continuous learning in my career I have a diversified set of job-related skills	1 = Not at all 5 = To a great extent
Career reputation building behaviours α = .807 (.803)	I make sure I get credit for the work I do I've made my boss aware of my work accomplishments I make my work accomplishments visible to others (e.g., through conversations, social media, etc.)	1 = Not at all 5 = To a great extent
Sustainability concerns — environmental α = .830 (.835) ρ = .709 (.709), $p < .001$	Activities that protect and improvement the quality of the natural environment Minimise negative impact on the natural environment	1 = Not at all important 5 = Very important

Sustainability concerns — future generations α = .836 (.840) ρ = .709 (.709), p < .001	Create better life for future generations Sustainable growth which considers future generations	1 = Not at all important 5 = Very important
Importance of workplace ethics α = .814 (.814)	The job allows me to do work that does not go against my conscience Management takes ethics and values concerns seriously Management cares as much about ethics and values as they do about the "bottom line" (i.e., profit)	1 = Not at all important 5 = Very important
Importance of workplace diversity α = .891 (.889)	The organisation maintains a diversity-friendly work environment The organisation recruits from diverse sources Top leaders are visibly committed to diversity My workgroup values diverse perspectives	1 = Not at all important 5 = Very important
Meaning of work α = .918 (.918)	I have found a meaningful career I have discovered work that has satisfying purpose My work helps me better understand myself My work helps me make sense of the world around me I know my work makes a positive difference in the world The work I do serves a greater purpose	1 = Not at all true 5 = Very true

Note 1. α: Cronbach's alpha. ρ: Spearman-Brown reliability (*p*-values provided).
Note 2. Figures in parentheses denote calculations based on weight-adjusted survey data

TABLE 2.1 LINEAR REGRESSION ANALYSES OF CHANGE ATTITUDES

Predictors	Change Awareness		Openness to Change		Change Anxiety		Change Self-efficacy	
	b	SE	b	SE	b	SE	b	SE
Constant	3.896***	0.139	3.589***	0.112	2.895***	0.147	3.687***	0.109
Age	−0.016**	0.002	−0.010***	0.002	0	0.002	−0.004**	0.001
Gender (Male)	0.087	0.050	−0.067	0.041	0.031	0.054	0.100**	0.038
Education								
Secondary	0.163	0.094	0.171*	0.075	0.087	0.092	0.127	0.068
Post-sec	0.270*	0.114	0.290**	0.090	0.115	0.114	0.171*	0.078
Diploma/prof.	0.346*	0.100	0.314***	0.085	0.07	0.106	0.256***	0.073
Degree	0.363**	0.101	0.533***	0.084	−0.121	0.106	0.288***	0.077
Ethnicity								
Malay	0.076	0.071	0.018	0.061	0.106	0.075	0.127*	0.056
Indian	0.112	0.089	0.099	0.069	0.175	0.093	0.136*	0.063
Eurasian & Others	−0.210	0.164	−0.076	0.124	−0.344**	0.126	0.161	0.114
Occupation								
CSSW	0.052	0.062	0.040	0.054	0.175*	0.073	−0.040	0.046
PTOCL	−0.034	0.082	0.015	0.077	0.311***	0.087	−0.086	0.063
Income	0.002	0.001	0.002**	0.001	0.002	0.001	0.001	0.001
R-squared	0.126	-	0.147	-	0.055	-	0.072	-

Note 1. Reference categories: Female, Chinese, Below Secondary, PMET.
Note 2. CSSW: Clerical, Sales, and Services Workers. PTOCL: Production and Transport Operators, Cleaners and Labourers.
Note 3. N = 1,010. "*SE*" denotes standard errors. *** $p<.001$, ** $p<.01$, * $p<.05$

TABLE 2.2 LINEAR REGRESSION ANALYSES OF CREATIVITY ATTITUDES

Predictors	Creative Interest		Creative Self-efficacy	
	b	SE	b	SE
Constant	3.358***	0.142	3.064***	0.137
Age	0.001	0.002		
Gender (Male)	0.135**	0.045	0.238***	0.045
Education				
Secondary	0.130	0.088	0.131	0.082
Post-sec (non-tertiary)	0.161	0.101	0.225*	0.100
Diploma/professional	0.312**	0.095	0.334***	0.091
Degree	0.291**	0.099	0.335***	0.089
Ethnic group				
Malay	0.145*	0.068	0.066	0.072
Indian	0.228**	0.082	0.314***	0.078
Eurasian & Others	0.018	0.127	0.050	0.115
Occupation group				
CSSW	−0.240***	0.061	−0.081	0.059
PTOCL	−0.277***	0.078	−0.178*	0.072
Childhood SES	0.032**	0.012	0.038**	0.012
Income	0.002*	0.001	0.000	0.001
R-squared	0.101	-	0.103	-

Note 1. Reference categories: Female, Chinese, Below Secondary, PMET.
Note 2. CSSW: Clerical, Sales, and Services Workers. PTOCL: Production and Transport Operators, Cleaners and Labourers.
Note 3. N = 1,010. "SE" denotes standard errors.
*** $p<.001$, ** $p<.01$, * $p<.05$

TABLE 2.3 LINEAR REGRESSION ANALYSES OF CAREER SELF-MANAGEMENT ACTIONS

Predictors	Networking Actions		Practical Actions		Reputation Actions	
	b	SE	b	SE	b	SE
Constant	3.363***	0.182	3.112***	0.172	2.817***	0.200
Age	−0.015***	0.002	−0.012***	0.002	−0.006*	0.002
Gender (Male)	0.098$^\eta$	0.058	0.145**	0.053	0.132*	0.063
Education						
Secondary	0.165	0.105	0.188	0.104	0.011	0.115
Post-sec (non-tertiary)	0.172	0.128	0.285*	0.123	0.073	0.141
Diploma/professional	0.213	0.114	0.471***	0.109	0.079	0.130
Degree	0.111	0.113	0.402***	0.110	0.116	0.128
Ethnic group						
Malay	0.053	0.094	0.233**	0.081	0.264**	0.100
Indian	0.111	0.110	0.380***	0.100	0.507***	0.115
Eurasian & Others	−0.102	0.128	−0.146	0.134	−0.205	0.121
Occupation group						
CSSW	−0.243**	0.074	−0.222**	0.071	−0.140	0.086
PTOCL	−0.214*	0.096	−0.306**	0.091	−0.248*	0.114
Childhood SES	0.055**	0.016	0.048**	0.015	0.078***	0.017
Income	0.001	0.001	0.000	0.001	−0.005**	0.001
R-squared	0.103	-	0.162	-	0.088	-

Note 1. Reference categories: Female, Chinese, Below Secondary, PMET.
Note 2. CSSW: Clerical, Sales, and Services Workers. PTOCL: Production and Transport Operators, Cleaners and Labourers.
Note 3. N = 1,010. "*SE*" denotes standard errors.
*** $p<.001$, **$p<.01$, *$p<.05$. $^\eta$ $p = .058$ (i.e., gender is marginally significant for networking actions).

TABLE 2.4 PAIRED *T*-TESTS OF AWARENESS COMPARED WITH ACTION (BY EDUCATION LEVELS)

Results of paired t-tests examining mean differences between two composite outcome measures — change awareness and career practical actions (by highest education level completed).

Highest education level completed	Mean differences*	N	SE	SD	t	df	p
Below secondary	0.519	135	0.071	0.826	7.302	134	0.000
Secondary	0.472	219	0.072	1.063	6.563	218	0.000
Post-secondary (non-tertiary)	0.433	106	0.091	0.938	4.759	105	0.000
Diploma/professional qualifications	0.271	214	0.063	0.929	4.276	213	0.000
Degree	0.337	336	0.051	0.935	6.606	335	0.000
Overall	0.397	1,010	0.030	0.952	12.909	1,009	0.000

Note 1. *Mean differences = [change awareness] – [career management practical actions]
Note 2. Analyses performed on unweighted survey data.

TABLE 2.5 PAIRED *T*-TESTS OF AWARENESS COMPARED WITH ACTION (BY OCCUPATION GROUPS AND GENDER

Occupation Group	Mean differences*	N	SE	SD	t	df	p
Professionals, Managers, Executives & Technicians (PMETs)	0.276	575	0.039	0.923	7.176	574	.000
Clerical, Sales & Services (CSSs) Workers	0.515	276	0.061	1.009	8.487	275	.000
Production & Transport Operators, Cleaners & Labourers (PTOCLs)	0.563	159	0.072	0.903	7.857	158	.000
Gender							
Females	0.429	518	0.042	0.951	10.263	517	.000
Males	0.342	492	0.043	0.952	7.976	158	.000
Overall	0.397	1,010	0.030	0.952	12.909	1,009	.000

Note 1. *Mean differences = [change awareness] – [career management practical actions]
Note 2. Analyses performed on unweighted survey data.

TABLE 2.6 LINEAR REGRESSION ANALYSES OF AWARENESS-ACTION GAP

Predictors	Gap between level of awareness and level of practical actions	
	b	SE
Constant	0.830***	0.193
Age	− 0.004	0.002
Gender (Male)	− 0.06	0.06
Education		
Secondary	− 0.025	0.100
Post-sec (non-tertiary)	− 0.012	0.126
Diploma/professional	− 0.124	0.108
Degree	− 0.038	0.108
Ethnic group		
Malay	− 0.157	0.088
Indian	− 0.263*	0.117
Eurasian & Others	− 0.063	0.165
Occupation group		
CSSW	0.271**	0.079
PTOCL	0.271**	0.095
Childhood SES	− 0.057**	0.017
Income	0.002	0.001
R-squared	0.054	-

Note 1. Reference categories: Female, Chinese, Below Secondary, PMET.
Note 2. CSSW: Clerical, Sales, and Services Workers. PTOCL: Production and Transport Operators, Cleaners and Labourers.
Note 3. N = 1,010. "*SE*" denotes standard errors.
*** $p<.001$, **$p<.01$, *$p<.05$. [n] (p = .074) implies awareness-action gap for Malays is marginally smaller compared with gap for the Chinese.

TABLE 2.7 LINEAR REGRESSION ANALYSES OF MEANINGFUL WORK

Predictors	Meaningful Work	
	b	SE
Constant	3.400***	0.171
Age	0.002	0.002
Gender (Male)	0.03	0.054
Education		
Secondary	− 0.133	0.092
Post-sec (non-tertiary)	− 0.018	0.118
Diploma/professional	0.02	0.099
Degree	− 0.088	0.103
Ethnic group		
Malay	0.258**	0.081
Indian	0.215*	0.091
Eurasian & Others	− 0.178	0.127
Occupation group		
CSSW	− 0.331***	0.069
PTOCL	− 0.421***	0.087
Childhood SES	0.056***	0.014
Income	− 0.002	0.001
R-squared	0.069	-

TABLE 2.8 LINEAR REGRESSION ANALYSES OF CHANGE IN SES

Predictors	Change in SES	
	b	SE
Constant	4.140***	0.349
Age	0.0161***	0.004
Gender (Male)	− 0.116	0.095
Education		
Secondary	0.058	0.201
Post-sec (non-tertiary)	0.065	0.247
Diploma/professional	− 0.11	0.225
Degree	0.184	0.228
Ethnic group		
Malay	− 0.061	0.163
Indian	0.154	0.209
Eurasian & Others	− 0.105	0.260
Occupation group		
CSSW	− .464***	0.128
PTOCL	− 0.629**	0.185
Childhood SES	− 0.694***	0.029
Income	− 0.003	0.003
R-squared	0.475	-

Note 1. Reference categories: Female, Chinese, Below Secondary, PMET.
Note 2. CSSW: Clerical, Sales, and Services Workers. PTOCL: Production and Transport Operators, Cleaners and Labourers.
Note 3. *N* = 1,010. "*SE*" denotes standard errors.
*** *p*<.001, **p*<.01, *p*<.05.

Appendices

APPENDIX A: LIST OF JOB ASPECTS AND DEFINITIONS

Achievement	Provides me with feelings of achievement and task accomplishment
Career advancement	Opportunities to advance to higher-level roles
Growth and learning	Opportunities for learning, personal growth and development
Job autonomy	Freedom and independence in deciding how I schedule my work, how I do my work, and in making other work-related decisions
Job security	People on this job have high job security
Leisure	Ample leisure time off the job
Pay adequacy	Pays me adequately and fairly compared with what I do in the job, and also compared with what other similar jobs are paying
Recognition	Provides me with acknowledgement and recognition from others
Skill variety	Allows me to make use of a variety of my knowledge, skills, and abilities
Social interaction	Positive social interaction such as teamwork, support, and/or friendship from co-workers.
Task significance	The work I do makes a significant impact on the lives and well-being of others
Task variety	Offers a variety of duties, tasks and activities and gives me a chance to do different things
Work conditions	Working conditions are comfortable and/or pleasant
Workplace diversity	The organization maintains a diversity-friendly work environment The organization recruits from diverse sources Top leaders are visibly committed to diversity My workgroup values diverse perspectives
Workplace ethics	The job allows me to do work that does not go against my conscience The management takes ethics and values concerns seriously The management cares as much about ethics and values as they do about the "bottom line" (i.e., profit)

APPENDIX B: MACARTHUR SCALE OF SUBJECTIVE SOCIAL STATUS (MACARTHUR LADDER)

CHILDHOOD SOCIO-ECONOMIC STATUS (SES)
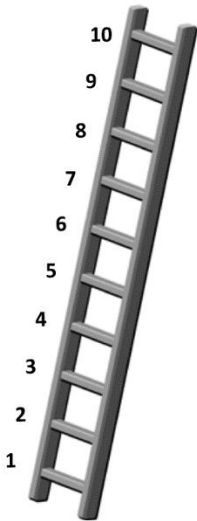
Think of this ladder as representing where people stand in Singapore.

At the **top** of the ladder (**rung 10**) are the people who are the *best off* — those who have the most money, the most education, and the most respected jobs.
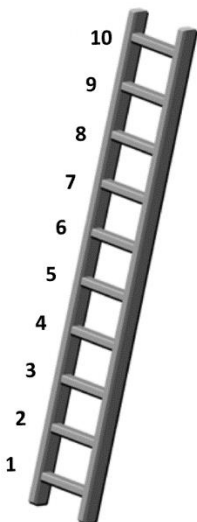
At the **bottom** (**rung 1**) are the people who are the *worst off* — those who have the least money, least education, the least respected jobs or no job. The higher up you are on this ladder, the closer you are to the people at the very top; the lower you are, the closer you are to the people at the very bottom.

Now, think back to your **childhood and youth (age 18 and earlier)** when you were growing up and living with your parents, relatives, or guardians.

Where would you place yourself on this ladder?

Please click on the rung where you think you stand **while you were growing up,** relative to other people in Singapore.

CURRENT SES

Consider this ladder again, representing where people stand in Singapore.

At the **top (rung 10)** are the people who are the best off (with the most money, the most education, and the most respected jobs). At the **bottom (rung 1)** are the people who are the worst off.

Now, think about **where you are right now**.

Where would you place yourself on this ladder?

Please click on the rung where you think you stand **at this time in your life** relative to other people in Singapore.

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APPENDIX C: ACKNOWLEDGEMENTS

APPENDIX D: ABOUT THE AUTHORS

Laurel **TEO** is Senior Research Fellow at the Institute of Policy Studies, Society and Culture department. She studies how people think, feel, and behave in organisational settings. Her research focuses on the future of work, technology and privacy issues at work, as well as ethics and inclusion at work. She was conference co-chair for Singapore Perspectives 2023: Work, and was also the research coordinator for Reinventing Destiny, a conference held in 2023 to mark the occasion of Mr Lee Kuan Yew's 100th birth anniversary.

In her prior careers, Laurel has worked in journalism, consulting and regulatory engagement in Singapore, Indonesia and Hong Kong. These experiences have helped to shape her research interests. Laurel is also a Chartered Financial Analyst and currently volunteers on the board of CFA Society Singapore as honorary secretary. She graduated from Yale University with a Bachelor's degree (magna cum laude) double majoring in Anthropology and Chinese. She earned her PhD in Business (Organisational Behaviour & Human Resources) from Singapore Management University.

CHEW Han Ei is adjunct Senior Research Fellow at the Institute of Policy Studies. He specialises in quantitative policy research and has a keen interest in conducting research work on social issues, with a focus on technology adoption in societies. In addition to his academic role, he also serves as a board member of SG Her Empowerment and is Research Consultant for UNESCO, offering his expertise pro bono. Some of his key international projects for UNESCO include "Reading in the Mobile Era" and "I'd Blush if I Could: Closing Gender Divides in Digital Skills through Education".

Han Ei earned his PhD in Media and Information Studies from Michigan State University, USA. His extensive experience encompasses policy and impact evaluation, both locally and internationally. He is also an active reviewer for several major journals, including *Computers & Education*, *Asian Journal of Communication*, *International Communication Association Annual Conference, and Information Technology for Development Journal*, *Information Technologies & International Development*, *The Electronic Journal of Information Systems in Developing Countries*, and *Social Behaviour and Personality*. He has served as Panel Chair for the International Communication Association Annual Conferences and was the Conference Chair for Singapore Perspectives 2023: Work.