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# The Paradox of Education, Productivity and Career Development

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## Abstract

This study focuses on productivity and the career development of workers in Indonesia, especially those with tertiary education qualifications. Education, for some sets of workers, is a significant determinant in boosting productivity. Others confirm that their productivity is principally related to education, though less directly, because it is a signalling or screening device that is necessary to enable promotion or career development. The significance of education can be recognised by considering that workers' ability to absorb new instructions or to understand advanced technology is determined by their education. The more advanced their education, the more responsive they will be. Individual ability to innovate and produce is much more possible for educated workers. For career development, the education level makes a significant contribution to promotion or career development for male and for female workers, but not to the same degree. In addition, the educational background controls to some extent the position and work levels of employees. However, based on some case studies in manufacturing industries, there is a scarcity of female employees holding higher-level positions, such as manager. Because of that, we cannot easily make valid comparisons or draw firm conclusions. In fact, although a woman might have an education to graduate level, she might not get a position equivalent to that of a male similarly educated. Female employees used to be a bit pessimistic about aspiring to develop their careers in terms of gaining higher job positions but, men in contrast, were more optimistic in their aspirations.

## Introduction

The number of job seekers in Indonesia is increasing; unskilled and skilled people, uneducated and educated. As this number increases, and because the available job opportunities are limited, it follows that the number of unemployed people is increasing. The employment figures over the past three years have slightly improved but, in contrast, there are proportionally more educated unemployed. This is one of the

economic problems that government and educational institutions have a responsibility to solve.

In this study, we focus on the productivity and career development of Indonesian workers in Indonesia, especially workers who have college and university education. It is assumed that a higher level of education correlates positively with employment in higher-status positions.

How does education contribute to the productivity of workers? How does it help in the development of their careers? To investigate how education affects labour productivity, we looked first at the factors that control the productivity of workers. Then, we investigated how, and by how much, education is important in increasing productivity. As part of the analysis, this paper also presents a special case on gender analysis in the process of career development of educated Indonesian workers. It is aimed at examining the relations between gender, education and occupation. First, we look at whether occupation and education level are associated with each other. Second, we look at wage segregation by gender; whether a higher job position entails or corresponds to higher wages. The statistical data and a case study were conducted in several manufacturing companies in Banten, Indonesia. There were 101 employees with tertiary education interviewed; 69 of whom were male and 32 female. The interviews used a semi-structured questionnaire to record personal and general information about their education in relation to productivity and their career in the companies.

## The Contribution of Education to Labour Productivity

### *Education and Human Capital*

In this section, discussion of education issues is related to human capital. Human capital is usually considered to be the knowledge and ability of workers, gained from education or training, that could increase their productivity and work performance. Human capital under some conditions is equivalent to physical capital because it may be substituted for physical capital and labour. This type of investment may be undertaken by everyone and can be formal schooling or on-the-job

and off-the-job training (Taiji, 2009).

Human capital investment through education (discussed by Schultz, 1961; Becker, 1975, [cited by Kim and Mohtadi, 1992]) is the allocation of human resources efficiently under the condition that the return on investment is indifferent to other types of investments. Therefore, they believe that they will get returns from education in the near future; the increased wages are the returns for the investors. There is a strong correlation between schooling and income in developed and developing countries (Duryea and Pagés, 2002). Nonetheless, investing in human capital is risky for two reasons (Harmon et al, 2001). First, education is separate from wages and salaries, and predicting expected wages and salaries may be difficult for particular individuals. In addition, the individuals do not know whether they will be successful or not in their educational endeavours.

Education has a direct positive effect on economic development, economic growth, individual ability (potential) and his or her productivity (Lau et al., 1991; Kim and Mohtadi, 1992). A study showed an economic effect of education measured in terms of life income. A study of the rate of return to education had been conducted by Schultz (1961) (as cited by Lau et al., 1991) using a human capital approach.

How does education affect economic growth, economic development and productivity? Education can increase an individual's ability (Lau et al., 1991) to do common jobs, to understand instructions and apply them to a new task; receive and process new information; communicate and coordinate with others; evaluate and adjust to a changing work environments; help reduce subjective uncertainty and doubt; and increase the ability to adapt to new technology, which in turn increases individual ability to innovate and to improve productivity. The study also investigated the correlation between study and the ability to adopt particular new skills. In addition, education complements physical capital and technology.

Relevant education may enable some classes of employee to have higher salaries. This is not because of education's influence on productivity but

because education is a sign of productivity. Employers understand that education is beneficial because it contributes to workers' productivity even it is not easy to prove (Chevalier et al., 2003). Employers believe that education correlates with productivity. For that reason, employers recruit and pay higher salaries and wages to better educated employees. This belief of employers is justified if higher worker productivity is a result of the employee's education. Other studies by Becker (1962) and Schultz (cited by Chevalier et al., 2003) confirmed that there is a correlation between education and salary because education could increase productivity.

A basic difficulty in assessing the difference between education as a signal of productivity and as a signal of increasing productivity is that human capital theory and signalling theory both show the correlation between income and of education. Chevalier et al., (2003) found evidence that, on average, education's effect on wages is quite large; around 10 per cent for every additional year of education.

A study by Iranzo and Peri (2006) concluded that as the level of education increased up to secondary level it had little effect (less than 2 per cent) on total factor productivity (TFP) for every additional year of education. For academic education levels and beyond there was a larger effect, around 17 per cent. There were some studies about whether workers' income is a reflection of their ability or not. If most of the workers with more skills are those who have a higher education, then education could be seen as a signal of greater ability or skill. Nevertheless, a higher income demonstrated that education, which could contribute to more knowledge and skills, could increase the productivity of workers (Duryea and Pagés, 2002).

There was also a study that demonstrated that there is no direct influence of education on workers' productivity. In this sense, education is just a screening and signalling device (Dore, 1976 and Spence, 1974 [as cited by Kim and Mohtadi, 1992]). They also confirm that there is no direct connection between education and productivity. The following reasons may explain and make sense: the real productivity of a worker is not perfectly explored, so their performance (as a reflection of the level of

his or her education) is seen as an indicator of their current productivity (for example motivation, discipline, punctual, and diligence, etc.). In that case, it is optimal if educated workers tend to improve their educational qualifications then finally they expect a higher wage again. Such expectations are valid if the employer realises that workers with higher education are more productive than those with less education (Kim and Mohtadi, 1992).

Education has a function as a screening device in selecting employees and as a human capital device that may induce greater productivity. In terms of human capital, education could enrich the natural ability of workers and give them advantages in the labour market. The supporters of this theory also conclude that education is a signalling or screening device for unobservable skills (Bedard, 1998). Specifically, the companies indicate that education is a reflection of ability. Then, students choose a particular level of education to give signals of their ability to possible employers. Therefore, the wages paid to higher educated workers are a reflection of accumulated human capital. One other benefit of employing graduates is that they are not seen as dropouts and will be more reliable, more persistent if you like. Furthermore, because it is easier to differentiate higher educated workers from the less well educated, then wage rates are an effective indicator of link and match (meritocratic selection). In addition, because higher education is easier to achieve then wage rates reflect more on productivity (Bedard, 1998).

### *Gender Wages Discrimination*

Lee and Nagaraj (1995) studied male–female earnings differentials in Malaysia and found that in the manufacturing sector the differential was 46 per cent, which they attributed to the effects of gender discrimination. In the case of Indonesia, the assumed discriminatory roles of males as household heads and females as housekeepers have also resulted in lower wages being paid to females (*Kompas*, 2001). As can be seen from level of wages in the formal economic sector, the average monthly wage for females is around 76 per cent of male wages (see Table 1). This

percentage is not determined by the level of education but, presumably, it is because of gender bias, because it is clear enough that, even with the same level of education, female workers tend still to receive lower wages compared with their male counterparts (81 per cent). Based on data from an employment survey by CBS in the years 2006–8, the average of female wages was slightly improving; from only 74 per cent of male wages in 2006, it increased to 77 per cent in 2008. Sadly, for workers with a university background, it fell from around 74 per cent in 2006 to 67 per cent in 2007, although it climbed to 71 per cent in 2008.

**Table 1**

**Gender Ratio of Average of Wage Per Month by Education in the Past Three Years**

| **Education** | **2006** (%) | **2007** (%) | **2008** (%) |
|---|---|---|---|
| Primary school | 57.14 | 75.92 | 62.66 |
| Junior high school | 74.78 | 68.36 | 72.41 |
| Senior high school | 78.15 | 77.11 | 78.38 |
| D1/D2/D3/Academy | 78.23 | 77.48 | 72.56 |
| University | 72.31 | 66.68 | 70.74 |
| **Total** | 73.60 | 74.83 | 77.16 |

Sources: CBS, Labour Situation in Indonesia, August 2006, 2007, 2008.

The explanation of gender wages discrimination does not mainly refer to educational attainment. As illustrated by wage rates paid in the manufacturing industry for example, employers prefer to hire female worker for particular types of work, because they are allowed to pay lower wages to such workers.

Workers with different levels of education are not perfectly substitutable in the production process. This is related to the differences of technology

that they may need to be trained to use and the variation of products that can be produced by different levels of educated workers (Iranzo and Peri, 2006).

Iranzo and Peri (2006) studied the correlation between education and total factor productivity (TFP) in the United States by assuming that there are only two kinds of technology, that is, traditional and modern technology. It seems that better educated workers have a greater comparative advantage in modern or tertiary sectors. It also confirms that higher levels of education correlate with higher TFP. Private and social returns to workers with less education are lower because the technology they use has lower returns to skills and it is less possible to produce differentiated goods. Meanwhile, higher education has larger private and social returns because modern technology enables workers to produce more effectively and produce more differentiated products.

There are some striking features, on the other hand, when gender-comparison studies are made of wages in major industries (see Table 2). Although on average female wages are lower compared with male, the highest differentials are in the electricity and mining industries for those workers with a high educational background. In contrast, the wages for those female workers in the construction industry who have a senior high school education tend to be slightly higher than the male workers'. This figure might be explained by considering that the work that is done by casual labour (*kuli bangunan*) is the lowest paid and it is not possible that it be done by women.

**Table 2**

**Gender Ratio of Average of Wage Per Month by Education and Main Industry, August 2008**

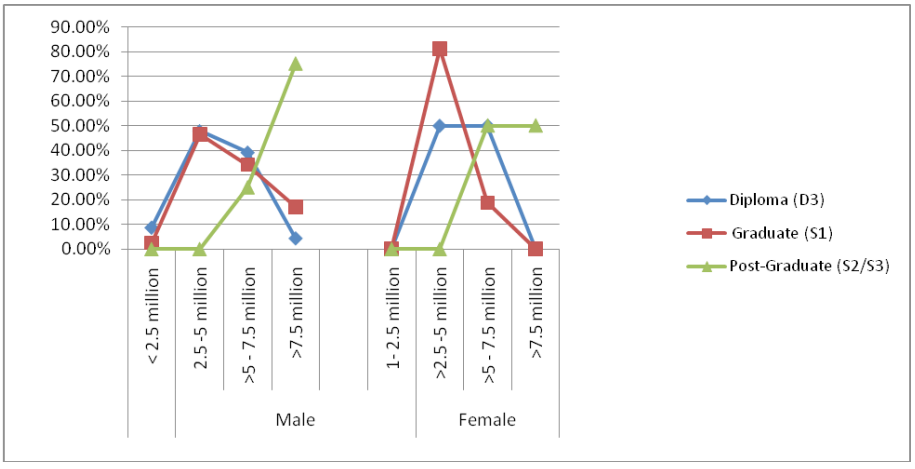
| Industry | Education | | | | |
|---|---|---|---|---|---|
| | Primary school (%) | Junior high school (%) | Senior high school general (%) | Diploma I/II/III/ Academy (%) | University (%) |
| Agriculture, Forestry, Hunting and Fishery | 64.15 | 67.23 | 72.38 | 70.73 | 58.10 |
| Mining and Quarrying | 58.23 | 41.62 | 52.56 | 39.09 | 45.11 |
| Manufacturing | 64.61 | 75.94 | 76.46 | 62.88 | 73.72 |
| Electricity, Gas and Water | 57.91 | 62.88 | 68.76 | 73.98 | 35.38 |
| Construction | 88.86 | 82.33 | 102.19 | 79.20 | 69.42 |
| Trade and Hotels | 72.02 | 84.30 | 85.69 | 88.20 | 75.70 |
| Transport, Storage and Communication | 46.83 | 70.84 | 85.68 | 57.39 | 56.43 |
| Financing, Insurance and Business Services | 53.27 | 94.31 | 88.15 | 75.79 | 75.92 |
| Community, Social, and Personal Services | 76.09 | 64.37 | 79.31 | 82.03 | 77.83 |

Sources: CBS, Labour Situation in Indonesia, August 2008.

Now, let us give you an idea about the gender wage discrimination in our Banten case study as shown in Graph 1. The correlation score, using the Pearson calculation method, showed that for male workers the correlation between wages and education tend to be stronger (0.364) compared with female (0.083). Only half of females with post-graduate level of education received a salary higher than 7.5 million rupiahs. No female with a university graduate (S1) qualification gained that amount of income, but a greater percentage of them received a salary in a range of 2.5-5 million rupiahs compared with their male counterparts.

**Graph 1**

**Level of Education and Gender Wage Discrimination**




Source: Primary data, P2E Link-Match Team, 2009

## *Determinant Factors and the Improvement of Labour Productivity*

Productivity is an efficiency measurement of resources used, human resources or other, in the production process. The determining factors controlling productivity can be in the physical and non-physical environment. The physical environment can be the working environment of the factory or office or it can be working tools and equipment. The

non-physical environment can be soft skills, self-motivation, co-workers and partners including supervisors and boss, as well as work atmosphere. The analysis of determining factors of productivity comes from theoretical considerations and references and the empirical aspects are from field research.

As shown in Table 3, skills, education, training, physical environment (such as technology, tools and equipment) make a large contribution to increasing labour productivity. About 37.62 per cent of respondents, as shown in group 2 column in Table 3. Group 1 (around 26.73 per cent of respondents) shows that their productivity is related to the increasing wages, promotion and career, and technology. The last group, group 4, confirms that skill, working facilities and environment contribute to their productivity (about 21.78 per cent of respondents). Principally, their productivity is related to education and skills and a combination of other factors such as promotion and career development, working environment and co-workers. By comparing the levels of education, it can be substantiated that the higher the education level, the more are the effects of education and skill on labour productivity. For example, for a graduate (S1), it is around 19.80 per cent (of 53.47 per cent of graduate respondents) showing the importance of skill and education (factors in group 2). For post-graduates, it is around 6.93 per cent (of 10.89 per cent of post-graduate respondents) and confirms the factors in group 2. Diploma respondents verify that the factors of increasing wages, promotion or career, and technology (factors in group 1) are the most important in determining their productivity.

**Table 3**

**The Top Three Factors Affecting Labour Productivity**

| | Group 1 (%) | Group 2 (%) | Group 3 (%) | Group 4 (%) | Total (%) |
|---|---|---|---|---|---|
| Diploma (D3) | 12.87 | 10.89 | 1.98 | 9.90 | 35.64 |
| Graduate (S1) | 12.87 | 19.80 | 9.90 | 10.89 | 53.47 |
| Post-graduate (S2/S3) | 0.99 | 6.93 | 1.98 | 0.99 | 10.89 |
| **Total** | 26.73 | 37.62 | 13.86 | 21.78 | 100.00 |

Source: Primary data, P2E Link-Match Team, 2009.

Note: Group 1 comprises workers who believe that the factors most affecting productivity are increasing wages, promotion and career, and technology. Group 2 comprises those who consider that matching skills and education, training and supporting equipment are what most affect productivity. For group 3 it is working spirit, health and rewards and for group 4 it is skills, working facility and working environment.

For a deeper analysis of the three important factors, an empirical explanation of how these three factors control productivity is presented in Table 4. It seems that the three factors, that is, education, training and technological equipment, are significant in determining labour productivity. Workers believe their educational background has contributed to improving their productivity. Around 75 per cent of workers confirm the role of education in their productivity improvement. Parallel to the explanations in Table 3 of the effects of education on productivity; the lower the education level, the higher the number of respondents who do not confirm the premiss (that education leads to increased productivity). For post-graduate workers, none neglect the importance of education. For them, it is about 10.89 per cent (of 25.74 per cent of respondents who understand the meaning of education). Meanwhile, diploma workers show a larger number, 14.85 per cent (of 25.74 per cent). Other factors, such as training and equipment, are also seen as influential factors by workers, regardless of their education. For

training, none of the workers (by levels of education) discount it as an unimportant factor in their productivity.

**Table 4**

**The Influence of Determinant Factors on Labour Productivity**

| | Qualification | Very influential (%) | Influential (%) | No influence (%) | **Total** (%) |
|---|---|---|---|---|---|
| **Education** | Diploma 3 | 6.93 | 13.86 | 14.85 | 35.64 |
| | Graduate | 11.88 | 30.69 | 10.89 | 53.47 |
| | Post-graduate | 3.96 | 6.93 | 0.00 | 10.89 |
| | **Total** | 22.77 | 51.49 | 25.74 | 100.00 |
| **Training** | Diploma 3 | 7.92 | 27.72 | 0.00 | 35.64 |
| | Graduate | 16.83 | 36.63 | 0.00 | 53.47 |
| | Post-graduate | 4.95 | 5.94 | 0.00 | 10.89 |
| | **Total** | 29.70 | 70.30 | 0.00 | 100.00 |
| **Equipment** | Diploma 3 | 17.82 | 17.82 | 0.00 | 35.64 |
| | Graduate | 15.84 | 34.65 | 2.97 | 53.47 |
| | Post-graduate | 0.99 | 9.90 | 0.00 | 10.89 |
| | **Total** | 34.65 | 62.38 | 2.97 | 100.00 |

Source: Primary data, P2E Link-Match Team, 2009.

After discussing determinants of productivity, we then discuss education further. By taking into account the pros and cons of the effectiveness of education in determining labour productivity, we believe, from the field research, that education is one of the determinant factors of productivity.

How does education influence the productivity of workers? Based on the field research (interviews), skill plays a bigger role in increasing labour

productivity. However, education is still important when considering that people's ability to absorb or adjust to new or advanced technology is determined by the level of their education (because they are more responsive in receiving and understanding instructions).

## Education, Career Development and Gender Discrimination

### *Career Development as a Concept*

From the literature of organisational behaviour, Douglas Hall (1976) divides the concept of career into four categories: career as advancement, career as a profession, career as a lifelong sequence of jobs, and career as a lifelong sequence of role-related experiences. Career as advancement or career development is understood as a series of jobs representing some progress or upward mobility including, for example, climbing a hierarchy, receiving increased salary and increased recognition and respect (Gutek and Larwood, 1987). In this article, career development is defined in terms of climbing the ladder in the organisation, from lower to senior levels of responsibility. This part of the article examines the extent to which female workers have changed their occupational type compared with male workers. Hall (1976) defines a career as an individually perceived sequence of attitudes and behaviours associated with work-related experiences and activities over the life-span of the individual. Therefore, the notion of 'career' embraces the dimension of time (Adamson, Doherty and Viney, 1998). Adamson et al., (1998) claim that the meaning of 'career' may differ for individual employees.

> For some, it may be the vehicle through which basic economic needs are satisfied. For others, it may provide a sense of social status or social worth. In other cases, the career may (symbolically or even literally) represent an individual's life dream, offering structure, direction, meaning, and purpose to one's daily activities (Adamson et al., 1998: 252).

Christine Coupland (2004) states that the oft used term 'career' is not adequately defined, yet it is used by academics and lay people as it if were. The flexibility of its meaning is demonstrated in the manner

in which people describe their work and themselves in the work–life context. In her study of 54 university graduates employed by one large company in the UK, Coupland explored how the participants have used the term 'career' in their conversations, spontaneously and in response to an explicit question about career. Coupland discovered interdependencies within the conversation regarding career and identity, and each contributed to a believable version of the other (2004).

Further, Adamson et al. (1998: 257–258) emphasise 'the meaning of career to individuals is constantly being constructed, deconstructed and reconstructed in light of personal and organisational change, and development, and importantly, social interaction'. Therefore, dynamic relations exist between individuals, organisations and society. It would appear that the three major dimensions (social, organisational and individual) are important factors in reference to women's careers. However, a career has traditionally been thought of as a meaningful progression through a series of related jobs (White, 1995).

### *Education and Indonesian women's careers*

Endang Soesilowati (2004) in her thesis showed that a career for Indonesian women is not always taken to be related to a paid job. It could be simply meant as doing something worthy for others. Meanwhile, in terms of a paid job, 'career' covers a range of meanings: producing income (money), increasing job level or position, increasing job grades, and also of course it includes doing something worthwhile for the company. In this study we focus on women's career development in relation to a paid job that includes the expectation or possibility of promotion to a more senior position. Education is vital in developing human ability (human capital) and it is, of course, highly likely to be of great importance in one's career. Gary Becker (1975) considered the level of education to be the most important component of investment in human capital; he defined 'human capital' as all those factors that increase the knowledge and skills of an individual. Julie H Gallaway and Alexandra Bernasek (2004) found that there is general agreement

among development economists that improvements in women's education are beneficial in promoting development. This supported Amy Hurley and Jeffrey Sonnenfeld (1998) who found that male and female managers with tertiary education were more likely to be selected to fill top management positions than those without such education. Therefore, it could be assumed that males and females at managerial level will have attained higher levels of education compared with those at other or lower levels of occupation. However, Kathleen Cannings and Claude Montmarquette (1991) and Tuvia Melamed (1996) found that education level was more significant to women's than to men's advance in management. This means that evidence that shows that higher levels of education correlate with higher occupation levels will be more obvious for women.

Ariane Antal and Dafna Izraeli (1993) stated that increasing education levels offer a broader range of women access to junior managerial positions but education alone does not open the doors to senior management. In the case of Indonesia, on the other hand, Virginia Crockett (1989) argued that, although women are more highly educated than men, they are still underrepresented in managerial positions, particularly in government administration, and women face serious obstacles to upward mobility. Further, Wright and Crockett-Tellei (1993–1994) who analysed Indonesian statistical data of 1976, found a similar trend in that women are required to have higher qualifications than men who perform the same duties. In addition, women in business are more likely to rely on family connections or factors other than educational qualifications when competing with men for positions (Crockett, 1989; Wright and Crockett-Tellei, 1993–1994).

Based on Central Bureau of Statistics (CBS) data for the year 2000, overall, female workers in the manufacturing industry have lower levels of education compared with males. Less than one per cent of women have a university background, compared with 2.6 per cent of males. It should be noted that only 25 per cent of females compared with males have university education. The highest proportion of workers in the manufacturing industry have completed primary school only (38.99 per

cent of females and 31.15 per cent of males), and the proportion of males to females at this level of education in the manufacturing industry is almost the same. Again, more female than male with no education or incomplete primary education work in the manufacturing sector.

However, female workers who occupy the highest positions tend to be better educated than their male counterparts. Thus, female workers could only reach high positions if they attained at least a diploma level of education. In contrast, men could reach senior manager positions although they have only senior high school education. Similar findings also appear in the technician and specialist assistant positions. All female workers in those positions have at least a senior high school education, but 7.5 per cent of male workers with only primary school qualifications work in technical and specialist assistant jobs.

### *Gender Discrimination in Career Development*

Although the global statistics show that women continue to increase their share of managerial positions, the rate of progress is slow, and the higher echelons of organisational hierarchies have still very few women (ILO, 2004). In general, however, 'countries in North America, South America, and Eastern Europe have a higher share of women in managerial jobs than countries in East Asia, South Asia, and the Middle East' (ILO, 2004: 13).

In Indonesia, over the past three decades, before the current economic crisis, there has been a huge increase in the participation of women in the workforce. Yet women tend to be concentrated in jobs characterised by low productivity with relatively low returns—the most undervalued and underpaid contributors to production. The increasing number of women participating in the workforce has not been followed by an improvement in their overall job position, which is indicated by the score index of Gender-related Development Index (GDI) and a Gender Empowerment Measure (GEM).[1] The United Nation Development Program (UNDP)

1 GDI and GEM are measured through the comparison of men and women in human development that highlights the status of women (Doraid, 1997). The GDI is derived from the

reports a GDI score and GEM score for Indonesia in 1992 of 0.591 and 0.362 respectively, in 1997 it slightly increased to 0.642 and 0.375. In 2000, the GDI score increased to 0.678, rose to 0.704 in 2004, and rose again to 0.726 in 2007. But the GEM score is still less than 0.50 (0.408). It means that the relative position of Indonesian women especially in more senior position still lags far behind that of men.

By examining the company's organisational structure, Soesilowati (2004) illustrated management's gender bias. The organisational structure demonstrates that, at one plant site, the hierarchical structure in each department is not complex. The lowest level is that of supervisor, the next is that of manager, and the highest is head of division. The head of division is one of the 27 members of the board of management and is controlled by eight directors in the head office. Meanwhile, at the head office, levels range from commissioner to director for each division. These organisational structures cover white-collar workers only and exclude staff workers. The term 'white-collar' is generally used to describe workers in the clerical, office, executive, managerial and professional areas (Sheehan and Warland 1981). The distinction between white and blue-collar workers in the company studied, however, did not have an obvious effect on management policy, except the determination of basic salaries. Below supervisor level there are two other levels: general staff (administration and production) and operative (laboratory technicians, field workers, mechanics, operators and helpers). Therefore, the organisation chart used does not present the complete structure of the organisation. Of 51 female employees interviewed, only one has a junior high school education. The only position she could obtain was at operator level.[2] Should she wish to

conditions of basic health, education, and income, whereas the GEM index is mainly derived from the top job position either as political representatives, administrators or managers. The GEM index is not believed to be the most accurate tool to measure empowerment because it is not sensitive to the different cultural and social norms across the countries, and ignores some fundamental variables relevant to empowerment (Pillarisetti and McGillivray, 1998). However, the figures indicate that the position of women in Indonesia still lags behind that of men (perfect equality on the GEM index equals 1).

2 She has been working in a company for six years. She is married and her husband is an operator in the same company. Although she might not be able to gain promotion advance her career she was very fortunate to obtain a job with only a Junior High School background.

have a managerial position, she would be required to graduate from university; to hold a position at the supervisory level she would be required to hold at the very minimum a diploma 3 (equivalent to three years of university). Therefore, it can be assumed that opportunities for career advance for women in the company studied are only available to those women at the supervisory or staff level who have a university (S1) education. However, as indicated by the personnel data collected, it was found that some workers who hold operative positions have graduated with a diploma 1 or even from university (S1).

This phenomenon indicates that, although an employee's education will determine his or her job position, because more newcomers now have a university degree, the opportunity to obtain a higher position is more competitive, as instanced by some of the female employees interviewed. In the past, workers with a university background were automatically given the position of supervisor. Now, although a woman may have a high educational qualification, she is only placed at the production or administrative staff level initially. Meanwhile, male workers are able to obtain supervisory positions even though their educational background is only at diploma 3 level.[3] Surti, a supervisor, said, 'With a university graduate degree you used to be automatically placed as a supervisor, but now you can only be placed at the staff level. This is because more employees now have a university graduate background. However, a man who holds only a diploma 3 can be employed directly as a supervisor'. This case illustrates that the high competition for the opportunity to obtain a higher level position may be faced by female employees only. In contrast to the restrictions placed on female employees, the promotion system applied by the company demonstrates how males who only hold a diploma 3 qualification can reach not only a supervisory position but also a managerial position.

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She admitted that at the time she applied to the company, the standard minimum educational requirement was Junior High School. She realises that if she were to apply for her job now, she may not be given the same opportunity.

3 As mentioned previously, to be posted at the supervisory level, the company requires only a D3 level of education. However, in Surti's department, she observed that all her female colleagues at the supervisory level hold an S1 education qualification, although her male counterparts hold only a D3 qualification.

These phenomena are also found in Banten case study. Despite there being no female worker having gained managerial position, even with post-graduate education, the highest job position that could be reached by female workers with a diploma certificate was only at the supervisory level (Table 5). Unlike their female counterparts, male workers who had a post-graduate certificate could attain a managerial position, but with only a diploma certificate, a male could still get a position as head of department (*kepala bagian*).

**Table 5**

**Level of Education and Current Job Position by Gender**

| | Current Job Position | Level of Education | | | Total |
|---|---|---|---|---|---|
| | | Diploma (%) | University graduate (%) | Post-graduate (%) | |
| Male | Manager | 0.00 | 0.00 | 14.29 | 1 |
| | Head of department | 5.88 | 12.12 | 0.00 | 5 |
| | Head of section | 0.00 | 9.09 | 42.86 | 6 |
| | Supervisor | 41.18 | 15.15 | 14.29 | 13 |
| | Staff | 52.94 | 63.64 | 28.57 | 32 |
| | Total | | | | 57 |
| | Correlation Pearson | | | | 0.347 |
| Female | Head of department | 0.00 | 6.67 | 50.00 | 2 |
| | Head of section | 0.00 | 13.33 | 0.00 | 2 |
| | Supervisor | 23.08 | 6.67 | 50.00 | 5 |
| | Staff | 76.92 | 73.33 | 0.00 | 21 |
| | Total | | | | 32 |
| | Correlation Pearson | | | | 0.412 |

Source: Primary data, P2E Link-Match Team, 2009

In discussing the notion of a career that provides opportunities to achieve a higher job position, it is worth examining the highest positions that are possible for women to reach in such a manufacturing industry. As Linda R Martin and Sandra Morgan stated (1995), researchers in several disciplines have explored the relations between productivity and behavioural factors. In the behavioural sciences research, it has been found that aspiration is one component of job behaviour that influences promotions (that is, job level). Interestingly, unlike in Soesilowati's (2004) finding that showed that many women considered that the highest possible level for them to reach was only one level higher than their current position, the Banten case study showed that most female respondents aspired to reach a managerial position, no matter what their current job positions were and what level of tertiary education they gained (see Table 6). None of female employees interviewed aspired to only have lower than their current job position; none of them with post-graduate education aspired to a managerial position. In contrast, some male employees who were interviewed admitted that the highest position they could reach in normal circumstances was actually lower than their current job positions. Although those males already have a managerial position, only one of three males with post-graduate education aspired to hold manager position. No male with only diploma level education aspired to a managerial position.

**Table 6**

**Employees' Aspirations for the Highest Possible Job Position by Education and Gender**

| | Current job position | Highest Possible Job Position | | | | Total |
|---|---|---|---|---|---|---|
| | | Manager (%) | Head of Department (%) | Head of Section (%) | Supervisor (%) | |
| Male | Diploma 3 | 0.00 | 12.50 | 31.25 | 56.25 | 16 |
| | Graduate | 50.00 | 7.50 | 15.00 | 27.50 | 40 |
| | Post-graduate | 33.33 | 0.00 | 33.33 | 33.33 | 3 |
| Total | | 34.48 | 8.62 | 20.69 | 36.21 | 58 |
| Female | Diploma 3 | 25.00 | 25.00 | 25.00 | 25.00 | 4 |
| | Graduate | 58.33 | 8.33 | 8.33 | 25.00 | 12 |
| | Post-graduate | 100.00 | 0.00 | 0.00 | 0.00 | 2 |
| Total | | 55.56 | 11.11 | 11.11 | 22.22 | 18 |

Source: Primary data, P2E Link–Match Team, 2009

This phenomenon indicates that the aspiration to reach managerial level does not depend on the current position level of employees nor on their education level.

In Soesilowati's (2001) preliminary research in East Java, she found that only one male manager out of three interviewed believed that he would reach the position of general manager. A female manager believed that the managerial level to be the highest she could reach, although the man and the woman both had university education qualifications. However, in the East Java survey, the desire to reach manager level was not only found among employees with a university background, but also among male employees who only had a senior high school background. A female employee who had a university qualification aspired to reach

managerial level because she had already achieved head of section level, which is just one level beneath that of manager. Yet, a male worker aspired to reach the manager level although he was only employed at the staff administration level (at least two levels below a manager) and had only finished senior high school.

Meanwhile, in the lower positions, such as foreman and operator, again the East Java results showed a tendency for employees to believe that they could reach not just one level higher than their current position but even two or three levels higher, with no significant difference between genders, although the higher position they aimed for was only head of section, that is, the position two levels below manager level and one level above supervisor level. These results were very similar to the research findings in North Sulawesi (Soesilowati, 1996) which showed that male and female workers who were at the lowest level (*buruh* and *mandor)* and with low levels of education, believed themselves to have the ability to attain two or three levels higher than their current position (for example, supervisor or head of section).

The research findings from the study of male workers in West Java, however, showed that male workers are more optimistic than females with regard to opportunities for developing their careers regardless of their educational background. It was found that one of nine male workers at foreman level stated that it was possible to reach manager level, and six out of nine considered it possible to reach supervisor level. At the operator level, only one of fourteen responded that the highest possible position for them was only that of operator, although most were optimistic that they would achieve a supervisory position. In the West Java case, only two female employees interviewed stated that they believed they could reach managerial level. At that time they were only at the supervisory and administrative staff level but they had university education. In contrast, eight male employees interviewed believed they could reach manager level, but only three had university degrees.

Soesilowati's studies of the macro Indonesian context were not based on a structured instrument; neither did she use statistical analyses to examine the correlation between gender and aspirations to obtain a higher

position. Despite the fact that Indonesian culture is very different from Anglo-American or Australian culture, the phenomenon of greater levels of optimism among males regarding their careers supports the findings of studies by Leonie Still (1988) in Australia and Victoria O'Connor (2001) in the USA. Still (1988) argued that people with clear career directions avoid jobs that simply fill in time before marriage and children. They aim at jobs that have a future, that lead to the top of the management hierarchy. She claims that most women do not have a clear career goal. She asserts that women are socially conditioned to believe that their 'real' career is that of wife and mother. Therefore many working women are only filling in time until they can begin their 'true career'. Consequently, these women often work in the same position (a stationary career) or in different positions at the same level (a lateral career). Very few of these women intend to move up through the promotion hierarchy. Similarly, O'Connor (2001) postulates that some women are less interested than men in reaching the senior ranks of management. She proposes that differences in the proportion of women and men who wish to be senior managers can be explained by differences in the way that they choose to have their needs met.[4] Further, Glenice Wood and Margaret Lindorff (2001) propose that although male and female managers have similar aspirations to obtain senior management positions, women are less likely to expect a promotion. Our findings, however, indicate that, although males aspire to reach a higher position regardless of their current level position or educational background, a female's aspirations to reach a higher job position tend to be more influenced by their current position level (in year 2004 company case study and East Java cases) and education level in West Java case. The latest finding of the Banten case study was similar. None of female aspired to hold a lower position than their current position, but males believed they could have a lower position than their current job position. It seems that the position level they aspire to is not related to the position level they may obtain.

4 O'Connor postulates that the needs for affiliation, achievement, power and self-actualisation in men and women are, in general, met in different ways. Further, she emphasises the importance of equality of opportunity rather than numerical equality. It is still necessary to remove barriers for women who have managerial aspirations. They need to be encouraged to strive for self-actualisation (O'Connor 2001).

## Conclusion

Education, training and the physical environment (such as technology, tools and equipment) make significant contributions to increasing labour productivity. Other groups of workers also confirm that their productivity is principally related to education indirectly where it functions as a signalling and screening device that is needed to get a promotion or to develop one's development.

In addition, education is still important because people's ability to understand and use advanced technology is determined by the level of their education. The more educated workers tend to be more responsive in receiving instruction and doing new tasks and easily adopt new technology, which increases their ability to innovate and improve production. The education makes a significant contribution to promotion or career development for male and for female workers. It has been found that educational background determines to some extent an employee's position level. However, the scarcity of female employees holding higher-level positions cannot be assumed to be simply the result of the lower levels of education of women compared with men's. In fact, although a women might have a post-graduate certificate, and aspire to managerial level, she could only attain head of department (*kepala bagian*) status, but a male with the same education level and who aspired to become head of department only, could possibly have a managerial position. Moreover, in the research findings in 2004, it was found that males having only a diploma 3 education were able to reach the position of manager, but a female with the same qualifications could obtain a post at supervisor level and be confident that she had a chance of being promoted to managerial level in the future. Female employees used to be a bit pessimistic their career aspirations in terms of reaching higher job positions, but males in contrast were more optimistic. Thus, that a higher level of job position requires higher level of education seems to be mainly true for females. But, paradoxically, higher educational qualifications alone do not aid the smooth progress of women's careers.

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