What are some possible and likely solutions to the current and future labour shortage in Japan?

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Declaration

I declare that this thesis does not incorporate without acknowledgement any material previously submitted for a degree in any university or another educational institution and that to the best of my knowledge and belief it does not contain any material previously published or written by another person except where due reference is made in the text.

Maho Omori
Abstract

The aim of this study was to investigate what are some possible and likely solutions in the current and future labour shortage in Japan. The three possible solutions were examined and evaluated. These were: increasing Japanese women’s workforce participation; accepting more foreign workers; developing automation. The document analyses of a range of secondary sources were conducted. Overall, these three solutions may certainly ease the labour shortage in Japan. None of them, however, are perfect solutions by themselves because the feasibility of them varies between business sectors. Moreover, socio-cultural aspects have had enormous influences on these solutions. Cultural barriers, the ideology of traditional gender roles and cultural homogeneity, are too strong for the first and second solutions respectively (i.e. Japanese women and foreign workers) to bring successful outcomes to the labour shortage. By contrast, there are more limited cultural barriers constraining the third solution (i.e. automation) from easing the labour shortage and rather, cultural aspects may facilitate it.
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Introduction

**Background: the labour shortage in Japan**

Japan is experiencing a labour shortage, meaning there are not enough workers to fill positions available in a range of industries. According to the United Nations (cited in Jung 2004), it is estimated that the number of workers in Japan will dramatically decrease from eighty-six million in 2000 to fifty-seven million in 2050. The Ministry of Health, Labour and Welfare (2006) reports that a labour shortage has already been seen in most business sectors (including construction, manufacturing, information communication, transportation, finance, real estate, medicine and service businesses), and worker shortages in these fields have been increasing gradually year by year.

The current labour shortage in Japan is caused by two demographic factors, rapid aging and an unprecedented low fertility rate. Japan is the first country to experience ‘hyper-aging’. Currently over twenty-one percent of the population of 127.8 million people is over sixty-five years of age, and the percentage is estimated to increase to over forty percent by 2050 (Robertson 2007). Rapid aging means an increase in the number of retirees year by year, in other words, substantial numbers of people who are of retirement age are leaving the workforce every year (Jung 2004). The low fertility rate (currently below 1.3) has also led to the shrinking population. It is estimated that the population will decrease from 127.8 million in 2007 to 113.5 million in 2030 and 102 million in 2050 (National Institute of Population and Social Security Research 2006). A dramatic decrease in the number of young people as a consequence of the low fertility rate will result in a decline in young people entering the workforce in the near future to replace the older retirees (Robertson 2007).

With respect to population aging, welfare issues due to labour shortages are particularly acute in the aged care sector. Due to an increase in the number of old people, more health care professionals are required yet these workers are not available (Kajimoto 2005). The ratio of support per senior person (over sixty-five years of age) by people of working age (between 15 and 64) has been increasing. It was 4.8:1 in 1995, 3.3:1 in 2000, will be 2:1 by 2025 and eventually 1.7:1 by 2050 (it means 1.7 workers support
one senior person in 2050) (Cabinet Office 2007b; Jung 2004). Despite this, the number of carers in aged care is decreasing year by year due to the heavy workload and low wages (the Japan Times 2008). This indicates there could be heavy responsibilities in years to come on the existing aged care workforce in order to sustain good care practices for Japan’s elderly residents.

In order to respond to this unprecedented crisis for the Japanese workforce, various solutions have been debated by policy makers, scholars and business owners among others (Cabinet Office 2007a; Robertson 2007). Three main solutions have been proposed which need to be examined in light of Japan’s unique labour force characteristics:

1. Encouraging Japanese women (who are currently not in the labour force in as considerable numbers as they could be) to more actively participate in the labour force;
2. Accepting foreign workers, especially in business fields where labour shortages are expected to be very acute;
3. Developing automation which can work in the place of humans in the workforce.

Regarding the first solution, Japanese women’s workforce participation rate is unusually low compared to other industrialised western countries, and if Japan could actively utilise women who are out of the labour force, it could largely help ease the labour shortage. It is currently 48.5 percent in comparison with 75, 70, 62 and 60 percent in Sweden, the Netherlands, Australia and the U.S. respectively (Australian Bureau of Statistics 2007; Usui 2005). This indicates that half of Japanese women (who are considered to be at working age from fifteen to sixty-five) are not in the labour force. Women’s workforce participation in Japan has persistently shown an M-shaped pattern since the 1970s, indicating that Japanese women in their late twenties and thirties are more likely to leave the labour force for marriage and childrearing than women in the other age groups (Benson et al. 2007). These facts suggest that irrespective of the general increase in Japanese women’s educational levels since the 1970s, it has not affected the women’s workforce participation rate and pattern (Hirao
In respect of the second solution, foreign workers, the United Nations (2000 cited in Jung 2004:54) argue that to maintain a supply of workers and to sustain the current economic growth in Japan, 600,000 foreign workers per year are required for the next five decades. In light of the current and future labour shortage in Japan, foreign or immigrant workers could play a crucial role with a possible change in the current immigration policy. However, this potential needs to be assessed against considerable constraints. The current proportion of foreign residents to the total population in Japan is significantly smaller than other developed countries. For instance, it is 1.6 percent compared to 24 percent overseas born of the total population in Australia (Australian Bureau of Statistics 2006; Ministry of Justice 2008). Japan did have a mass immigration intake around the time of World War II, when Korean people were encouraged to fill unskilled labour positions after Japan’s colonisation of the Korean Peninsula (Held et al. 1999; Tai 2004). However, these Koreans did not obey the Japanese government’s policy that obliged them to completely assimilate into Japanese culture and their existence became a threat to cultural homogeneity (Tai 2004). Since then, the Government has been reluctant to accept foreign workers, especially unskilled workers, who are a reminder of the Koreans’ assimilation problems (Cornelius 1994).

With regard to the third solution of developing automation, the outlook is particularly promising. Since automated machinery was first introduced in the factories in the late 1960s various types of robots have been actively invented for business and social needs and Japanese society has been relying on technological solutions for social problems (e.g., the previous labour shortage in the 1980s was solved by automation) (Dethlefs & Martin 2006; Tanzer & Simon 1990). There is a certain expectation by the government that automation will ease the current and future labour shortage, particularly in business sectors in which automation has not been fully deployed yet such as medical health, agricultural and service sectors (Cabinet Office 2007a; Pelaez & Kyriakou 2008). The enthusiasm for developing automation is not only shared by the Japanese Government, but also by business sectors and research sectors (Baker et al. 2008). Technology such
as robotics could be particularly useful in aged care where the labour shortage is very acute (Dethlefs & Martin 2006; Richardson 2006).

**Research question and approach**
The research question that informs this study is ‘what are some possible and likely solutions to the current and future labour shortage in Japan?’ To address this research question more closely, I evaluated the feasibility of the three possible solutions discussed above. Such an evaluation involves consideration of political, historical, cultural and social factors relevant to the labour shortage and features of work in Japan. For instance, the government policies show how the Japanese Government perceives and deals with social issues like Japanese women’s position in society and its willingness/unwillingness to deal with them. Historical factors, such as Japan’s closure to outside influences for many years, are important because they shape cultural aspects such as beliefs and values that largely influence how both the government and people see social issues. Social aspects - for instance, how people perceive the importance of gender roles - provide an indication of how Japanese people are changing in attitudes and behaviour through various social changes.

In order to explore these factors, I conducted document analyses of a range of secondary sources. Specifically, I examined the Japanese Government policies, laws, statistics provided by the Government, surveys conducted by the Government and academics, academic research papers, newspaper articles and business magazine articles. These sources provided excellent evidence to evaluate the feasibility of the three possible solutions. The Government policies and laws provide various strategies relating to the workforce and the labour shortage proposed by the government. For example, the repeated amendments of the Equal Employment Opportunity Law show how work environments have been shifting in favour of women. The statistics make it possible to interpret raw data relating to this research over time such as change in the number of women who are in the workforce since 1970. The surveys and previous research allow exploration of people’s beliefs, values, attitudes and behaviour (e.g., levels of importance of traditional gender roles among the Japanese public). Previous research studies also shed light on various social issues such as effectiveness/ineffectiveness of the government policies and conflicts between the
government policies and reality. Newspaper and magazine articles make available current information and debate relating to the labour shortage at the community level, for instance, how acute labour shortages are in aged care at present.

This thesis consists of three main chapters. These are:

Chapter one: Possible solution I, Increasing Japanese women’s labour force participation

This chapter considers that Japanese women’s more active participation in the workforce could be a solution for the labour shortage. However, the extent to which traditional gender roles are deeply entrenched in Japanese society is a considerable barrier here. In this chapter I argue that the cultural aspects of motherhood ideology and clearly divided gender roles are the key to determining the feasibility of this solution because they largely affect decision-making about the workforce participation of Japanese women. It is evident by that despite various social changes such as the general increase in Japanese women’s educational attainment and continuing changes in the Japanese government labour policies which encourage Japanese women to participate in the workforce, many Japanese people (both men and women) still support gender roles and the motherhood ideology. These are enormous obstacles to Japanese mothers’ increased workforce participation.

Chapter two: Possible solution II, accepting more foreign workers

This chapter opens up the discussion that foreign or immigrant workers could help ease the labour shortage in Japan. The backdrop here is a relatively limited and controversial immigration history in Japan. In this chapter, I argue that the potential of this solution is complex in light of conflicting immigration and foreign labour policies in the past. There is some enthusiasm for accepting skilled workers, especially in industries where labour shortages are very acute like aged care, but an antipathy against accepting unskilled workers despite the fact that the unskilled labour force also faces acute labour shortages. Underlying this is the ideology of cultural homogeneity deeply embedded in Japanese society.

Chapter three: Possible solution III, developing automation
In this chapter, interest turns to automation as a solution to the Japanese labour shortage. Here I argue that robots have always captured the Japanese imagination in a quite distinctive way from in the West and hold great promise as a labour shortage solution in some areas of the workforce. This is supported by the rich history of automation development since post-Fordist production procedures were first developed in Japan in the post World War II era. I also consider the case study of a new business field in which deployment of automation has been well researched, that is, robot use in aged care.

Conclusion
Here I present the overall argument of this thesis. These three solutions may certainly improve the situation of labour shortage in Japan, none of them, however, may be a perfect solution by itself because the feasibility of them varies between business sectors. Moreover, socio-cultural aspects have had enormous influences on these solutions. Cultural barriers are too strong for the first and second solutions (i.e. Japanese women and foreign workers) to bring successful outcomes to the labour shortage. By contrast, there are more limited cultural barriers constraining the third solution (i.e. automation) from easing the labour shortage and rather, cultural aspects may facilitate it.
Chapter 1: Possible solution I

Increasing Japanese women’s workforce participation

[For the labour shortage the Japanese] Government is trying to boost job prospects for [Japanese] mothers before and after childbirth. [However,] at the present, women who aspire to a career and a family find themselves in one heck of a predicament (Hassett 2008: page not specified).

The Japanese newspaper article quoted above comments on the recent Government suggestion that encouraging women’s work force participation could be one solution to easing the labour shortage in the near future (Cabinet Office 2004; 2006). The low workforce participation rate among women in their late twenties and early thirties means the Japanese Government perceives an opportunity to motivate more of these women to return to paid work. The Government has proposed the ‘life and work balance’ strategy which promotes the importance of reforming the work environment in a more flexible way where women, especially mothers, can have balance between work and domestic duties (e.g., Cabinet Office 2004). However, the word ‘predicament’ in Hassett’s quote alludes to the fact that for Japanese mothers balancing these is currently extremely difficult. Later in the article, Hassett explains that Japanese women’s predicament is the lack of support with domestic labour and childcare by their partners.

In this chapter, I argue that although Japanese women may have great potential to solve the labour shortage, there are strong cultural, social and policy barriers that hinder women, particularly mothers, from fully participating in the workforce. As testimony to this, there is a relatively unchanging pattern of Japanese women’s labour force participation since the 1970s, despite women’s greater educational achievements. The deeply entrenched ideology of motherhood and clear gendered division of labour between men and women in Japanese society means that it is unlikely that women will move into the workforce after marriage or childbirth in
sufficient numbers to ease the crisis. I will elaborate this argument by examining the historical context of women’s position in Japanese society, and changing labour policies accompanied by reforms that have tried to provide more equal opportunities for women to participate in the workforce than the past. Firstly, I discuss the overall pattern of women’s workforce participation in Japan and move on to the historical dimensions of gender roles in Japanese society which have largely influenced the pattern of women’s workforce participation. Then, the discussion turns to changing labour policies accompanied by various social changes. Finally I explore the future prospects for Japanese women’s work force participation.

**Japanese women’s labour force participation and the M-shaped pattern**

Some studies suggest that there has been a dramatic increase in Japanese women’s labour force participation since the 1960s (e.g., Kumamoto-Healey 2005). Although the number has increased, the rate, in fact, has not, if we consider the proportion of women in the workforce (Usui 2005) (Figure 1-1). The increase appears to be due to population growth rather than a genuine increase in rate of participation over time.

![Figure 1-1, Change in the numbers of the women’s labour force participation and the participation rate](image)

Source: Statistics of Bureau 2008a

The rate of women’s workforce participation has consistently been around fifty percent since 1960. This indicates that half of the Japanese women who are in the
working age group of 15 to 65 are not in the labour force. More recently, the participation rate was 48.5 percent between 2002 and 2004 which was, in comparison, far below the rates in Sweden, the Netherlands and the U.S., which were 75, 70 and 60 percent respectively (Usui 2005; Benson et al. 2007). The change in women’s workforce participation rate in Japan and the U.S. are compared in Figure 1-2. The figure clearly shows that Japanese women have lagged behind American women’s workforce participation advancement.

Moreover, the age distribution of the women in the Japanese workforce shows an M-shaped pattern. It indicates that there is a high participation rate among young women in their late 20s or early 30s (in other words, before marriage), it falls to its lowest among women in their middle to late thirties who get married or have children and rises fairly high again among women above 45 years of age (Kumamoto-Healey 2005; Benson et al. 2007). The change in the M-shaped pattern in Japan from 1975 to 2005 is shown in Figure 1-3. Although the figure shows that the M-shaped pattern has been changing from the clear M-shape to the less clear M-shape pattern, this is likely due to delayed marriage or having no child among women in their thirties (Cabinet Office 2006). A substantial number of women still withdraw from the labour force at an early age to marry and raise children and return to the labour force later (Kumamoto-Healey 2005).

Figure 1-2, Women’s labour force participation rates in Japan and the U.S. 1960-2005
Despite the fact that a substantial number of women leave the workforce in their late 20s and 30s, the levels of an aspiration towards paid work among these women is higher than the other age groups (Figure 1-4) (Statistics Bureau 2008b). Figure 1-4 shows that almost sixty percent of women who are not in the labour force in their late 20s and 30s hope to participate in the labour market. The aspiration levels among these age groups have not changed since 1979. Estevez-Abe (2005) found that more than half of Japanese women agree that having paid work gives a great sense of independence as a human being and at the same time, working mothers can also build warm and secure relationships with their children. Despite the consistently positive attitudes towards paid work among these women, the M-shaped pattern shows no change in women’s behaviour.
Underlying this pattern, there are historical and cultural reasons why Japanese women, particularly wives and mothers, are unlikely to take a greater role as waged workers like many mothers do in other industrialised nations where they often combine motherhood with paid work (Pocock 2003). I examine these in the next section.

**History of gendered division of labour in Japan**

Japanese society has been influenced by Confucian philosophical values in which familial and gender hierarchies have predominated since the medieval era (Shinotsuka 1994). There has been a clear gendered division of labour between men and women in Japanese society based on this philosophy (Molony 2005). In Confucianism, there is the ideology of inner-outer distinctions that create clear gender roles between husbands and wives within the family (Chan 2008). Chan explains that this distinction assigns males to the outer sphere, handling public and social duties like farming and working at government offices and females to the inner sphere, handling domestic duties like nurturing the children. Although Confucian teaching emphasises this distinction as complementary and reciprocal rather than hierarchical, it serves to exclude women from public life to a large extent (Chan 2008).

A more explicitly patriarchal understanding of women’s social place came into practice in the Meiji era (1868-1912) (Kazui 1997; Tipton 2000). Strict patriarchy in Japan was implemented by the Meiji Civil Code (which was created to determine an heir and head of the house) enacted in 1890, through which the government strongly urged hierarchical gender discrimination (Kazui 1997). It emphasised the importance of women’s reproductive ability and women were virtually excluded from the workforce to disseminate the ideal woman: “a professional wife” (Tipton 2000). The Meiji family-state ideology encouraged women to be fully responsible for domestic duties, assuming that women could raise their self-esteem and sense of independence through controlling family financial planning (Tipton 2000). Moreover, the importance of marriage and motherhood for women was emphasised. The ideology
that marriage and motherhood are primary goals in women’s lives became deeply entrenched (Tipton 2000).

**Motherhood ideology**

Aligned with the historical importance of segregated gender roles, there is also traditional folk wisdom about motherhood as evidenced by a proverb passed on from generation to generation in Japan. ‘Mitsugo no tamashii hyakumade’ literally means ‘the soul of a three-year-old remains the same until age one hundred’ (Kazui 1997:486). It emphasizes not only the importance attributed to early childrearing by mothers, but also an intensive relationship between mothers and children. According to the folk wisdom, children raised by their own mothers until three years of age will be healthy in body and mind due to the strong bond between a mother and child. In contrast, if children are not raised by their own mothers, they are perceived to become unbalanced and disadvantaged emotionally and physically due to the lack of this bond (Kazui 1997; Lebra 1984).

Historical factors supporting women’s attachment to the domestic sphere, coupled with the strength of dominant motherhood ideology help explain the persistent M-shaped pattern. Many working women quit their jobs to raise children and are unlikely to return to work until their child turns (at least) three years old (e.g., Cabinet Office 2006). Japanese women have been constrained by traditional gender roles and the motherhood ideology.

**Education and marriage status among Japanese women**

The constraints of the motherhood ideology can also be seen in the labour force participation pattern among educated women. Considerable research shows that in Japan, many women after marriage or childbirth give up seeking careers irrespective of their educational status (Hirao 2001). In fact, a high educational status is negatively correlated with the length of stay in the workforce. Hirao (2001) found the frequent tendency of female university graduates to leave the labour force earlier than women without tertiary education. More specifically, one out of two female university graduates exits the labour force by the end of the fourth year of their career compared to fewer than 30 percent of high school graduates (Hirao 2001).
This trend might reflect the Japanese traditional norm that marriage and motherhood are women’s primary goals in life, even among educated women.

It is important to note a cultural relationship between women’s position in society and their educational attainment. In general, higher educated women take paid work more often than lower educated women in industrialised nations (Kenjo 2005). However, this is not the case in Japan. Traditionally, educational status among Japanese women has been largely related to hypergamy which refers to a marriage pattern that a woman selects a spouse of higher socio-economic status than herself (Ueno 1994). Aoki (2000:102) argued that ‘higher education and premarital participation in the workforce increasingly represented a form of marriage credential’. More specifically, obtaining a higher educational status gives Japanese women an entitlement to marry men with a higher educational and socioeconomic status. Women in the workforce have been traditionally regarded as second income earners who work to supplement household income (Tipton 2000), and when this notion is applied to hypergamy there is no necessity for educated women to supplement income because their husbands have enough earnings.

As has been discussed, the unchanging pattern in the participation rate for Japanese women over time appears to be a consequence of the motherhood ideology. Clear gendered division of labour has fostered this ideology throughout Japanese history and had largely hindered growth of women’s workforce participation in Japan. Besides this, historically, Japanese labour policies have served to reinforce women’s, particularly mothers’, place in society. In the next section, I discuss the historical context for Japanese labour policies affecting women (notably their treatment as a reserve army) and how these policies have been changing in light of the labour shortage.

**Changing labour policies and unchanging Japanese women**

Testimony to the ongoing power of gender ideology in Japan, Japanese women were not welcomed into the workforce in the post-World War II labour shortage, as they were in other industrialised countries. For instance, irrespective of the drastic
economic growth faced by Japan in the 1960s and 1970s, which required a growing number of workers and a greater demand for labour by employers, the gendered division of labour was still powerfully prevalent. Rather than opening up employment opportunities for women, economic growth reinforced differentiated ideals of ‘hard work’ for men and women (Kazui 1997). Ochiai (1994 cited in Kazui 1997) explained that ‘hard work’ for men was seen in an occupational context, and in contrast, for women it referred to excellence in the domestic domain as a ‘good wife and mother’, a support for hard working husbands and full responsibility for children’s growth. As a consequence of this social norm, the labour shortage caused by the economic growth did not influence the Japanese government to reform labour policy for women.

**Japanese women as a reserve army**

Despite this, Japanese women have been able to enter the workforce under certain conditions. Japanese society has treated women as a reserve army of labour. Marx suggested that ‘the industrial reserve army was the non-employed people who were displaced by various economic processes, but who were available to labour given the right economic circumstances’ (cited in Grover 2005: 69). There has been a prevalent idea in industrialised nations that women, especially married and unemployed women, are rich resources for reserve army labour because they could be paid a wage below the value of their labour power, since they were partly dependent on their husbands’ income (Aoki 2000; Grover 2005).

This notion typically fits the Japanese situation, especially post-World War II where women were seen as secondary-income earners. Married women became expendable: ‘last to be hired and first to be fired’ (Aoki 2000:93). In fact, during the strong economic growth in the 1960s and 1970s, married middle-aged female workers were only regarded as unskilled labourers who filled the unskilled jobs which could not be done even by machines (Ueno 1994). Women’s position in the workforce was socially constructed as a reserve army to reinforce the differentiated social positions between men and women, and women were utilised for convenience and not seen as main wage earners or proper workers.
Equal Employment Opportunity Law and the feminist movement in Japan

Changes for women in the workforce were brought about in the late 1970s due to the general increase in women’s educational level which led to the increase in the numbers of women in the workforce as proper workers. Paralleling this, women workers became aware of their segregated position in the workforce (Kumamoto-Healey 2005). To provide an equal work environment for working women, the Equal Employment Opportunity Law (EEOL) was established in 1985. It was also to meet the requirements for ratification of the United Nations’ treaty for women (Ueno 1994; Weathers 2005). Clearly, the impetus for the implementation of the EEOL was the Japanese feminist movement initiated in the 1970s, which was influenced by Western feminism and fought for the ‘genuine emancipation of women’. The EEOL aimed to address Japanese women’s contradictory experience between their increased educational status and their still stigmatised position in the labour force (Mackie 2000; Ueno 1994).

Despite the anti-discriminatory movement led by feminism, the EEOL was unsuccessful in changing women’s workforce status in Japan because the policy only obliged employers to “endeavour to provide” equal opportunity for women without any penalisation (Kumamoto-Healey 2005:451). Instead, large companies responded to this law by strengthening discrimination against women, utilising a two-track recruitment and promotion system: a ‘management career track’ for men and a ‘general track’ for women (Tipton 2000). Tipton explains that in general, while male workers automatically entered the former, most female workers entered the latter.

The failure of the EEOL can also be explained by the resistance of Japanese anti-feminist women’s groups which heavily promoted what could be called maternal values, such as food safety and protection of their children. These activities were mainly engaged in by non-working married women who did not regard themselves as feminists (Eto 2005). In Japan the Western style feminist movement was not as successful in mobilising all women and attracting attention among the public due to the strength of the non-feminist women’s movement (Eto 2005). It was easier for Japanese women to speak out as mothers than as women, since women had been
segregated as second class citizens whose voices were socially and politically neglected (Mackie 2000).

For this reason, historically many Japanese women were politicised through consumer, environmental and peace movements that were largely related to their everyday lives as mothers (Mackie 2000). According to the director of the women’s centre in Kanagawa (cited in Tipton, 2000: 219),

> Up until the beginning of the 1980s, there were very few opportunities available to college-educated women who had given up careers to become wives and mothers to re-enter the job market. Many of these women, therefore, directed their time, energy and talents to involvement in local community movements.

This quote indicates that although Japanese women, especially mothers, were constrained by the motherhood ideology, they had strong aspirations to take part in the public sphere apart from being just housewives and mothers.

Moreover, the Japanese patriarchal political system and the long-term reign of the Liberal Democratic Party (from 1955 to 1993) which was closed to Japanese women, prevented women’s advancement in policy-making. The lack of independence from the motherhood ideology in the feminist movement and women’s political participation have caused enormous delays in the improvement of women’s position in the workforce in comparison with the other industrial nations (Mackie 2000).

**Current labour policies intervening women’s participation**

Not only has government policy entrenched gender inequality for mothers in the workforce, but so have the traditional Japanese employment systems. ‘Lifetime employment’, the ‘grading system’ and ‘seniority pay’ have made it harder for women to obtain work and family balance. ‘Lifetime employment’ refers to employees’ commitments not to leave or change employers until they retire (Yamaguchi 2004). The ‘grading system’ established a range of job grades with an equivalent range of pay rates and the skills required in each grade are acquired by internal training within the firms (Benson et al. 2007). Moreover, ‘seniority pay’ refers to wages being directly correlated with the length of time which workers belong to the company. These systems are interwoven with each other, and in such
systems, ‘workers’ abilities are assessed by their attitude and willingness to accept unlimited overtime and to sacrifice their life for the company’ (Benson et al. 2007:897). In terms of women’s participation in the workforce, women have been structurally oppressed because these systems do not allow workers to take time off for birthing and childrearing (Benson et al. 2007).

However, the labour shortage means that it is becoming hard to sustain such traditional employment systems. The economic crisis in the 1990s, the aging labour force, the labour shortage due to the shrinking population, workers’ changed perception towards work appraisals (from willingness to devote themselves to performance-related pay), pressure from equal opportunity advocates and so on have put pressure on the systems (Benson et al. 2007; Weathers 2005). The superficially established EEOL was amended in 1997 (in effect in 1999) to clearly prohibit discrimination against women in terms of hiring, internal training and promotion (Kumamono-Healey 2005). Moreover, the legal abolition of the two-track recruitment system in 2002 was regarded as a major victory for the cause of gender equality (Kumamoto-Healey 2005:451). This, along with the following second amendment of the EEOL in 2004, which banned explicit gender discrimination in the workforce, including wage discrimination by sex, unfair treatment for pregnant women, and sexual harassment (Ministry of Health Labour and Welfare 2004), has been successful in terms of raising the level of awareness over gender issues in the workforce (Estévez-Abe 2005).

Along with policy changes in the workforce, paid maternity and parental leave policies were also established to encourage mothers not to interrupt their careers for childbirth and parenting. Japan has comparatively generous paid maternity leave entitlements subsidised by the government compared to those in the U.S. and Australia (Table1-1). In addition to the maternity leave policies in Japan, paid parental leave is available for both male and female workers until their children turn one year old (Cabinet Office 2006). However, as the M-shaped pattern shows, substantial numbers of female workers leave the workforce for childbirth and parenting irrespective of the existence of the maternity and parental leave.
Table 1-1, Government subsidies for paid maternity leave in industrialised nations

<table>
<thead>
<tr>
<th>Country</th>
<th>Length of maternity leave in covered period</th>
<th>Percentage of wages paid</th>
<th>Provided of coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japan</td>
<td>14 weeks</td>
<td>60</td>
<td>Health insurance</td>
</tr>
<tr>
<td>The U.S.</td>
<td>12 weeks</td>
<td>0</td>
<td>-------</td>
</tr>
<tr>
<td>Australia</td>
<td>1 year</td>
<td>0</td>
<td>-------</td>
</tr>
<tr>
<td>The U.K.</td>
<td>14-18 weeks</td>
<td>90 for 6 weeks</td>
<td>Social security</td>
</tr>
<tr>
<td>Sweden</td>
<td>14 weeks</td>
<td>75 for 360 days</td>
<td>Social security</td>
</tr>
<tr>
<td>Norway</td>
<td>18 weeks</td>
<td>100</td>
<td>Social security</td>
</tr>
<tr>
<td>Spain</td>
<td>16 weeks</td>
<td>100</td>
<td>Social security</td>
</tr>
<tr>
<td>Italy</td>
<td>5 months</td>
<td>80</td>
<td>Social security</td>
</tr>
<tr>
<td>Canada</td>
<td>17-18 weeks</td>
<td>55 for 15 weeks</td>
<td>Unemployment insurance</td>
</tr>
</tbody>
</table>


This situation can also be explained by some labour policies that were formulated in a way that benefited only male workers. For instance, in the early 1980s, welfare reform was introduced in a way that excluded female workers from the workforce, encouraging women to serve as caregivers as the Government greatly reduced funding for childcare (Weathers 2005). It may be a serious obstacle for women with children to participate in the workforce as Kenjo (2005) found that lack of subsidised childcare is one of the biggest barriers that hinders mothers from participating in the workforce. Moreover, the tax system was also amended to promote the ideology that women are not primary wage workers. According to the tax system, working married women earning more than 1 million yen (approximately $AU 10,000 in 2008) cannot receive the spouse tax exemption, and similarly, their husbands lose the right to receive a special spouse allowance from their workplace (see Shinotsuka 1994 for more details). These facts suggest that the M-shaped pattern is not only formulated by the motherhood ideology, but also by some labour policies that were influenced by it.

The labour policies have been changing in a more generous way for women to be able to continue to work after childbirth, however, some policies which were largely influenced by the motherhood ideology have been barriers that inhibit change in the pattern of Japanese women’s workforce participation. In the next section, I will discuss the future prospect of Japanese mothers’ workforce participation.
**Where to go from now?**

Estevez-Abe (2005) has suggested that the Japanese Government should be aware of the fact that Japanese society is underutilising women’s human capital (that is, the knowledge and skills embodied in people (Coleman 1988)) despite the fact that more women are well educated compared to the past. According to the United Nations Human Development Report 2003 (cited in Duignan & Iaquinto 2005), by global standards, Japan was positioned 69th of 75 countries in terms of gender equality and 44th of 64 in gender empowerment.

Yet the Government has been aware of the importance of women’s human capital. In fact, responding to the current and future labour shortage associated with the demographic changes including rapid aging and low fertility rates, the Japanese government has been reforming the work environment, promoting a ‘work and life balance’ (Cabinet Office, 2006). In some government reports, it is clearly stated that encouraging women, especially who are married and are not in the workforce, to participate in the labour force is one of the key elements to ease the labour shortage (e.g., Cabinet Office, 2006). However, there is a prevalent perception among the Japanese public that for Japanese women to balance work and home (such as seeking careers at the same time as becoming a good housewife and mother) is not easy (Molony 2005).

This may be because many Japanese people still support clear gender roles between men and women today (i.e. men work outside and women are responsible for domestic duties). The Cabinet Office (2006) reported that in 2004, approximately 50 percent of Japanese men agreed with the idea of traditional gender roles, while 41 percent of women did. It indicates that despite the fact that women are, these days, as well educated as well as men, half of Japanese men believe that women are fully responsible for domestic duties including parenting. The influence of the dominant motherhood ideology is also seen in the 2007 survey. Only 47 percent of the respondents (both men and women) agreed with the idea that women should continue their work after childbirth without career interruption (Cabinet Office 2007b). This indicates that over half of the Japanese people still believe that women should quit their work for childbirth and parenting.
It has been made clear throughout this chapter that there are various obstacles that have hindered the growth of women’s participation in the workforce. These are not only institutional gender discrimination in the workforce created through Japanese patriarchal history, but also the cultural norms and social attitudes towards gender roles. There is another reason why Japanese women are less likely to take paid work parallel to parenting like many women do in other industrialised nations. That is largely related to the unique definition of part-time work in Japan. I will discuss this in the next section.

**Part-time work and Japanese women**

Kenjo (2005) found that most of the mothers in any industrialised nations who re-enter paid work are working part-time rather than full-time. However, working part-time is not as frequently seen among highly educated mothers in Japan as seen in the other countries (Kenjo 2005). The reason why educated Japanese mothers are reluctant to return to the workforce after a career interruption may be because of the marginalised part-time work position in Japan. Part-time work is, in general, defined as ‘regular wage employment in which the hours of work are less than “normal”’ (Kalleberg 2000:343). In contrast, the Japanese definition of part-time work does not refer to the flexibility in working hours, but is ‘explicitly related to status within the firm and not to hours worked’ (Kalleberg 2000:343).

Part-time work in Japan seems to be socially constructed to distinguish power relations between proper workers (full-time workers) and marginalised workers. Therefore, part-time work may not be an attractive option for higher educated women who tend to have had full-time work before the career interruption (Kalleberg 2000). In addition, the availability of full-time work for potential re-entrants is limited due to the traditional Japanese policy that favours long-term employment at the same company (Kenjo, 2005). The likelihood of finding full-time work after career interruption is very small, 18 percent for university educated women and 12-13 percent for less educated women (Ueda 2007). For these reasons, educated Japanese mothers who used to work full-time may be reluctant to return to work and become marginalised workers.
To make the part-time option more attractive for Japanese mothers, the latest Japanese Government’s attempt to reform the work environment is the amendment of the Part-Time Work Law in 2008. It aims to improve the status of part-time work from its current marginalised position by encouraging firms to endeavour to provide equal treatment, including pay and job training for part-time workers who engage in equivalent tasks to regular workers. Moreover, unfair treatment for part-time workers, such as difficulties in accessing welfare benefits, was revised (Ministry of Health Labour and Welfare 2008). In accordance with the implementation, some firms have begun to provide the opportunity for part-time workers to transfer to full-time workers (Yomiuri Online, 2008). Although there is controversy over the effectiveness of this amendment (e.g., the vague expression of ‘endeavour to provide’) (Yomiuri Online 2008), it is meaningful in terms of evolving the idea that part-time workers (most are women) are precious resources in the current labour shortage era. It can be argued that if the Government improves the status of part-time work in Japan to the same as other developed countries, it may be the key for Japanese women to join the workforce while they are parenting young children.

The Work/Care regime and Japan

In addition to policy reform, the Japanese Government might be able to follow a work and life balance policy practiced in other countries that have high workforce participation rates of women. Pocock (2003) introduced the idea of a Work/Care regime to propose workable changes in work conditions in Australia. She argues that the Work/Care regime is shaped by the interaction between three factors: values or culture (e.g., what we think about the proper role of mothers), the institutions (e.g., labour policies and leave arrangements), and our preference and behaviour (e.g., what we want and do) (Pocock, 2003: 35).

According to this model, if one of the factors changes, it influences the other two factors (Pocock, 2003). For instance, if more generous childcare arrangements are provided (institution), more women will possibly (want to) participate in the labour force (behaviour/preference), and these changes affect the cultural value of the role of women (value/culture). This model does not precisely fit the current Japanese situation because Japanese people’s attitudes towards gender roles (value/culture)
and women’s behaviour (i.e. to leave the workforce to raise children) are still constrained by the traditional ideals of gender roles, irrespective of institutional changes. To bring overt change in value/culture and behaviour using Pocock’s (2003) model for the Japanese situation, the Government may have to promote clearer and more valuable institutional change like the amendment of part-time work law. For instance, it could be to increase funding for childcare.

Another influence on opening up equal opportunity for women in the labour force is globalisation. Some foreign firms have noticed the poor utilisation of Japanese women’s human capital and taken advantage of it (Duignan & Iaquinto 2005; Lansing & Ready 1988). Scholars argue that foreign company policies, such as flexible work time arrangements, individualised tasks, merit-based-pay and short term work contracts, provide more chance for female workers to participate in the labour force as women perceive these as more compatible with their domestic and parenting responsibilities (e.g., Duignan & Iaquinto 2005). In fact, Duignan and Ianquinto have found a significantly higher proportion of female workers in the foreign firms in Japan than in the Japanese firms (66 percent and 20 percent respectively). More importantly, Duignan and Ianquinto argued that the female workers in the foreign firms receive more internal training and future career prospects than those in the Japanese firms, which results in more positive evaluations of the work environment. This indicates that women can better adjust to firms which provide work/life balance than the Japanese firms which still maintain inflexible work environments, such as long working hours. This finding suggests that Japanese firms might need to take some guidance from foreign firms.

**Conclusion**

In conclusion, labour policies have been changing in order to create more generous work environments for Japanese women. Nevertheless there are persistent cultural norms and social attitudes towards traditional gender roles among the Japanese public. The motherhood ideology seems a main cause that constrains Japanese women from changing their behaviour that is, leaving the workforce for childbirth and parenting. Aligned with this, inflexible Japanese work arrangements make it
harder for Japanese mothers to balance work and domestic duties (including parenting). As Pocock’s (2003) model, the Work/Care regime suggests, bringing overt change in culture/value and behaviour may require the Government’s active reformation of the current work environment in a more explicit way like increasing funding for childcare or promoting positive images about the life and work balance policy using the mass media, local communities and educational institutions. If work and life balance for mothers became more possible, the current labour shortage could well be addressed by their greater workforce participation in the future. In the next chapter, I examine the feasibility of the second solution, accepting foreign workers to ease the labour shortage.
Chapter 2: Possible solution II

Accepting more foreign workers

Labor shortages do not automatically result in labour migration: instead, “the contrasts in national approaches are due to differences in conceptions of national identity- specifically, whether or not a nation is built on the nation of cultural homogeneity or cultural diversity and notion of pluralism extends from the political to the cultural realm” (Weiner 1995 cited in Bartram 2000:22).

Japan has always had a reputation as a culturally and racially homogeneous society. In the Japanese context, the ideology of cultural homogeneity not only refers to a single ethnicity within the nation, but also refers to, according to Lu et al. (2005), a mono-ethnic conception of ‘Japanese-ness’ (one ethnic group and one language) which connotes the ‘superiority of the Japanese’ within the nation. It also shows ‘the enduring purity of the nation, the family and Japanese way of life’ (Weiner 1997:2). The concept of cultural homogeneity in Japan has perpetuated the idea of a single ethnicity within the nation and discourages the notion that multiple ethnicities can co-exist within a nation (Lu et al. 2005).

As the introductory quote indicates, labour shortages do not easily lead to the idea of importing foreign workers. For anticipated crises derived from the labour shortage, the Japanese Government has sometimes opened its doors to accepting foreign workers, mainly skilled workers. However, the ideology of cultural homogeneity is a great barrier that hampers accepting unskilled foreign workers. This is prevalent not only in the Government policies, but also in Japanese people’s opinions about accepting foreign workers. It also influences the Japanese to draw a clear boundary even in skilled business sectors between where foreign workers can take part and where they should not.

In this chapter, I argue that Japan cannot fully rely on accepting foreign workers to ease the labour shortage due to the influence of the ideology of cultural homogeneity deeply embedded in Japanese society. I will elaborate this argument by examining,
firstly, Japanese immigration history and the notions of cultural homogeneity that inform this history. Next, I discuss current immigration and foreign labour policies and show how these have been influenced by the ideology of cultural homogeneity. Finally, interest turns to Japanese people’s social attitudes towards accepting foreign workers which might offer a future prospect on immigration and foreign labour policies in Japan.

**Cultural homogeneity and immigration history**

There are historical reasons why Japan does not have many immigrants, and these are linked to ideologies of cultural homogeneity. One reason is that Japan officially closed its doors to foreign countries (except for a small number of trading ports) for nearly 350 years. This is known as ‘Sakoku’ or the national seclusion policy and lasted until 1858. In this period, Japan broke off diplomatic relations with other foreign countries and foreigners were prohibited from interacting with the general Japanese population (Lu et al. 2005). Sakoku was clearly linked to an ideology of cultural homogeneity in that it sought to protect Japanese culture from foreign influences. More specifically, it aimed to suppress the spread of Christianity mainly brought by the Portuguese during their trade with Japan in the late sixteenth century. For Japan an increase in the number of Christians among the public was regarded as a threat to the purity of Japanese culture (Cullen 2003).

The Meiji Restoration in the 1860s opened Japan’s doors to foreign countries, and it was the official end of Japan’s centuries of self-imposed isolation from the rest of the world (Lu et al. 2005). In fact, Meiji policy actively exploited foreign knowledge in a process of modernisation, including developing law, business, infrastructure and industrial technology by inviting foreign advisors (although they were only regarded as temporary visitors who returned to their countries after their work was done) (Lu et al. 2005:103). After Sakoku ended, substantial numbers of Japanese emigrated to Hawaii, California, Canada and Brazil for economic reasons, such as getting a better job and life, and due to the recession in Japan. For instance, 188,000 Japanese emigrated to Brazil between 1908 and 1941 (Higuchi & Tanno 2003).
Despite the fact that Japan’s doors were opened at this time to foreign countries, this did not mean that they were opened to immigration. The Japanese Government let Japanese people freely move out of the country but it did not allow an influx of immigrants into Japan. In 1920 there were only 78,061 legally registered foreign residents in Japan and they were mainly foreign advisors invited by the government (Cornelius 1994). This is because the ideology of cultural homogeneity was strengthened in the Meiji era (1868-1912) and enforced the idea that Japan has a pure race and shows superiority of Japanese-ness to other countries (Lu et al. 2005).

This ideology has had a significant influence on the Japanese Government’s immigration and foreign labour policies that deal with the labour shortage. According to Cornelius (1994:396), the Japanese Government’s major concern is the ‘maintenance of cultural and racial homogeneity’. Despite the fact that Japanese companies and economic groups have called for an official policy of accepting foreign workers (especially in the 1960s and 1970s), the government has been unwilling to give up its policy that officially keeps the doors of the Japanese labour market closed (Shikama 2005:183). To maintain cultural homogeneity government officials suggest that acceptance of foreign workers should only be a final option after all alternatives (for instance, effective use of females and mature aged workers) are tried out (Cornelius 1994).

**Cultural homogeneity and Indigenous people in Japan**

Although the Government maintains the idea that foreign workers are a threat to cultural homogeneity, it can be argued that Japanese homogeneity is a socially constructed ideology. As Shikama (2005:183) explains, in order to foster ‘a sense of national allegiance’ the idea that Japan is a monolingual and homogeneous country was strengthened in the Meiji era. Testimonies to this fact that Japanese homogeneity is more ideology than reality are assimilation policies targeting two groups of indigenous people in Japan, Ainu and Okinawan (Lu et al. 2005).

The Ainu are the indigenous people of northern Japan. Their culture was characterised by ‘hunting, fishing and the gathering of edible plants, and a complex spiritual relationship with the phenomena of the natural world’ (Siddle 1997:22). In
the Meiji policy in the late 1860s, Ainu culture was destroyed in accordance with the assimilation (Japanisation) policy and Ainu land was invaded in the name of development in the northern territory and regarded as an empty land which was opened to Japanese people to immigrate for modernisation (Siddle 1997). The Ainu was regarded as a ‘dying race’ in the process of the assimilation policy (Siddle 1997:24).

Similarly, Okinawan refers to the indigenous people of Okinawa in southern Japan. Before annexation by Japan in 1879, Okinawa existed as an independent kingdom which played an important role ‘as the centre of trade in luxury goods from the markets of Southeast Asia to the port of China, Korea and Japan’ (Taira 1997:140). The Meiji state annexed Okinawa under the imperialist expansion as the first step of diplomatic invasion (Taira 1997). Shikama (2005) argues that cultural homogeneity was first constructed by forbidding Ainu and Okinawan’s native languages and cultures and forcing them to learn and adopt standardised Japanese and culture by the Meiji policy (also see Lu et al. 2005 for more details).

The situation for these people in Japan emphasises that cultural homogeneity was purposefully formulated at the expense of recognising the other cultures and ethnicities already existing in Japan. The fact that it is a socially constructed ideology becomes more evident with a case study of Korean workers brought as unskilled labour around World War II. I will discuss this in the next section.

Pre and post World War II: a case study of Korean workers

Meiji era policy on immigrant and foreign labour changed around World War II. At this time many Koreans were brought into Japan as forced and voluntary labourers for the labour shortage during Japan’s colonisation of the Korean Peninsula between 1910 and 1945 (Held et al. 1999; Lu et al. 2005). These Korean people (whom I refer to from now on as Korean residents) were seen as flexible workers who could take work with low-wages and undesirable working conditions which Japanese were unwilling to take, mainly in manufacturing and coal mining industries (Lu et al. 2005; Weiner 1994). In 1945 the number of Korean residents in Japan was more than two million (Kim 2006).
As colonised people, Korean residents were originally given equal human rights (e.g., social security and welfare benefits) to Japanese nationals. However, the Japanese Government’s denial of Korean residents’ rights (because of their distinct cultural practices and ethnicity) became apparent when the Alien Registration Law was implemented in 1947. This law makes a clear differentiation between the positions in Japanese society of Japanese nationals and foreigners (Kim 2006). It was established as a system that records information regarding foreigners residing in Japan for more than ninety days for providing equitable control over them, and it is still in practice today (Ministry of Justice 2006).

When the San Francisco Peace Treaty was sanctioned in 1952, all rights given to the Koreans residents were removed and they became ‘complete aliens’ residing in Japan (Kim 2006:57). The government decision to eliminate them as an ethic minority was to give them two choices, ‘either return to Korea or to become naturalised Japanese citizens’ (Tai 2004:359). As a condition of naturalisation, the government required complete assimilation for the Korean residents in order to show the superiority of Japanese culture. This included compulsory adoption of Japanese names by the Korean residents and forcing them to speak Japanese to adjust to Japanese culture (Lu et al. 2005; Tai 2004). The majority of Korean residents returned to Korea, however, over five hundred thousand could not return immediately due to the political conflicts between South Korea and North Korea and the Korean War (1950-53) (Kim 2006).

As could be expected, this assimilation policy elicited a negative response from Korean residents, and their reluctance to give up their ethnic practice and customs was reflected in the low naturalisation rate among the Korean residents. In 1952, of 535,065 Korean residents there were only 232 naturalised Koreans and the number only increased to 3,763 in 1960 (Tai 2004). Because of the resistance of the Korean residents to assimilating into Japanese culture, the Korean residents without Japanese nationality became perceived as troublesome for Japanese cultural homogeneity and their social status was stigmatised in Japanese society (Kim 2006).
Although Korean residents in Japan were only adding to what was already a multi-ethnic society, they have often been perceived as a threat to a culturally homogenous society. Since then it appears that successive Governments have perceived that the existence of Korean residents (mostly unskilled labourers) threatens the social cohesion formed by cultural homogeneity. The evidence for this lies in contemporary immigration and foreign labour policies. I will discuss these in the next section.

Current Government policies on immigration and foreign labour
In Japan, it appears that the undesirable experience with Korean residents has had repercussions for Japanese foreign labour policies ever since. Here to begin with, it is important to discuss how the Japanese Government resolved the post World War II labour shortage which occurred in the late 1960s and early 1970s. Around this time other industrial nations largely pursued a reserve army policy to ease it but Japan did not (Bartram 2000). To briefly recapitulate, the reserve army thesis is generally defined as a practice under capitalism whereby foreign workers are brought into a country as a cheap labour force during the economic booms to fill labour shortages and sent back during the busts (Betts 1996). Japan, instead, practiced a ‘domestic reserve labour thesis’ where surplus Japanese rural workers (who usually took agricultural work) moved into the urban industrial sectors when they were needed or when agricultural work was not active for seasonal reasons (Bartram 2000). Previous research does not clearly point to the reason why the Japanese Government practiced it instead of using foreign workers, but it is reasonable to speculate that the Government did not want to take foreign workers because it feared that they might cause the same problems (i.e. assimilation problems) Korean residents caused in the past.

However, the decrease in internal migration due to the depopulation in rural areas in the late 1970s to 1980s led to the decision to revise the existing immigration policy in favour of foreign workers (Higuchi & Tanno 2003). Despite this, the policy implemented in 1990 was heavily influenced by the existence of Korean residents. Cornelius (1994:381-2) noted that
Some officials argue that, after more than fifty years, the Korean assimilation problem has not yet been solved, and until it has been solved it is pointless to consider importing large numbers of foreigners of other nationalities, at least as permanent resident aliens.

As seen in this statement, the Japanese government had no intention to accept other cultures and ethnicities in Japan on a permanent basis and used the assimilation problem as a reason for limiting unskilled foreign labour intake.

Japanese Brazilians and unskilled workers
Aligned with this viewpoint, 1970s/80s immigration policies only allowed Japanese descendents whose ancestors emigrated to Latin America, mainly Brazil, as unskilled foreign workers. This policy reflects the cultural homogeneity ideology in the expectation that Japanese descendents would more easily assimilate to Japanese culture than others (Cornelius 1994). In fact, Higuchi and Tanno (2003) reported that Japanese Brazilians were appreciated by employers because they expected that due to their cultural background they would be less likely to cause xenophobic reactions among the Japanese people.

Since the implementation of new immigration policy in 1990, many manufacturers and constructors rushed to Brazil to look for workers and Japanese-Brazilians became the main source of legal foreign workers, mainly in unskilled business sectors (Higuchi & Tanno 2003). The change in the number of Brazilian immigrants in Japan is shown in Figure2-1.
Brazilians were initially hired to work in large factories (such as for cars and electronics) with higher wages than the wages in middle and small sized factories. However, as automation led to better working conditions in factories, Japanese women and aged workers took part in and replaced Brazilians over time (Higuchi & Tanno 2003). This fact may reflect the ideology of the superiority of ‘Japanese-ness’ that to hire Japanese is better and more prioritised than hiring foreigners. There is still some demand for Brazilians in small or medium sized factories where foreign workers are regarded as important resources in the labour shortage, and currently 80 percent of Latin Americans in Japan (mostly Brazilians) work in the manufacturing sectors (Reyes-Ruis 2005). This is because manufacturing factories, particularly small and medium sized factories, have no longer attracted Japanese workers (Cornelius 1994; Sassen 1994).

**Unskilled workers**

In addition to accepting Japanese Brazilian descendants in the unskilled labour force, in 1993 the Government set up the Practical Trainee Program that accepts foreign workers from other developing countries mainly in manufacturing, construction, engineering and metalworking fields for the purpose of transferring skills and knowledge while working in Japan (Cornelius 1994; Ministry of Justice 2007b). Although foreign workers under this program are allowed to stay on a temporary basis for a maximum of three years, including one year training (acquisition of work
skills and Japanese language for the first year) and two years ‘on-the-job’ practice, applicants for these positions have been increasing year by year because trainee can obtain better wages than at home (Matsunaga & Kuboniwa 2006). The change in the number of foreigners under this program is shown in Figure 2-2.

![Figure 2-2, Change in the number of foreigners under Trainee program](source: Ministry of Justice 2008)

Following the increase in participants under the trainee program, the Government expanded the number of business sectors that can participate in the program, from 55 types of work in 1999 to 62 types of work in 2005 (Ministry of Justice 2007b). However, conflicts have arisen between the political aspect of this training program proposed by the Government and the practical aspect of it practiced by employers. The Government proposed that the training program helps development of trainees’ human capital and therefore, they are not workers but ‘learners’ (Ministry of Justice 2007b). In the name of ‘training’, trainees are not regarded as wage workers, and therefore the policy only approves that trainees get a basic living fee as a training allowance (Cornelius 1994; Ministry of Justice 2007). It is nevertheless much more than the wages in their home countries and thus an attractive option. For instance, trainees can obtain, on average, 80,000 yen per month (approximately US$800), the equivalent of two full years of wages at a Chinese factory (Cornelius 1994).

Contrary to the Government’s expectations, some scholars argue that the training program is an exploitative scheme which officially allows employers to obtain legal unskilled foreign workers for cheap wages (e.g., Cornelius 1994). It is apparent that some workplaces have used the training program to exploit trainees. Sakamaki (2007) reported that one woman from Vietnam and her colleagues under the program
sued their employer for unlawfully cheap wages (16 hours work per day with US$584 per month) and neglect of their human rights. The program is described by the supporters of these workers as ‘slave labour and human trafficking’ (Sakamaki 2007). This incident shows that despite trainees’ expectations of learning new skills and earning good money, they are vulnerable and prone to exploitation.

There also appears to be a discrepancy between the Government’s stated aim of this program (i.e. exchange of skills and knowledge) and the reason why business owners use it (i.e. getting cheap labour). It can be speculated that the trainee program conceals the Government’s unwillingness to address the problem of creating legal work permission for unskilled foreigners. Testimony to this is the fact that there is still no legal visa condition which allows unskilled foreign workers to enter Japan, irrespective of the fact that there are certain types of work young Japanese are no longer willing to take part in. These are the low-skilled so-called 3K jobs in manufacturing and construction work: i.e. dirty (kitanai), dangerous (kiken) and physically arduous (kitsui) (Cornelius 1994).

**Skilled workers**
Contrary to the Government’s unwillingness to accept unskilled foreign labour, it has been relatively generous towards skilled foreign workers since the 1980s. Initially work permissions were granted in 1980 to 30,000 skilled foreigners, mostly business managers, professors, artists and foreign language instructors among others, and in 1992, it increased to 200,000 with the expansion in skilled business fields such as engineering and medical services. In 2006 the number of registered skilled foreign workers was 178,781 in fourteen business fields (Ministry of Justice 2008). The recent trends regarding registered skilled foreigners are shown in Table 2-1.
Table 2-1, Registered skilled foreigners since 2002

<table>
<thead>
<tr>
<th></th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>121280</td>
<td>120914</td>
<td>127382</td>
<td>144089</td>
<td>157719</td>
</tr>
<tr>
<td>Specialist in Humanities and International services</td>
<td>44496</td>
<td>44943</td>
<td>47682</td>
<td>55276</td>
<td>57323</td>
</tr>
<tr>
<td>Engineer</td>
<td>20717</td>
<td>20807</td>
<td>23210</td>
<td>29044</td>
<td>35135</td>
</tr>
<tr>
<td>Skilled labourer*</td>
<td>12522</td>
<td>12583</td>
<td>13373</td>
<td>15112</td>
<td>17869</td>
</tr>
<tr>
<td>Intra-company transferee</td>
<td>10923</td>
<td>10605</td>
<td>10993</td>
<td>11977</td>
<td>14014</td>
</tr>
<tr>
<td>Educator/instructor</td>
<td>9715</td>
<td>9390</td>
<td>9393</td>
<td>9449</td>
<td>9511</td>
</tr>
<tr>
<td>Professor</td>
<td>7751</td>
<td>8037</td>
<td>8153</td>
<td>8406</td>
<td>8525</td>
</tr>
<tr>
<td>Investor/owner</td>
<td>5956</td>
<td>6135</td>
<td>6396</td>
<td>6743</td>
<td>7342</td>
</tr>
<tr>
<td>Religious activist</td>
<td>4858</td>
<td>4732</td>
<td>4699</td>
<td>4588</td>
<td>4654</td>
</tr>
<tr>
<td>Researcher</td>
<td>3369</td>
<td>2770</td>
<td>2548</td>
<td>2494</td>
<td>2332</td>
</tr>
<tr>
<td>Artist</td>
<td>397</td>
<td>386</td>
<td>401</td>
<td>448</td>
<td>462</td>
</tr>
<tr>
<td>News reporter</td>
<td>351</td>
<td>294</td>
<td>292</td>
<td>280</td>
<td>273</td>
</tr>
<tr>
<td>Legal/accounting professional</td>
<td>111</td>
<td>122</td>
<td>125</td>
<td>126</td>
<td>141</td>
</tr>
<tr>
<td>Medical professional</td>
<td>114</td>
<td>110</td>
<td>117</td>
<td>146</td>
<td>138</td>
</tr>
</tbody>
</table>

* Skilled labourer refers to a chef and a specialist in specific cuisine

Source: Ministry of Justice 2008

The Government has also allowed skilled foreigners from various cultural and ethnic backgrounds to work in Japan. For instance, among specialists in humanities and international services, English speakers from the U.S., the U.K., Canada and Australia account for more than 60%. In contrast, newly arrived engineers are largely from China, South Korea, and India, and there is a considerable increase in the number of Indian engineers in IT related occupations (see Ministry of Justice 2007a for more details).

In addition, a labour force strategy in the skilled health care sectors has also been implemented. Japan has made an Economic Partnership Agreement (EPA) with several Asian countries, including the Philippines, Indonesia, Malaysia, Brunei, Thailand and Singapore. The EPA refers to an economic agreement with the partnered countries on the elimination of tariff and domestic rules on importing and exporting commodities, the protection of intellectual property, and exchange of human capital between the countries (Ministry of Foreign Affairs of Japan 2008). In the EPA contracts between Japan and the Philippines and Indonesia, the Japanese
Government agreed to accept skilled human capital transfer in the health care sectors (in 2004 with the Philippines and in 2008 with Indonesia) (Ministry of Foreign Affairs of Japan 2008). In accordance with this, Filipino and Indonesian nurses and health carers have been officially accepted in Japan. (There are some requirements, such as Japanese language acquisition and sitting a national examination set by the Government after three years practice for nurses and four years practice for carers in Japan to acquire the Japanese qualification (Kajimoto 2005)).

As has been discussed, there is some progress in foreign labour policy that has been corresponding to the current and future labour shortage in some skilled business sectors. However, for unskilled business sectors which are expected to have more serious labour shortages in the future, the Government has not taken any action. At present, the Japanese Government rejects unskilled labourers on a permanent basis and only allows them to work under certain conditions (i.e. the trainee program). This may be because skilled labourers will bring great benefits with their skills in Japanese society (for example, Japanese people can learn better English with native English speakers which is important in globalisation). By contrast, unskilled labourers will be unlikely to do it and remind the Government of the undesirable experience caused by Korean residents. Moreover, there is a public concern that unskilled foreign workers might increase the crime rate (Noriie 2008), although this is hardly supported by empirical evidence (Goto 2007). This might be because Japanese people regard unskilled foreign workers as uneducated and, in general, more likely to commit crime than educated people. In the next section, I discuss how these policies influence Japanese people’s attitudes towards accepting foreign workers to ease the labour shortage and how their attitudes will influence immigration and foreign labour policies in the future.

**The future of foreign and immigration labour in Japan**

**National identity and Japanese people**

As I have argued thus far, the Japanese Government’s willingness to promote cultural homogeneity can be seen in longstanding, relatively inflexible immigration and foreign labour policies. Despite this, it seems that Japanese people themselves
do not predicate their sense of national identity on this idea of cultural homogeneity. According to Sasaki (2004), national identity is changeable rather than fixed. Smith (cited in Sasaki 2004:75) argues that,

[National identity is] the maintenance and continuous reproduction of the pattern values, symbols, memories, myths and traditions that compose the distinctive heritage of nations, and the identifications of individuals with that particular heritage and those values, symbols, memories, myths and tradition.

It appears that national identity can be created depending on goals of nations’ policies.

Sasaki (2004:79) found in a 2003 national survey that the majority of the respondents in all age groups were not sensitive to being perceived as non-Japanese, and this indicates ‘not particularly strong national identity’ among them. Moreover, the respondents emphasised the most important aspects of ‘being Japanese’ as ‘having Japanese citizenship’ followed by ‘regarding oneself as Japanese’. They did not put much emphasis on the cultural aspects which the government eagerly enforces on ethnic minorities, including ‘being able to speak Japanese’, ‘respecting Japanese traditional culture’ and ‘giving impression that one’s face and behaviour looks Japanese’(Sasaki 2004:79). In other words, public opinion seems not to reflect the government promotion of cultural homogeneity and concern with maintaining it through restrictive foreign labour policies.

Japanese people have also been found to be less nationalistic in comparative national surveys. In cross-national comparisons of 22 countries, two types of national attitude were investigated by Coenders et al (2004). These were chauvinism and patriotism. The former refers to the sense of uniqueness and superiority of one’s own national group and country with absolute attachment, and the latter refers to ‘the pride felt towards one’s national group and country based on a critical assessment (Coenders et al. 2004:32). The authors found that 57.3% of the Japanese respondents showed a high score on chauvinism but this was lower than the ones in the U.S., Australia and Canada (69.7, 70.5 and 60.1% respectively). In contrast, 70.5% of those showed a high score on patriotism which was also lower than the ones in the U.S. and Canada (85.2 and 80.1% respectively). These findings suggest that Japanese people obtain a
feeling of superiority of being Japanese towards other nationals to a lesser extent than people do in the U.S., Australia and Canada, which are famous for multiculturalism. It shows that the discourse of Japanese superiority generated by the government is not necessarily reflected in public opinion.

Coenders et al (2004) also found that the level of resistance to immigrants among the Japanese was lower than most other countries (except Ireland, Spain and Canada). There may be several reasons for this. For instance, Japan has relatively better economic conditions than other advanced countries and this tends to affect one’s perception of an ethnic threat, such as foreigners taking over one’s job (Coenders et al. 2004). Alternatively, due to the limited exposure of the Japanese to immigrants since Japan has had much fewer immigrants than in any other developed countries, Japanese might have less negative attitudes towards immigrants.

**Social attitudes towards foreign workers**

Consistent with Coenders et al’s (2004) finding, the national survey of social attitudes towards foreign workers conducted by the Cabinet Office of Japan in 1990, 2000 and 2004 showed unchanging patterns of positive attitudes towards accepting foreign workers for the current and future labour shortage among the Japanese public throughout time (shown in Figure 2-3, 2-4 and 2-5).

![Figure 2-3](image)

**Figure 2-3.** Attitudes towards accepting foreign workers to ease the labour shortage

![Figure 2-4](image)

**Figure 2-4.** Levels of importance to improve environments for foreigners living in Japan

![Figure 2-5](image)

**Figure 2-5.** Levels of agreement on using foreign workers in the workforce which Japanese are not willing to take

Sources: The Cabinet Office, 1990; 2000; 2004

Regarding the labour shortage, the majority of the respondents have shown positive attitudes towards accepting foreign workers since 1990. However, most of those have
also agreed with the idea of improving technology at the same time as relying on foreign workers to ease the labour shortage (Figure 2-3). This shows that Japanese people think that accepting foreign workers is not the only solution for the labour shortage. In addition, since 1990 more than 70 percent of the respondents have consistently felt a necessity to improve the living environments for foreigners residing in Japan to fit into the Japanese society, such as policies, support systems and education (Figure 2-4).

By contrast, the majority of the respondents have disagreed with the idea of using foreign workers for unskilled jobs which Japanese people are no longer willing to take (Figure 2-5). This contradicts with the relatively high levels of positive attitudes towards accepting foreign workers to ease the labour shortage. A number of explanations are likely to be relevant here. For instance, Japanese people might only make linkages between labour shortages and some skilled business sectors which are often discussed by the media such as aged care; they might not know that the unskilled business sectors have been facing chronic labour shortages; they might believe that unskilled foreign workers would increase the crime rate. Alternatively, they might simply think that foreign workers should be skilled workers. This attitude might have been influenced by the Japanese Government’s negative attitudes towards accepting unskilled foreign workers.

There is another concern among the Japanese public about accepting foreign workers in skilled business sectors, especially the health care sector. The 2000 survey conducted by the Government revealed that 48 percent of the respondents disagreed with the acceptance of health carers from overseas compared to 41 percent of who agreed. The biggest reason against it was the perception that health care work requires fluent Japanese language skills and knowledge about Japanese customs or habits, which are believed to be hard for foreigners to acquire (Cabinet Office 2000). Although Japanese people do not, in general, feel a strong sense of national identity (discussed earlier), it appears that having it is important in the health care sector. This indicates that Japanese people may be drawing a clear boundary within business sectors where foreigners can and should not to take part depending on the nature of the work. It seems that work involving close interpersonal contact with and care of
others, such as is required in the healthcare professions, is believed to necessitate greater familiarity with Japanese language and culture.

However, there is a positive report about a foreign health carer working at a nursing home in Japan. Kajimoto (2005) introduced one Filipino health carer as living proof that nationality does not matter once the language barrier is overcome. She passed the national exam and has been working for the elderly at two aged care centres. This shows that foreign carers have great potential to ease the current and future labour shortage in health care sectors. This type of story is important in terms of sending a positive message that could change public perception of foreign health carers.

Moreover, corresponding to the public’s concern about the need to improve living and working conditions for foreigners residing in Japan, some support for them have been established at the ‘grass-roots’ level. As an example, some community centres provide not only general information such as accommodation, work, community events and Japanese language classes, but also counselling in seven languages for foreign residents to support their lives in Japan (e.g., International House Osaka 2007). This kind of community support has played an important role since there is no immigration policy and no special arrangement for foreign residents in terms of supporting their lives in Japan (Tajima 2003).

These findings suggest that Japanese people’s relatively weak sense of national identity, their attitudes favouring accepting foreign workers to ease the labour shortage and community support for foreigners might steer immigration and foreign labour policies in a more flexible way in the future. However, the ideology of cultural homogeneity has so far dominated not only Government decision making, but also Japanese people’s opinions about foreign worker intake. The Government’s policy that rejects unskilled foreign workers has reflected the Japanese public’s disagreement with accepting them. It may be unwise to leave the problem of who is going to take unskilled work positions which no longer attract Japanese workers, without considering foreign labour. The ideology has also affected the way Japanese people look upon some skilled foreign workers. Particularly, they feel that accepting foreign health carers is inappropriate because the nature of care involves a rich
understanding of cultural aspects emphasised by it, such as speaking Japanese and understanding Japanese culture.

**Conclusion**

In conclusion, the outlook for accepting foreign workers to ease the labour shortage is complex. Current immigration and foreign labour policies have been largely affected by the maintenance of the ideology of cultural homogeneity. On the one hand, the Japanese government has officially started accepting more skilled foreign workers in some business sectors. On the other hand, the government has not accepted unskilled foreign workers as permanent residents despite the fact that unskilled business sectors have been facing chronic labour shortages. These mixed policies have been reflected in the public’s opinions of foreign work intake that Japanese people support accepting foreign workers, in general, but do not support accepting unskilled foreign workers. Moreover, the ideology negatively influences their opinions about using foreign workers even in some skilled business sectors, such as the health care sector. It shows Japanese people draw a clear boundary in skilled business sectors between where foreign workers are expected to take part and not to take part depending on whether or not the nature of the work requires a rich understanding of Japanese culture. Therefore, at this point, it can be speculated that Japan cannot fully rely on foreign workers to ease the labour shortage without some radical change to both Government policy and people’s attitudes. In the next chapter, I will investigate the potential of the third solution, developing automation to ease the labour shortage.
Chapter 3: Possible solution III

Developing Automation

Iwa Takahashi said she fancies a mechanized companion. At 84, she still picks and sorts mandarins at a farm in western Japan…… “I want to have a robot that can always work together with me because working on my own is kind of lonely”, Takahashi said (Fujioka 2007: page not specified).

This newspaper quote from an ageing rural worker in Japan evokes the extent to which deploying automated companions is acceptable to the Japanese public. It indicates Japan’s openness to seeking technological solutions for the labour shortage. The socio-cultural propensity for acceptance of robots in Japanese culture, such as a positive image of robots through media, might make it easier to implement robot use as a solution for the labour shortage (Kaplan 2004).

Automation is defined as mechanisation in the workplace which replaces work done by humans (Nocks 2007). There is a growing expectation for automation to ease the current and future labour shortage in Japan (Cabinet Office 2007a). As engineers in advanced technology have been cooperating with the Japanese Government by actively developing new types of industrial robots, automation has great potential to overcome Japan’s current and future labour shortage, especially in business fields where it has not been fully developed and utilised yet (Pelaez & Kyriakou 2008).

In this chapter I show the potential of automation to ease the labour shortage providing, firstly, the history of automation development and current developments to address the labour shortage in various business sectors in Japan. Secondly, I discuss Japan’s culture that generates positive perceptions of robots among the Japanese. Thirdly, I introduce a case study of robot use for care for the elderly as a new area in which advanced technology use has been actively examined and tested. Finally, interest turns to some social impacts and ethical problems caused by increased use of automation to deal with labour shortages and I make suggestions for how to address these.
Trajectory of Automation in Japan

Brief History: Fordism and Post-Fordism

Japan refers to itself as a ‘robot paradise’ and has a comparatively long and rich history of automation development after World War II (Gross 1990). According to Robertson (2007), a robot is ‘an autonomous and semiautonomous device that performs its tasks either according to direct human control, partial control with human supervision or completely autonomously’ (p.373). In developing robotics (that is, the science of designing, making and operating robots (Nocks 2007)) Japan was clearly influenced by technological innovations in the U.S. It started importing technology and machinery from the U.S. in 1967. Automation was initially employed for the replacement of humans in some work tasks, especially dangerous work or monotonous repetitive work (Japan Robot Association (year not specified)).

Historically the utilisation of workplace technology in Japan has developed differently from the U.S. In 1947, Ford executives described automation as ‘electro-mechanical, hydraulic, and pneumatic special-purpose production and parts-handling machinery’ (Nocks 2007: 64). This definition describes Fordist production procedures as developed by Henry Ford in the early 20th century. In this assembly-line manufacturing approach workers are tied to dedicated machinery for only one task in order to produce mass standardised commodities (Grint 1998). According to Ford, the whole labour process should be done by machinery and human workers are just ‘attendant on the machines’ (cited in Webster & Robins 1986:312).

Although Japanese firms did use Fordist production processes (Kim 1999), the model did not fit with various demands such as producing a variety of high-quality products in small volumes. Therefore, ‘flexible specialisation’ or a post-Fordist automation system was adopted and developed rapidly in Japan during the post-World War II manufacturing boom (Fujita & Hill 1995). Flexible specialisation usually refers to the production system which is away from the assembly line and increases skill levels to meet a wide and changing variety of products for specialised markets (Grint 1998). In the Japanese case, besides this, there is a more specific definition that encompasses ‘collaborative relations among large parent companies and smaller supplier firms’ (Fujita & Hill 1995:10). With the system of flexible specialisation,
each firm concentrates on specialised tasks requested by large corporate firms. Due to the rapid advancement of information technology, computer generated machinery requires workers to be flexible and acquire new skills to operate it, which enables workers to become more integrated into the workplace in a less hierarchical manner (Grint 1998).

The development of robotics in Japan was certainly facilitated by the flexible specialisation enabled by post-Fordist production procedures (Fujita & Hill 1995). Small and medium sized firms actively design and make special-purpose machinery to meet the demand of specialised tasks (Tanzer & Simon 1990). In addition to creating new machines on their own, Japanese firms actively adopted foreign technology and then refined it to enhance utilisation for their specific needs (Dethlefs & Martin 2006). As post-Fordist principles were applied, the number of robots manufactured in Japan dramatically increased. Since 1975 a vast amount of money has been invested in robot manufacture (Japan Robot Association (year not specified)) (Figure 3-1).

![Figure 3-1, The numbers of robots manufactured](image)

Source: Japan Robot Association (year not specified)

**Development of Automation and the Labour Shortage**

Society uses technology for the attainment of special goals (Volti 2008) and this is especially true of the history of automation in Japan. The biggest reason why Japan developed and utilised automation a great deal earlier than other industrialised nations is the labour shortage that occurred in the 1980s (Gross 1990; Tanzer & Simon 1990). Rather than encouraging immigration intake to help the labour
shortage (discussed in Chapter 2), the Japanese government, instead, encouraged business sectors to increase utilisation of automation and robotics (Gross 1990). The Ministry of International Trade and Industry provided small and medium size companies with interest-free loans to buy robots (Tanzer & Simon 1990). Since then automation has been actively used in automobile and electrical appliance manufacture (Japan Robot Association 2001).

Using post-Fordist automation processes to ease the labour shortage had a significant outcome on productivity and job redesign. In 1987 The Victor Co. of Japan (JVC) Ltd reduced the number of blue-collar workers needed to produce camcorders in the factory from 150 to 2. It has also enabled workers to increase their skill levels in maintaining responsibility for multiple tasks (Tanzer & Simon 1990). It seems that the deployment of automation has been successful not only in reducing the number of blue-collar jobs, but also creating new white-collar jobs at a time when young people are no longer willing to take on the 3K work, dirty (kitanai), dangerous (kiken) and physically arduous (kitsui) (referred to in Chapter 2).

Today, Japan is a leader in industrial robots. It holds over half of the world’s share of industrial and operational robot design and production (Robertson 2007), and currently supplies 40 percent of world market (Baker et al. 2008). Moreover, the number of robots operated in Japan is prominently higher than other countries (Figure 3-2).

![Figure 3-2](image)

Figure 3-2, The number of robots operated in 2002
Source: Japan Robot Association (year not specified)

The enthusiasm for robotics is not only shared by business sectors, but also by the Japanese Government. In Japan’s robot industry, the Government, companies and
research sectors work together for the development of robotic utilisation with the $US100 million of research funding provided by the government (Baker et al. 2008). Currently new research has been conducted to create robots for various business fields, including more sophisticated industrial robots (e.g., intelligent robots), agricultural robots and disaster rescue robots (Figure 3-3). Projections by experts on the time frame of new robotics applications in Japan are shown in Table 3-1.

![Tomato picking robot](image1.png) ![Rescue robots](image2.png)

**Figure 3-3, Drawings of prospective robots in the future**

*Source: quoted from Japan Robot Association (year not specified)*

<table>
<thead>
<tr>
<th>Event</th>
<th>Time horizon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Practical usage of systems in which radical automation of air traffic control through informatics and computational technology advances, will imply a reduction of this type of jobs by 50% in relation to 2000</td>
<td>2013</td>
</tr>
<tr>
<td>The advances in digitalization and the higher sophistication of industrial robots will imply radical changes in employment opportunities, and in working techniques of the manufacturing industries workforce</td>
<td>2013</td>
</tr>
<tr>
<td>Practical usage of robots for underwater exploration deeper than 10,000 m</td>
<td>2015</td>
</tr>
<tr>
<td>Development of minimally invasive surgery techniques, with micro machines or robots, which will be used for most surgeries</td>
<td>2017</td>
</tr>
<tr>
<td>Practical usage of automatic driving systems able to develop safe and gentle operations in roads, simply choosing the requested destination</td>
<td>2017</td>
</tr>
<tr>
<td>Common use in Japan of houses with robots and other automated machines, that help old and disabled people with household tasks, including feeding, bathing, going to the toilet, leisure activities, and can, moreover, carry out these activities without human help</td>
<td>2017</td>
</tr>
<tr>
<td>Common use (one in each home) of domestic robots, able to clean, wash up, etc.</td>
<td>2018</td>
</tr>
</tbody>
</table>

*Source: quoted from Pelaez and Kyriakou (2008)*

In business fields where automation has not yet been fully utilised, such as agriculture (e.g., fruit picking farms), and where the average age of workers is over
sixty (Japanese Agriculture Ministry cited in Fujioka 2007), agricultural robots, like
the fruit picking robot (Figure 3-3) could greatly reduce the tasks of workers and
have great potential to ease the labour shortage in the future. However, there may be
limits to deploying automation to ease the labour shortage in fields where robots
have already been fully developed and utilised since the previous labour shortage,
such as in manufacturing industries. Experts have been working on more
sophisticated industrial robots, ‘intelligent robots’ that have the capacity for decision-
making (Pelaez & Kyriakou 2008). If the intelligent robots were available, human
operation, such as making decision for production procedures, might not be
necessary and it could greatly reduce the demand for human workers in
manufacturing industries. However, the likelihood of developing intelligent robots is
to date unknown.

It may be worth discussing another type of automation besides robot utilisation in
industrial fields. Service industries (e.g., restaurants) have also begun deploying
computer generated automation. Coleman and Harris (2008) reported a self-order
system having been deployed in various restaurants in Japan. Through a self-order
system with a touch-panel screen controlled by computer generated operation (that is
allocated to each table in a restaurant), diners can order food and drink without
interaction with waiters and waitresses (Coleman & Harris 2008). Moreover, a touch-
panel system has also been introduced in other service sectors, such as a supermarket
where shoppers can pay through a touch-panel screen without any human’s help
(Yomiuri Shinbun, 2006). This type of automation may certainly help enhance the
efficiency of work with a minimum number of workers and reduce work tasks for
workers in the expected labour shortage.

As has been discussed, the Japanese Government and businesses firms have certainly
held a high expectation in automation to overcome the labour shortage in the future.
The business fields which have deployed automation have been expanding.
Underpinning this, there is a unique perception of robots in Japan. Cultural aspects
relevant to the enthusiasm for robotics are discussed in the next section.
**Japanese Culture and Robots**

Japan has been relatively open to seeking technological solutions towards social problems since post-Fordist production procedures (flexible specialisation) had great success in the 1970s (Dethlefs & Martin 2006). Additionally, scholars argue that the Japanese, in general, have a unique perception towards robots in comparison with Western countries (Bartneck 2004; Kaplan 2004; MacDorman et al. 2008).

According to Kaplan (2004), ‘culture affects the way technology is perceived’ (p.1). Japanese culture has had high-levels of exposure to robots through media. Considerable numbers of humanoid robots in Japanese animation, toy robots and games facilitate Japan’s leading role in robotic development (Bartneck et al. 2005:1).

For example, a humanoid robot who first appeared in Japanese animation in 1951 is ‘Astro Boy’ (Figure 3-4). In the story, he was created by the director of Japan’s Science Ministry for the replacement of his dead son (but later rejected by him because Astro Boy did not grow as humans do) and he acted as a hero, fighting against evil to save the world. On the other hand, he had an ordinary life like attending an elementary school near his house (see Art & Culture of Japan 2008 for more details). Like Astro Boy, humanoid robots in Japanese animation, in general, represent heroism and fighting for justice and are also well integrated into a human society, creating new bonds between humans and robots (Kaplan 2004). This aspect might explain the quote introducing this chapter that the old lady in the farm wanted a robot to work with as a companion. The positive image of human-robot interaction in popular culture may, to some extent, influence how Japanese people see robots.

![Figure 3-4, Image of Astro Boy](image_url)

*Source: Quoted from Art & Culture of Japan (2008)*
By contrast, in Western culture there is a different perception of robots from the one in Japan. ‘Frankenstein syndrome’ refers to a perception that ‘any artificially created humanoid will necessarily turn against his creator (that is a human) at some point’ (Kaplan 2004:11). The word ‘robot’ was initially used in the play, *R.U.R.: Rossum’s Universal Robots* written by Czechoslovakian playwrite Karel Capek in 1920 (Richardson 2006). Robots in it were created as humans’ slaves and Kaplan (2004) argues that ‘Frankenstein syndrome was applicable more than ever’ in such a context that ‘robots’ revolt was almost legitimised’ (p.11). Moreover, stories of robots taking over the world are often seen in Hollywood movies like *Terminator*. In Western culture, robots are primarily neither friends of humans nor heroes.

The unique perception of robots by the Japanese may also be explained from a spiritual viewpoint. Bartneck (2004) suggests that Buddhism and Shinto practiced in Japan imbue every object with a god-like soul, including humans, animals, plants, machines and even rocks. People in Japan might consciously or unconsciously see inanimate objects, including robots, in such a way. By contrast, Western cultures seem to have a clearer division between living creatures and inanimate artefacts. In classic Western thought, as a characteristic of the Enlightenment and Romanticism, the separation of nature from man-made artefacts is a strong theme (Kaplan 2004). The mind-body dualism practiced by Enlightenment thinker, Descartes shows a clear separation between mind and body. In this concept, mind is rational soul and conversely, the body is seen as a machine whose functions do not involve a rational soul (Baker & Morris 1996). For Descartes, a machine-like body that does not have functions that a mind has, thinking and judging, is like an artefact.

Surveys conducted with the public make it clear that there are different perceptions of artefacts, including robots and machines, between Japan and the West. MacDorman et al. (2008) found different attitudes towards robots between university students in Japan and the West. Among their participants the U.S. participants regarded the word ‘robots’ as slightly dangerous and their Japanese counterparts showed neutral attitudes towards it. Moreover, the U.S. participants were more likely to associate robots with military applications and the Japanese associated them with social applications (MacDorman et al. 2008). This may be because in Japanese
robots have social uses as well as industrial ones (e.g., a robot dog, Aibo) while in the U.S. researchers are more keen on inventing pragmatic robots like a missile defusing robot in the military (Baker et al. 2008; Thrun 2004). Alternatively, it could be because of the different cultural perceptions of robots.

Given this socio-cultural propensity for acceptance of robots in Japan, it could be possible to connect the current and future labour shortage and robot use as a solution for it. Apart from robots’ figuring in the imaginative world presented through media, they could become heroes to save Japanese society in real life. In the next section I examine current robot use in aged care as a case study. This is a new business field actively researched for robotics advancement. I introduce some robots developed for rehabilitation for disabled and old people around the world.

**Robots Caring for the Elderly**

As discussed in the introduction, one of the most difficult issues to address in Japanese society is rapid aging. Currently 21 percent of the Japanese population is over 65 years of age and it is estimated to increase to 40 percent by 2050 (Robertson 2007). This situation raises the important question of who will look after such a large number of old people.

Traditionally, Japanese culture was influenced by familism and filial piety that regards elderly dependence on adult children as natural and morally desirable (Yamato 2006). Before the end of World War II Japanese family law was influenced by Confucian thought, which prescribed that ‘adult children, especially the eldest son, provide for their parents’ (Yamato 2006:277-8). Accompanied by various social changes, including changing working style, acceleration of the number of nuclear families (75 percent of families currently live in nuclear households) and improvement of pension benefits and care service for the elderly provided by the government, social attitudes towards elderly dependence on children have shifted from desirable to less desirable even among the elderly. For these reasons, caring for the elderly has become professionalised (Robertson 2007; Yamato 2006). It is obvious that this situation may demand more professional carers, including home
helpers and carers in aged care, irrespective of the labour shortage in all business sectors.

Despite this increase in the numbers of elderly people, the number of carers in nursing or aged care is decreasing in Japan year by year due to the heavy workloads and low wages (The Japan Times 2008). An acute labour shortage in health care sectors indicates that the responsibilities imposed on carers are enormous. Technologies like robotics in the health care field may have great potential to reduce the burden of carers. Currently robot use in the health care sector is of particular interest to the Japanese Government and robotics engineers (Baker et al. 2008; Dethlefs & Martin 2006; Richardson 2006).

Due to the rapid population aging the Government is trying to resolve associated labour problems with automation. This can be explained as a social deterministic perspective that technologies can be constructed by societal needs (Grint 1998). In this case, societal needs are mechanical substitutes which help carers or directly look after the elderly instead of carers. In fact, Japan’s rapid aging has created strong impetus to examine how robotics can assist the care of the elderly (Dethlefs & Martin 2006). Japan and the U.S. have become leading countries which enthusiastically develop robotics studies for aged care and nursing, and robotics engineers in both countries have actively invented assistant robots which assist elderly to gain independent and some of them are already in practice (Dethlefs & Martin 2006; Richardson 2006).

The most important matter in terms of developing and using robots to care for the elderly may be to consider the interaction between them. Researchers in engineering and social science have been investigating human-robot interaction in various fields, including aged care, child care, school and the home (e.g., Kanda et al. 2004; Turkle et al. 2006). Fong et al. (2003) argues that people’s attitudes towards robots are changeable through gaining familiarity with the robots. However, they also point out that it depends on the level of embodiment which robots obtain. The definition of embodiment, following Fong et al.’s (2003) words, is the structural functions corresponding to a particular environment (p.149), more specifically, providing
particular functions in particular situations (e.g., providing walking assistance when
the elderly person wants to walk). It can be assumed that the higher level of
embodiment robots have, the greater the possibility that will be accepted by the
elderly as assistants.

Rehabilitation Robots
Robotics institutions and universities in Japan, the U.S. and Europe have actively
worked on robotics development for caring the elderly (Dethlefs & Martin 2006;
Richardson 2006). Tejima (2000) defined rehabilitation robots as the application of
robotic technology, which provides augmented mobility, therapeutic training and the
ability to help care-givers, to the rehabilitation needs of people with physical
disabilities as well as the elderly (p.551). As seen in this definition, the rehabilitation
robots are created for two different purposes, assisting the physically disabled
(including old people) and care-givers.

Since the 1990s, hundreds of rehabilitation robots have been sold around the world
(Tejima 2000). For this reason it may limit the future provision of robot use for aged
care in Japan if the focus is only on rehabilitation robots developed in Japan. Health
care and medical technology in Japan is historically import-driven, and the U.S.
plays a leading role in developing new health care technology (Dethlefs & Martin
2006). It may be of great benefit to Japan to utilise robot use to the extent that the
other countries around the world do.

For example, Dethlefs and Martin (2006) examined the Aid-1 (Figure 3-5), a walking
rehabilitation robot ‘designed to prevent an increase in the number of bed-ridden
elderly patients by maintaining their independence’ (p.51). Statistical research over
four years in Japan shows the efficacy of the Aid-1 to improve the users’ walking
ability, and currently 80 percent of these robots are used for aged care and 20 percent
in rehabilitation hospitals (Dethlefs & Martin 2006).
Pineau et al. (2003) showed ‘Nursebot Pearl’ (Figure 3-6), an autonomous robot that assists cognitive tasks, like reminding people of events (e.g., taking medication) and navigation through environments. These functions not only assist the elderly in everyday activities, but also may simply reduce the tasks of care-givers. Pineau et al. point out that escorting the elderly is necessary but one of the most ‘labour-intensive tasks’ (e.g., time consuming and patience needed) as old people walk extremely slowly. Nursebot Pearl, therefore, might reduce care-givers’ psychological stress, such as frustration caused by disability accompanied with aging. Most importantly, Nursebot Pearl has been successfully tested in a nursing home in the U.S. (Pineau et al. 2003). It is expected that it would be easily accepted among Japanese elderly people because Japanese people have, in general, more positive attitudes towards robots or robot use.
The Handy 1, invented by Mike Topping in 1987 in England, assists a severely disable person to eat, drink, clean teeth, shave and put make-up on independently (Topping 2002) (Figure 3-7). Through continuous processes of improvement, it has become the best selling rehabilitation robot in the world for its easy operation and user-centred design, such as appearance and user convenience (Tejima 2000; Topping 2002). Topping reported in 2002 that the Handy 1 has assisted more than two hundred people throughout the world. It may help the bedridden elderly for these purposes without human help.

(a) whole appearance         (b) with eating/drinking tray      (c) with washing teeth/shaving tray

Figure 3-7, Handy 1
Source: quoted from Topping 2002

To simply help reduce care-givers tasks, a food delivery robot or a floor cleaning robot have already been into practice (Tejima 2000). These robots could be easier in practice due to no direct interaction with humans. It can be expected that reducing the mundane chores of care-givers enables them to do more important tasks, such as visiting the elderly more often. However, users should consider the potential danger caused by these robots, such as accidental crashes.

Given these examples, it seems that the development of robots in aged care is provider-oriented and care-receivers’ (in this case, the elderly) humanity tends to be neglected. Although these robots introduced above may certainly help the labour shortage in aged care, especially reducing the burden of care-givers, Richardson (2006) raised questions of whether or not ‘people believe we might relate to robots as we do to one another’ (p.57). There is also uncertainty about whether robots can provide equivalent quality of care to that of people. In addition to feasibility and utility, it is important to consider social impacts and ethical issues possibly derived
Social Impact and Ethics of Robot Use
In the first instance, the Japanese workforce may resist the imposition of robot workers in aged care. Dethlefs and Martin (2006) argue that ‘any specific technology option will have characteristic impact’ (p.49). Technology use in the workplace has been subject to controversy and dispute since the Industrial Revolution (Mowshowitz 2008). A typical example is symbolised by ‘the Luddites’ manual workers in 1811 in Nottinghamshire, England, who sabotaged machines brought by factory owners to enhance productivity in textiles. Workers protested that new technology would deskill their jobs and threaten their livelihood. Since then, the word “Luddite” has been used as a symbol of anti-technology ideas and feelings (Jones 2006). It also represents hostility towards technology deployment among the public. For instance, advanced technology in the workplace is often regarded with fear as ‘job killers’, taking jobs away from human workers (Mowshowitz 2008).

Dystopian views of robot use in aged care
Australian writers, Sparrow and Sparrow (2006) also heavily criticise robot use in aged care on ethical grounds. They believe that once robot use is accepted in aged care, robots may replace human workers for economic reasons because they are cheaper than waged workers. Due to this, the elderly may lose the most important aspect of care, human interactions like companionship, provided by care-givers, which will result in deterioration of well-being. Moreover, Sparrow and Sparrow point out that the meanings of independence of the elderly with robot assistance (often emphasised by engineers) and isolation of the elderly caused by robot use overlap. This may connote that due to robot use, basic human needs such as communicating with others, is taken away.

Sparrow and Sparrow (2006) also dismiss robots’ capacity for aged care due to the absence of emotional labour. Emotional labour refers to, in this context, providing social and emotional needs for the elderly as a part of care, including conversation,
sympathy, companionship and emotional support with direct interactions with the elderly. Previous research shows that quality of care in aged care often correlates with the level of emotional labour provided by care-givers (Sparrow & Sparrow 2006). In other words, the higher the level of emotional labour, the better the quality of care. Given this account, it is expected that the quality of care provided by robots may be worse than any care by humans due to the absence of emotional labour.

However, robots seem capable of providing emotional labour to some extent. Turkle et al. (2006) found with the case study of human-robot interaction in aged care in the U.S. that one participant interacted with the robot (in this case, the baby-doll) as if it were a living creature, although he knew it was a mere robot. He released his psychological distress by telling the robot his honest feelings that he could never tell humans (Turkle et al. 2006). Their study suggests that even in the absence of the capability for emotional labour, robots can play a certain role. In fact, with the interactions between humans and robots, a novel psychological reaction by the participants towards robots emerged. That is a desire to nurture or be nurtured by them or mutual connection (Turkle et al. 2006:348). Although the robots used in this study are created for different purposes from the ones which may be used in aged care like walking navigator ‘Nursebot Pearl’ (shown in Figure 3-6) (the former is more like a companion), Turkle et al.’s study shows that the absence of emotional labour might not be as disastrous for the elderly as Sparrow and Sparrow (2006) expect.

The absence of emotional labour might also work in a positive way. For instance, robot assistance might make the elderly happier and confident to live because requiring frequent human assistance might cause guilt. It might lead to secluding oneself from human assistance, resulting in isolation. On the other hand, using Nursebot Pearl, for example, enables the elderly to walk around and go out more freely by themselves and it might increase the frequency of interaction with their fellows.

Sparrow and Sparrow’s (2006) dystopian views indicate a fear that technology will become out of control like the Luddites feared in the Industrial Revolution. Moreover,
it is reminiscent of ‘Frankenstein syndrome’, the fear that robots might take over the world (Kaplan 2004). This might be because Sparrow and Sparrow’s argument is derived from the Western perception of robots which is negative (discussed earlier). Alternatively, it could be because there is no ethical code shared by robot users (who are owners and care-givers of aged care and family members of the elderly who decided to use robot assistance). Robot use in aged care seems to need more caution than in industrial fields because there is a direct interaction and shared physical space between humans and robots as robots directly assist old people (Thrun 2004:14).

Shared ethical frameworks for the use of robots in aged care may be necessary to prevent misuse of robots in direct human-robot interaction. In this context, the most important aspect of robot use may be to think of users’ responsibilities of what they do with robots (Mowshowitz 2008). Rosenberg (2008:381) suggests that

> Traditional ethics, defining human behaviour in a variety of situations must be extended to human interaction with advanced technologies. Ethical behaviour by human must regularly be reinforced, given differences in ethnicity and religion, as well as changing values in society.

As seen in this quote, ethical behaviour by humans in the use of robots for humans is an important aspect. However, it appears that no common ethics have been established in terms of advanced technology use.

**The law of robotics and robot use in aged care**

We can look to science fiction for some guidance about what these ethical frameworks could look like. In 1942, Isaac Asimov created an ethics of robotics in his science fiction novel, named “Three Laws of Robotics” (Nocks 2007). They are, firstly, ‘a robot may not injure a human being or through inaction allows a human being to come to harm’, secondly, ‘a robot must obey orders given it by a human except where such orders would conflict with the first law’, and finally, ‘a robot must protect its own existence as long as such protection does not conflict with the first and second law’ (cited in Nocks 2008:73). Furthermore, in 1985 Asimov added ‘the Zeroth Law’, that ‘A robot may not injure humanity’ (Rosenberg 2008). Despite the fact that these laws were developed in a science fiction novel, Asimov believed that they should be used in real life situations beyond the novel, and it has
been, in fact, influential not only in robotics engineering, but also in computer science (MaCauley 2007). The laws of robotics are often examined in engineering journal articles as important ethical principles that should be taken into account to create autonomous ethical robots and also in computer programming which enables robots to behave autonomously (e.g., Anderson 2008; MaCauley 2007; Rosenberg 2008). By contrast, these laws are hardly discussed in the social science field, such as in the context of how technology affects people’s lives.

If Asimov’s laws of robotics play crucial roles for engineers in the creation of robots, they could do so in the same way for robot users. They could be applied to social aspects of robot use, especially in aged care where robots directly assist humans’ lives, like how people use autonomous robots as substitutes for human care. Sparrow and Sparrow (2006) speculate that robots will take over the human position and will cause negative consequences on the elderly. Like them people tend to blame technology itself for various social changes (Mowshowitz 2008). Technology, however, seems simply a scapegoat and its users should be blamed instead. If strictly following the laws of robotics, especially the zeroth law that ‘a robot may not injure humanity’ among robot users, robots can remain as socially constructed objects that ‘does not determine the social system and rather provide for options that are choices on particular contingencies’ (Grint 1998:279).

In the face of Sparrow and Sparrow’s (2006) argument, it is clear that there is no such blueprint that robots are embraced as assistive tools which reduce the burden of care-givers and allow them more face-to-face interaction with the elderly. I believe, however, that it contains such a utopian prospect. For example, where people perceive robots in a positive way like in Japan, robot use in aged care may be perceived more positively than in Sparrow and Sparrow’s (2006) assumption. Moreover, the acute labour shortage in Japan may facilitate the use of assistive robots that may allow a given number of workers to provide better standard of care.

Additionally, it is important to discuss another negative social impact potentially caused by robot use in aged care. It could be that only wealthy people could afford such assistive robots since they are likely to be expensive. As in the digital divide in
Internet access—unequal access to the Internet, which results in a separation between information ‘haves’ and ‘have nots’ due to various reasons like socio-economic status or residential geography (Servon 2007)—a similar situation might happen with robot use. Families of the elderly who cannot afford it may feel guilty (Dethlefs and Martin 2006). To resolve unfair access to robot use in terms of elderly care, government intervention may be necessary. For instance, providing a subsidy to the elderly who require robot assistance besides the pension scheme needs to be considered.

There seems to be some negative social impacts potentially derived from the robot use in aged care. The most important aspect would be a collective ethics of robot use in the presence of direct human-robot interactions. They may play a crucial role in preventing misuse of robots or misunderstanding of robot use in aged care. If robot users are fully aware of their responsibilities to use robots as a substitute for human workers, robots can be a great helper to reduce the burden of care-givers in the light of labour shortage.

**Conclusion**
In conclusion, automation is feasible to help the labour shortage especially in business fields where automation has not been fully developed and utilised such as agricultural and service sectors. Moreover, the case study shows that robot use in aged care may be able to correspond to the increasing demand of care for the elderly in the time of population aging and reduce the burden of care-givers in light of the labour shortage. However, it may be important to consider the negative social impacts potentially derived from robot use for care for the elderly. A clear boundary may be necessary between tasks done by humans and by robots in such a setting in which robots directly assist people. If ethical frameworks of robot use in various business fields were established and shared by users and operators, Japan’s unique positive attitude towards robot could allow the deployment of robots in many business settings in the future. In the next section, I will evaluate the all solutions discussed throughout this thesis and provide possible future directions.
Conclusion

This thesis has addressed the research question, ‘what are possible and likely solutions to the labour shortage in Japan?’ In doing so, it has evaluated three potential sources of labour the current Japanese Government believes promising. These were as follows: encouraging more Japanese women (particularly mothers) to actively participate in the workforce; accepting more foreign workers; and developing automation. It is apparent all possible solutions have great potential to ease the labour shortage but the level of feasibility of each may vary between business sectors. Moreover, cultural and social mores will impact enormously on the potential to enact each of these solutions.

Firstly, although Japanese women have great potential to ease the labour shortage this will only occur if Japanese mothers can be attracted back to work in the early years of their children’s lives. At present, it is difficult to imagine this will happen quickly, because of the persistence of traditional gender ideology, especially motherhood ideology, which largely hinders the growth of women’s workforce participation. Social attitudes among the Japanese public favouring women’s place in the domestic rather than public sphere, particularly when they are mothers, are still deeply entrenched in Japanese society today. The Japanese Government’s successive policy changes have not yet been successful in changing Japanese people’s perception of mothers’ roles.

Secondly, regarding accepting foreign workers to ease the labour shortage, the outlook of this solution is complex due to the Government’s reticent immigration and foreign labour policies, and some reservations among the general public. Underlying this situation appears to be the enormous influence of the ideology of cultural homogeneity on Japanese cultural and social life. The Government’s desire to maintain Japan’s cultural homogeneity through policies discouraging immigrant workers seems to at times contradict its enthusiasm to ease acute labour shortages using skilled temporary foreign workers in some sectors, such as the health care sector. It appears any labour shortage solution reliant on foreign labour will at least
in part be highly dependent on the kind of work involved. For instance, it is apparent from survey data that Japanese people are less comfortable with the idea of foreign workers in sectors where the nature of the work involves intimate or quite personal human contact, such as in the health care sector.

Finally, advances in automation may certainly help ease the labour shortage to some extent. It seems that of the three possible solutions discussed, it is the only one not confronting the Government with considerable cultural or ideological barriers among the general public. The Government and business sectors have high expectations for automation and robotics, and these appear not incompatible with the historical context of automation development and socio-cultural propensity for acceptance of robots among the Japanese public. In fact, new types of robots which compensate for labour shortages in various business sectors have been actively researched and some have been put in practice. One of the most promising fields for the continuing development of robotics is aged care, which in recent years has been experiencing acute labour shortages that are only likely to worsen. Although there are both dystopian and utopian views of automation deployment in aged care—notably the potential for dehumanisation of the elderly and worker resistance—it may certainly reduce the burden of care-givers and provide an opportunity to increase quality of care given the limited numbers of human carers available in this sector.

Considering the advantages and disadvantages discussed throughout this thesis, the most powerful solutions would combine all three strategies. A great challenge from now on is to discover ways to modify the persistent cultural barriers which negatively affect the potential of these solutions. A few modest suggestions can be offered here. The first important step may be to strongly inform the Japanese public of the severity of the labour shortage and raise the awareness of it. If the Government seriously hopes to ease the labour shortage with Japanese mothers, for instance, it may need to directly discuss a strategy to improve part-time and full-time working conditions with employers. The strategy would usefully be informed by research about successful cases of mothers’ workforce participation around the world, like Sweden which has a very high women’s participation rate. The education system could pay greater attention to promoting perceptions of women’s place in public and
domestic life, teaching the workers of the future the importance of domestic and public work/life balance. If a higher foreign worker intake is to be successful in the future minimising negative reactions towards foreigners among Japanese people may be the key. In order to accomplish this, the national Government, local governments, communities and school should provide more opportunities for Japanese people to interact with other cultures and people to learn similarities and differences between them. It would not be very difficult for schools to take more exchange students in the globalisation era. Regarding robot use in aged care, more future research may be needed. For instance, public perceptions of it could be expected to be different depending on the various contexts and work roles into which robots are introduced.

The strategies to ease the labour shortage certainly involve considerable endeavour not only by the Government, but also by Japanese society as a whole.
References


Aoki, D 2000, 'By women, for women: Japanese women's attitudes towards employment in the Occupation era', *Japan Forum*, vol. 12, no. 1, pp. 87-112.


Bartneck, C 2004, 'From Fiction to Science - A cultural reflection on social robots' the CHI 2004 Workshop on Shaping Human-Robot Interaction, Vienna, 24-29 April,


Bartram, D 2000, 'Japan and labor migration: Theoretical and methodological implications of negative cases', *International Migration Review*, vol. 34, no. 1, pp. 5-32.


Coleman, JS 1988, 'Social capital in the creation of human capital', *The American Journal of Sociology*, vol. 94, no. S1, pp. 95-120.

Coleman, K & Harris, R 2008, 'Feel me, touch me, eat me', *The Age*, 26/08/08.


International House Osaka 2007, *International House, Osaka*, viewed 26/08/08


Kajimoto, T 2005, 'Demographic Dilemmas, Health sector won't get by without a shot in the arm, Nation's health-care industry won't cope without foreign help', The Japan Times, 03/01/2005, viewed 18/03/08.


Kenjo, E 2005, 'New mothers' employment and public policy in the U.K., Germany, the Netherlands, Sweden and Japan', Labour, vol. 19, no. S1, pp. 5-49.


Matsunaga, H & Kuboniwa, S 2006, 'Debate intensifies over more foreign workers ', Yomiuri Shinbun (newspaper), 03/08/2006,


Noriie, J 2008, 'Drastic rise in Japan's migrant intake urged', *The Age*, 17/06/2008,


Sakamaki, S 2007, 'Slave labour' case makes Japan rethink foreign trainee program', International Herald Tribune, 26/07/07, viewed 16/07/08.


Servon, LJ 2007, Bridging the Digital Divide: Technology, Community and Public Policy, John Wiley & Sons, Chichester


The Japan Times (reporter is not specified) 2008, 'Nursing care in trouble ', *The Japan Times*, 08/07/08.


Topping, M 2002, 'An overview of the development of Handy 1, a rehabilitation robot to assist the severely disabled', *Journal of Intelligent and Robotics Systems*, vol. 34, no. 3, pp. 253-263.


Weathers, C 2005, 'In serch of stragegic partners: Japan's campaign for equal opportunity', *Social Science Japan Journal*, vol. 8, no. 1, pp. 69-89.


Yamanashi University Medical School 2000, *Yamanashi University Medical School plastic surgery classroom* viewed 19/09/08 http://www.med.yamanashi.ac.jp/clinical/orthop/index.htm.


Yomiuri Shinbun (reporter not specified) 2006, 'Hayakute kantan self-reji, Osaka no Jusco (Quick and easy self-casher, Jusco in Osaka)', *Yomiuri Shinbun (newspaper)*,