# GENDER & CAREERS

Realities and Challenges

**PROFESSOR DR. MAIMUNAH ISMAIL**

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## ABSTRACT

One of the ways to study the dynamics of gender is through its interaction with career. It is argued that the construction of career processes and realities follow a gender breakdown. However, the question of gender and career is still somewhat new and less understood in the Malaysian context. This inaugural paper aims to highlight emerging concepts and realities about gender and careers. The paper first theorizes gender and career, presents some data on demography and employment and career positions by gender in selected organizations. The paper then highlights the implications of the gendered nature of careers for individuals and organizations; and finally draws conclusions and identifies challenges for organizational policy development.

## INTRODUCTION

Gender is a pervasive concept. One of the ways to observe the dynamics of gender issues is through its interaction with career. Over the last three decades there has been major international growth in studies on the interaction between gender and career. This applies to both theoretical analyses and empirical research in the various fields of social sciences and humanities such as education, extension education, management, psychology, gender studies and human resource development. It is argued that the construction of career processes and its realities follow a gender breakdown. However, the question of gender and career is still somewhat new and not widely understood in the Malaysian context. This inaugural paper aims to highlight emerging concepts and realities about gender and career. The paper first theorizes gender and career and presents some data on demography, employment and career positions by gender in selected organizations. The data used in the paper were obtained from the Department of Statistics, Malaysia (Malaysia, 2008) and the Human Resources Division of the institutions concerned. This paper then highlights implications of the gendered nature of career for individuals and organizations; and finally draws conclusions and identifies challenges in terms of organizational policy development.

## THEORIZING GENDER AND CAREERS

Debates about the meaning of gender evolved at the same time that the fields of gender and its parent disciplines, such as sociology, anthropology, history, literature, economics, formal and non-formal education, greatly expanded and became more established. Oakley (1972) and Whitehead (1979) were among the earlier scholars who distinguished between 'sex' and gender. Sex is a biological characteristic while gender is a set of socio-cultural constructs such as roles, responsibilities and expectations of men and women. Too often, however, there is conflicting understanding about the meaning of gender due to the qualities

attached to its meaning which are shaped by various social processes where societies have differing perceptions on those processes (Maimunah, 2006).

Career is generally defined as the sequence of jobs undertaken during the life-span of an individual. Maimunah and Roziah's (2006a, p. 29-31; 2006b) analyses show that career research has taken place as early as in 1909, by Frank Parson, and later by Donald Super and John Holland in the 1950s and 1960s, in the USA. The traditional meaning of career is always associated with the question of one's choice of a job, which is affected by one's self concept about the job i.e. towards fulfilling one's needs, and is life-stage related. Development of one's career is a complex process and takes time, and therefore, according to Maimunah, Krauss and Ismi (2007), career development processes affect individuals' and organizational strengths to create powerful synergy between employees, professions and the workplace.

The question of career as a function of gender came into being during the 70s and 80s. It was beginning to be realized that career was one of the areas where the differential dynamics of men and women in employment could be observed. This coincided with the emergence of the field of Women's Studies in the international scene. Career as a function of gender means that there are strong connotations of differences between the career experiences of men and women, parallel with gender differences in other areas of social processes such as education, participation in politics, access to resources and cultural expectations on men and women by society. Earlier writings about the careers of both men and women which highlighted the life span model of adult development and how sex role identification affected occupational aspirations were by Levinson, Gottfredson and later Astin (Isaacson and Brown, 2000). The analysis of career as a gendered concept among others was due to differential socialization processes. This condition leads to differences in women's and men's career aspirations and expectations. Recent analysis by Ginther and Kahn (2004) has tried to point out the variable of gender in discussions on career

development and organizational systems. Their studies were on how sex-role perceptions and orientations developed in children and continued until the children became adults and the impacts of the gender gap became noticeable in organizations.

## Astin's General Theory of Women's Career Development

Astin (1984) has attempted to develop unique theories that focus exclusively on women's development. The author focuses on the differential effects of socialization experiences that shape women's and men's career aspirations. Her model explains that socialization experiences and opportunity constraints shape individuals' work expectations. Individuals may somehow identify the types of work that are accessible and can best satisfy their developmental needs while individual work expectations, in turn, influence future career choices.

As a result of socialization women's experiences direct them to consider only a certain set of occupational career choices. Subsequently, their expectations for achievement in those careers are further molded by the opportunities and constraints they face. Astin (1984) concludes that the gender aspect affects individual constraints and expectations, where women are always subject to certain constraints and lowered expectations which in turn harm their career development. In line with this, Powell and Maineiro (1992) believe that women's career development is affected by several issues; (a) the complexity of choices and constraints; (b) balance, connectedness, and interdependence; and (c) multiple and conflicting personal, organizational and societal factors.

Astin (1984) further emphasizes that basic work motivation is the same for men and women, but due to differences in individual early socialization and later opportunities, individuals make different choices. Career choices are based on expectations concerning the accessibility of work choices that can satisfy basic needs such as survival, pleasure and contribution. Moreover, men's and women's career choices do not happen in a vacuum but are affected

by the structure of opportunity, including the distribution of jobs, sex-role stereotypes of jobs, differentiation within career paths and family structure as well as expectations.

## Gottfredson's Theory of Circumscription and Compromise

Gottfredson's (1996) 'circumscription' of occupational aspirations refers to one's perception of the gender type of job, prestige level of job and the amount of effort necessary to attain an occupation. Meanwhile, 'compromise' signifies job accessibility and the need to adjust the implementation of one's occupational aspirations. She outlines four career development stages which emphasizes the development of self-concept. This is in line with Super (1990) who suggests that career aspirations are the manifestations of one's self-concept.

Her first career development stage starts at the age of between 3-5 years when children begin to become aware of gender differences. At the age of 6-8 years, the second stage focuses on orientation to gender roles. The circumscription process happens when children begin to associate gender with occupations. Trice, Hughes, Odom, Woods and McClellan (1995) found that the gender-inappropriateness mentioned more frequently by younger children contribute to one of the reasons of circumscription. At stage three, children aged 9 to 13 years start to focus on social values and differences in intelligence. Children in this stage become aware of occupational status and social prestige and they tend to pick occupations at their own level of social status. During this developmental stage, children also become aware of the intellectual requirements and demands of some occupations. At the age of 14 and older, during the fourth stage of career development, individuals choose occupations which reflect their internal, unique selves. At this stage, interests and personality factors guide adolescents and adults in their occupational selection.

Gottfredson has explicitly pronounced gender and highlighted occupational stereotypes in her theory. For instance, the academia is highly regarded as a

suitable profession for women due to its nature and unique characteristics. Women are often referred to as those who possess certain characteristics and ability in relation to communication, empathy, subjectivity and non-aggressiveness. All these qualities build strong foundations for them to succeed in the profession in order to have a gender balance. A Malaysian study points to the truth of the uniqueness of academia as a place for women to develop their careers (Maimunah & Roziah, 2007).

Supported by Super's (1957) theory, it suggested that the concept of career and gendered self-schemes are formed at the exploration stage. This implies that young adults try to match their gender identity with their career aspirations. According to Super's (1990) career determinants, individuals develop their needs, values and interests regarding their career aspirations along gendered lines. Boys and girls will have different perceptions and expectations of which jobs are suitable for them. Hence, studies on gender and career generally adopt Astin's and Gottfredson's theories of career development for women in order to understand the complicated process of their career choices compared to men's careers that are dependent on many internal and external factors.

## ASSUMPTIONS ON THEORIZING CAREER AS A GENDERED CONCEPT

Gender should therefore not be isolated from other social phenomena whereby career is one of the areas that shows some interesting patterns of interaction with gender. The assumptions that form the basis in theorizing career as a gendered concept are as follows: (a) ideas of difference, and (b) gender relations.

### Ideas of Difference

Ideas of difference are basically rooted in the familiar beliefs of differences between sexes, i.e. physical differences. The discussion on ideas of difference is adopted from Connell's (2002) three influential conceptualizations: the body

as a machine; the idea of two separate realms of sex and gender; and the idea of gender as a symbolic system.

*The Body as Machine.* The body as machine centers around the notion that men and women are different due to the biological characteristics of the reproductive function. This difference affects a whole range of other differences such as bodily strength, physical skills, sexual functions, recreational interests, character of aggression versus nurturance, and so on. It is widely assumed and understood that these differences are extensive and that they are natural.

Models of the body as a machine producing gender differences are advanced by men, used against feminist ideas of 'gender roles' thought to lead to women's subordination. According to Trigiani (1999) and Connell (2002), the idea of natural differences between gender, often presented as scientific truth, are violated by societies and rejected by women studies' scholars. The terms 'male violence' and 'male sexuality' are among the hegemonic character of male on female, implicitly linking behaviour to the body. In relation to career, it is assumed that men's dominance in society is an expression of greater physical strength and their ability to compete with women for strategic and high ranking jobs. It is also said that an organization needs a patriarchal system of administration in order to protect employees, including women, from failure and to ensure the smooth functioning of the organization.

It should be reemphasized that the concept of body as machine is affected by social processes. Health, performance in sports, career success and household functioning are all dependent on influences such as food intake, daily routine, interaction with family members, level of education, attitude towards modern medicine, and so on. The result of the 'body as machine' concept is the widespread notion of male to female differentials in achievement, including career, which Trigiani (1999) succinctly puts as the result of hegemonic masculinity. In this situation, being female is equated with lower performance and being lesser in importance compared to males. In this sense, women are trivialized merely for biological reasons.

*The Realm of Sex and Gender*. At the height of the development of women's studies during the 70s, there were clear debates on the differences between 'sex' and 'gender'. As alluded to earlier, sex is the biological fact, characterizing the differences between male and female. Gender is the social fact; which gives the difference between masculine and feminine roles due to constructs that are socially, culturally and environmentally influenced. Many complications remain in conceptualizing gender (Maimunah, 2006), particularly within positivist paradigms. Therefore, a pervasive constraint is the persistence of dualisms and dichotomies, such as nature-culture and femininity-masculinity. In terms of economic production, this dichotomy is equated with unpaid vs. paid jobs and women-men's labour equated with user vs. exchange values (Hansen, 2002). The persistence of these two realms, poses challenges to understanding the natural differences between men and women, and to a certain extent it is difficult to justify women's disadvantaged position in employment including career. Following an influential analysis of the 'sex vs. gender' sphere by Grossman and Grossman (1993:62) and Connell (2002:34), it was concluded that:

> *Societies have the option of minimizing, rather than maximizing sex differences through their socialization practices. A society could, for example, devote its energies more towards moderating male aggression than towards preparing women to submit to male aggression, or towards encouraging rather than discouraging male nurturance activities.*

The implication of the above statement is that there should be an alternative gender pattern, a mixture of masculine and feminine characteristics which an individual or society could adopt. The second implication is that sex role expectations, being the product of past choices, should be replaced by gender socialization, realizing the fact that gender is socially constructed. The third implication points to the suggestion on various reform agendas, especially in educational choices, particularly among boys and girls. There should be

a cessation of only boys dominating courses in mathematics, science and technology, and vice versa boys should be encouraged to take on courses that are traditionally dominated by girls such as those in social sciences and humanities. This is only possible when gender role expectations are altered by gender role socialization where school, community and society understand and play their roles in relation to the need to break gender-stereotyping and to move to a more balanced distribution of roles between men and women. Randall (2008) calls for this reciprocity whereby society needs to encourage men and women to be involved in their respective 'non-traditional careers'. Examples of nontraditional careers for men are bank tellers, cashiers, cosmetologists, librarians, hair stylists and care workers; and for women are mechanics, pilots, chefs, engineers, architects and film directors. This suggests that there should be a move towards reconstruction of a more fair male-female proportion to the extent that there will be no occupation that is defined as, to use Singh's (2002) term, a 'single-sex occupation'.

*Gender as a Symbolic System.* The idea of gender as a symbolic system, also known as a discursive system, means that bodies are treated as surfaces on which symbols or images are made or painted. It also means that systems of signs are given to women's bodies so that they are defined as elegant, beautiful and attractive, or undesirable and ugly. The ideology of gender as a symbolic system gives far reaching implications to men and women, one of which is in relation to career. Men's bodies are symbolized as masculine and more appropriate for a certain job and job position in the imagery of advertising, film, news reports and mass media. In contrast, women's bodies are symbolized as feminine, sex objects and suitable only for supportive, decorative and advertising functions, as well as for non-instrumental tasks. Gendered symbols and forms of consciousness also happen in publicity materials and corporate logos (Broadbridge & Hearn, 2008).

## Gender Relations

Life is not free from change processes. One of the impacts of change is on the relations between men and women in performing their functions. How the impacts are felt by men and women actually explains the influence of external factors on men and women relations. These impacts are also called social dynamics that can produce gender relations. Gender relations are important to move from a focus on difference to a focus on interdependency. The patterns of relations between men and women inevitably affect social phenomena, one of which is career.

Modern analyses by Roces and Edwards (2000), Connell (2002) and Broadbridge and Hearn (2008) describe four structures of gender relations, namely, power relations, production relations, emotional relations and symbolic relations. Power, as a dimension of gender, was central to the Women's Liberation concept of patriarchy and the social phenomena that comes from it, such as the idea of men as a dominant sex class in the analyses of rape, sexual violence or sexual harassment, bullying and wife battering as an assertion of men's power over women. Power relations also form a basis for the critique of media images of women as passive, trivial sex objects. Its relevance to career, for instance, is its close association with the notion of the glass ceiling i.e. an abstract barrier that limits women's vertical progression due to patriarchal powers in the organization. The glass ceiling, according to Andrea (1994), Flanders (1994), and Kumra and Vinnicombe (2008) has been identified as an expression of the invisible barriers that women confront as they approach top positions within the organization.

Production relations of gender is related to sexual division of labour, and was the first structure of gender to be recognized in social science and it remains the centre of discussion until today. Sexual or gender division of labour describes the situation where certain tasks are performed by men and others by women. The division of tasks is done through gender role expectations of what is most

appropriate for men versus women depending on biological characteristics and cultural norms. According to Broadbridge and Hearn (2008) gender division of labour, in many instances, leads to hierarchical (jobs positions where managers are normally men and secretarial staff are women) and horizontal (centre-periphery where central activities are more performed by men and frontline or marginal activities are often staffed by women) gendered distribution of jobs. Gender division of labour also leads to formal and informal gendered management and authority. Men and women may be valued differently in terms of both formal and informal authority, by virtue of their status and standing in an organization. This may impact men and women especially if the organizations are dominated by masculine values. If that is the case, women employees would face more barriers to career advancement as were observed in an engineering-based firm (Maimunah & Mariani, 2008).

Emotional relations relate to the attraction between individuals due to differences in sex. Therefore, households are expected to be formed on the basis of emotional attachments between two partners or spouses, and later individuals in the families; and emotional relations are sometimes nonlinear or reciprocal, instead they are hierarchical. Finally, symbolic relations explain the complex system of understandings, implications, overtones, labeling and allusions about men and women that have accumulated through cultural history. This is related to the idea of gender as a symbolic system as mentioned earlier.

The implications of the concept of gender relations on men's and women's career are numerous. First, there is a direct influence on women's progression in career depending on organizational climate such as leadership style, whether masculine or feminine (Koshal, Gupta & Koshal, 1998; Roziah & Maimunah, 2007). Organizations that are gender-sensitized will have better opportunities for both men and women to progress in their career. If that is the case, the question of the glass ceiling (Andrea, 1994) would be less felt, especially by women.

Second, the perpetuation of production relations based on gender division of labour would be unavoidable. It is well understood that the division of tasks should work harmoniously and in fact complementarily. It is, however, important to ensure that the concept of 'separate but equal' (White and Hastuti, 1980; Wacjman, 1998) be followed through so as to achieve the goal of gender balance, and not to lead to gender conflict, earlier popularized by Trigiani (1999).

Third, gender and emotional relations is important in any organization and so individuals are expected to have mutual respect and understanding for each other. This occurs in the forms of organizational attachment, inter and intra-employees communications and interaction, and sense of belongingness and oneness in meeting the goals of the organization.

Finally, gender and symbolic relations suggest diversity in characteristics between men and women, and this diversity, as Mavin (2001) and Arokiasamy and Maimunah (2008) put it, should be taken as a source of challenge for the management and leadership of the organization to strive for survival in the modern era of employment. It is worth noting here that the implications mentioned above are in reality not operating in isolation, but are instead interacting with each other. As such, organizations with some forms of gender-sensitized initiatives are said to operationalise all the above forms of gender relations.

## GENDERED CAREER PATTERN: THEORETICAL EVIDENCE

It is also necessary to highlight a definition of career that consists of men's and women's career patterns. To do this, Driver's (1994) definition of career is adopted in which it delineates four basic patterns of career. The patterns are indicated as follows:

- *Steady-state:* Career choice is made once for a life-time commitment to an occupation

- *Linear:* Career activity continues throughout life as one moves up an occupational ladder
- *Spiral:* Career choice evolves through a series of occupations where each new choice builds on the past and develops new skills in a cyclical manner, and
- *Transitory:* Career choice is almost continuous in which fields, organizations and jobs change over a certain number of intervals with a variety dominant forces. This description is based on objective career patterns.

The steady-state and linear-career types, common in career literature, are regarded as the typical hierarchical careers occupied in the past by males, while the spiral and transitory types are especially applicable to women. This newer meaning of career is further supported by Pool and Langan-Fox (1997) whereby they define a career as progress of life in order to incorporate the notion of periods of unemployment and unpaid work. This is because the later types address the concerns of women of unemployment, retrenchment, or career-breaks due to child-bearing and child-rearing, marital, and family phases. This is certainly a step forward in the understanding of career which takes into account both man and woman perspectives. Woodd's (1999) analysis of gendered career patterns shows that women normally follow a career pattern which has the characteristics of flexibility, transferable skills and part-time and temporary work. To adopt Driver's (1994) concept, women follow spiral and transitory types of careers. The optimistic analysis by Woodd (1999) concludes that typical female employment patterns are suitable in today's economic scenario and so women are said to be more adaptable to modern careers that are characterized by organizational dynamism, technological dependence, down-sizing of organizations and decentralization of management.

A thought provoking analysis of women's career theory and practice by Mavin (2001) reveals that women face greater risks as compared to men when it comes to career. She reveals that in terms of promotion and career development,

women are judged not so much on their abilities and achievements, but on assumptions about their family life, responsibilities, and future intentions. Men are treated as workers but women are always seen as having full parental roles. Mavin's analysis further highlights two key issues which still divide men and women in terms of career. First, women are said to feel the tug of alternative possibilities, for instance, if a woman finds that her career has plateaued early she may decide to give up work and turn to full time domestic roles; but such a possibility is less likely for a man. The second is the discrimination women face, which leads to opportunities and slower progress in career, making other alternatives more attractive to women.

Many conventional career models, said to be standard models, have linked men's work attitudes and behaviour to their occupational experiences that are linear and hierarchical, while the 'gender models', which are invoked by women, links their employment relations to family experiences. Since the standard models treat women's career as a deviation from male standards, therefore, by definition, only women experience conflict between the two roles of career and family.

In relation to women's career theories, O'Leary (1997) points out that the differences between men's and women's careers are highlighted when examining different measures of career success. Various sources point to a tendency for men to use objective measures such as salary, rank, job position or promotion. However, women appear to measure their success, in both professional and personal arenas, through subjective measures such as personal and professional satisfaction, perceived quality of life or sense of growth and development.

Further evidence of the gendered nature of career is noted in Malaysian studies that hypothesize that employed women suffer from work and family conflicts more than their husbands (Aminah, 2006). It is similarly found by Mavin (2001) that a common experience of many employed women is the conflict between work and family roles. Circumstances and responsibilities often

force women to choose between upward mobility in career and family stability in the home, or even to emphasize more on the family and very minimally on career. In this case it is hoped that organizational structures could work towards maintaining the stability of the dual functions of career and family e.g. requirements to work longer hours or shift work. Numerous research (Powell and Maineiro, 1992; White, 1995; Limerick, 1995; O'Leary, 1997; Mavin, 2001) have demonstrated that the modal pattern of men's careers could not describe the realm of women's issues as suggested by Powell and Maineiro (1992), and thus is unfit to model the pattern of women's careers. Personal, organizational and societal issues, such as sexual discrimination, the structure of opportunity and the recent emphasis on equal opportunities may have altered the patterns of women's careers from those of men.

Looking at the evolution of career theory, Simpson (1994) asserted that it evolved at the intersection between several academic disciplines with major contributions from both sociology and psychology. The sociological perspective involves descriptions of the organizational setting in which careers are carved out. Individual career choices are seen as being shaped by the career opportunities presented within the organizational environment. In contrast, psychological research is more concerned with the individual's process of career development. This perspective assumes that the individual develops a career structure that fulfils individual needs. The career ambitious individual is one who measures success in both professional and personal arenas through subjective measures such as perceived degree of challenge, satisfaction or sense of growth or development (O'Leary, 1997; Maimunah, 2003).

Measuring career success for women requires a combination of both objective and subjective variables. Measuring women's career only by objective variables is inadequate, suggesting that the women's model of career success should also emphasize subjective measures that include consideration of non-work as well as work life. The traditional male model of career success is no

longer reliable to capture the realm of women's careers which involves both objective and subjective career interpretations.

Powell and Maineiro (1992:6) have attempted to provide a new conceptual framework of women's careers, by incorporating the various elements that reflect women's careers. The framework "cross-current in the river of time" encompasses a more broad and holistic view, taking into consideration the interplay between work and significant others. They further identified four features in women's career approach, i.e. (a) emphasis on career versus relationships with others, (b) success in career, (c) success in relationships with others, and (d) time. The authors stated:

> *One can imagine concern for career as a current that pushes a woman towards the 'upper bank' of the river of time, and concern for others as a current that pushes her towards the 'lower bank' of the river. The two types of concern then act as 'cross-currents' in the river of time.*

In this approach women are not depicted as individuals who are occupying specific career or life stages at specific points in time, as most literature support that women's careers cannot be pinned down so precisely. Personal, organizational and societal factors act as influences and constraints to women's career and non-work lives. Some of these factors may pull women away from emphasizing on their careers. Accordingly, other factors draw women toward concentrating on their careers and/or their relationships with others. The influences and constraints may be direct or indirect suggesting that such factors influence women's emphasis on career versus others by amplifying or dampening their potential for success in either realm.

Such a conceptualization of career is more applicable in contemporary women's career development. Limerick (1995), for instance, talks of career as life streams which result from the interplay of socio-historical contexts, geographical, economic and organizational factors. In addition, husband's

career paths also have significant effect on women's career progression (White, 1995). Traditionally, women had less orderly careers, subjected to family and domestic responsibilities and submitted to male employers' prejudices. As a result, women have been forced to adapt to limited opportunities by becoming job, rather than career-oriented and to focus on immediate intrinsic rewards of the tasks rather than longer-term benefits. However, in modern day employment, this is not always the case. Due to many factors, women have transformed the traditional conception of career.

Before considering the realities of gender and career, why gender and career is important as a lens to describe the present scenario of development is concluded upon. First, there is a breakdown of the traditional model of career which is very linear, hierarchical, bureaucratic and male-oriented. The new paradigm of career is related to concepts such as protean career (Hall & Associates, 1996; McDonald, Brown & Bradley, 2005), boundaryless career (DeFillippi and Arthur, 1994), post-corporate career (Peiperl and Baruch, 1997), and intelligent career (Arthur et al., 1995; Baruch, 2004). These new paradigms have shifted from reflecting careers as set and managed by the organizations along clear and direct paths to individual-led processes, multi-directional and high flexibility.

Second, there is an emerging context of career where the combined effect of organizational restructuring, a country's policy on employment, manpower demands and strategies indicate that individuals can no longer assume they have linear, orderly and predictable career paths. There is a higher possibility for one to have an interrupted life-long career. Third, advancement of women in various organizational employment sectors due to their achievement in education, and changes in aspirations of women and the society leads to a notion that work is no longer the realm of "men's only job" but that there is a combined proportion of men and women in the mainstream workforce. Fourth, growth in management and leadership theories take into account both masculine and feminine characteristics of management and leadership. Organizations'

emerging realization about the importance of transformational behaviours and leadership styles (that are also perceived as feminine) which are necessary for survival may lead to the explicit development of men and women managers and their careers in the organizations.

## REALITIES OF GENDER AND CAREERS

### Selected Demographic and Employment Data on Malaysian Men and Women

The population of Malaysia stands at 27.174 millions as at December 2007, of which the breakdown by males and females is 13.83 (50.97 %) and 13.34 (49.03 %) million, respectively. Specifically, the birth rate and infant mortality rates are higher for males (17.7 and 6.7 %) than females (17.2 and 5.9 %) and life expectancy for males (71.7 years) is lower than that of females (76.5 years). These data explain some of the reasons for the difference in total population by gender (see Table 1).

**Table 1** Some Characteristics of Malaysian Population by Gender, 2005 and 2007

| Characteristics | Male | Female |
|---|---|---|
| Population (Total 27.17 mil) 2007 | 13.83 (50.97 %) | 13.34 (49.03 %) |
| Birth rate (Child birth/1000 pop.)2007 | 17.7 | 17.2 |
| Life expectancy (years) 2007 | 71.7 | 76.5 |
| Infant mortality rate (No. of deaths of infant/1000 live births) 2007 | 6.7 | 5.9 |
| Labour force participation (% in 2005) (Total 10.413 mil) | 64.3 | 35.7 |
| Workforce with tertiary education (% in 2005) | 16.2 | 24.1 |

*Source:* Malaysia (2008).

There are differences in terms of population by gender throughout the age groups. The population at the age group of 4 years old and below for males is 1,608.7 million and female, 1507.5 million. This gender difference continues throughout the economically active population of ages 15 to 64 years after which females exceed the male population figures (Figure 1 and 2).

Figure 3 shows data on percentage of workforce by educational attainment in 2005. The pattern is obvious whereby women exceed the percentage of men for the extreme workforce categories. The categories are within the group of those with no formal education, where the percentage of women (6.5 %) is higher than men (3.7 %), and workforce with tertiary education. This implies that currently Malaysian women enjoy better educational achievements compared to those in the past three decades. As a whole, however, labour force participation of women is about half that of men, even though currently the workforce with tertiary education is 16.2 % for men and 24.1 % for women, respectively. The better representation of women compared to men is due to the increase in female graduates from tertiary institutions in the country. When the data are compared with those of a European country e.g. Finland, the gender pattern is similar but the figures are higher, at 31 % and 39 %, respectively (Jokivuori, 2007). This shows that the better representation of women, in the workforce in terms of educational attainment is a universal phenomenon that cuts across continents.

The basic statistics above should certainly have implications and challenges on education, employment and career, among which are: First, the population in primary, secondary and tertiary education levels as well in labour force participation, should indicate more males than females. This is expected but when based on workforce with tertiary education the reverse is seen as shown in the figures alluded to earlier. A question arises: Where do the educated men go in terms of employment? Second, the bulk of the workforce is occupied by males with primary and secondary level education. Another question arises: What are the strategies taken by the country to increase the number of male

graduates? Third, since there are more females in the population group above the age of 65 years, there should be a clear gender-sensitive policy in terms of career and lifestyle as this would impact the quality of life of this population group.

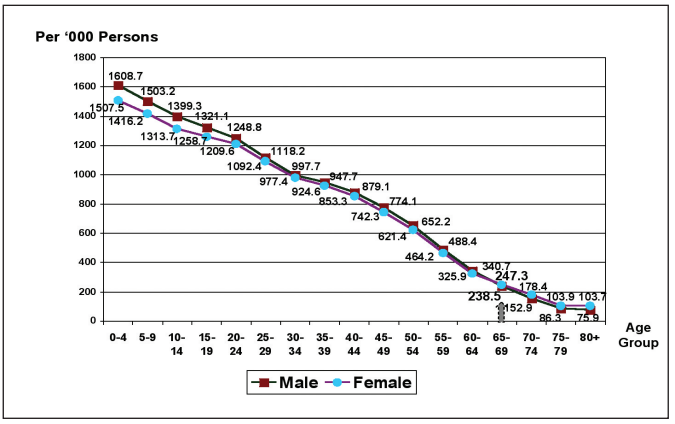


**Figure 1** Malaysian Population by Age Groups, 2007
Source: Malaysia (2008).

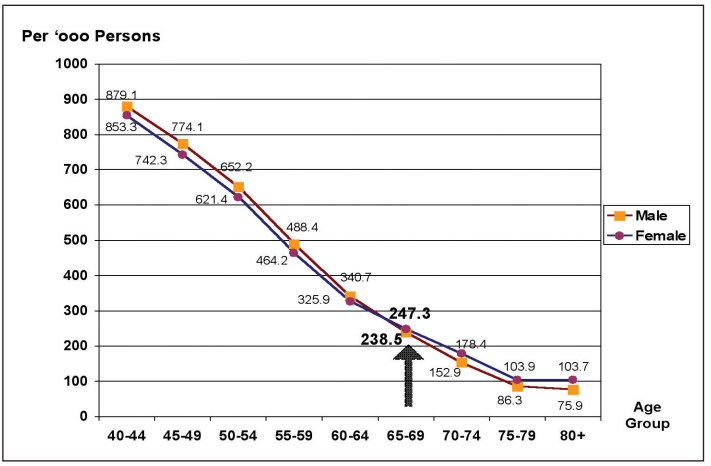


**Figure 2** Malaysian Population by Age Groups (above 40 years old) and Gender, 2007

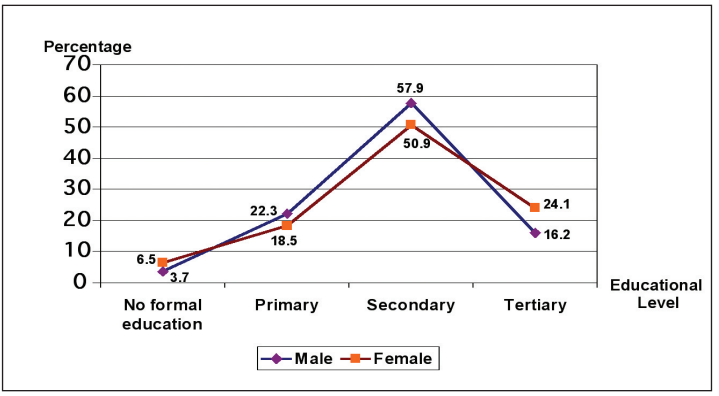


**Figure 3** Workforce by Educational Attainment and Gender, 2005
Source: Malaysia (2006).

## Gender and Careers in Research Institutions

Research institutions are important sites in which to observe the situation related to gender and careers. This is due to several reasons. Firstly, research institutions are centers for R&D activities whereby for the past three decades there have been emphasis on equal access for boys and girls to take up science and technical courses at secondary and tertiary education levels with the goal of increasing the number of researchers, scientists, engineers and other professionals in the country. Secondly, research institutions have a clear career path, which allows their researchers to move up the career ladder, which is very much performance-based. Thirdly, R&D personnel were found to have high career aspirations due to the promising career paths of technical, managerial, entrepreneurial or project to project lines (Kim & Cha, 2000, Maimunah, 2003; Taji, Fujii, Tsukioka & Fujimura, 2005, Maimunah, Efizah & Roziah, 2008). Finally, research institutions are examples of learning organizations where R&D personnel are required to undergo training and retraining as well to experience various types of workplace learning to prepare them to be competitive in their careers (Bigliardi, Petroni & Ivo Dormino, 2005). Developed countries such as Japan and Germany depend

on their R&D personnel in this generation of commercializable technologies and each country has its indicators e.g. patents granted per 1 million people, with 852 for the former and 274 for the latter in 2002 (UNDP, 2005).

Data from three Malaysian research institutions, namely Malaysian Agriculture Research and Development Institute (MARDI), Malaysian Palm Oil Board (MPOB) and Malaysian Institute for Nuclear Technology Research (MINT) are used as indicators of the position of gender and career. The analysis is based on the numerical distribution of male and female researchers in various job positions in 2008 (see Figures 4, 5 and 6).

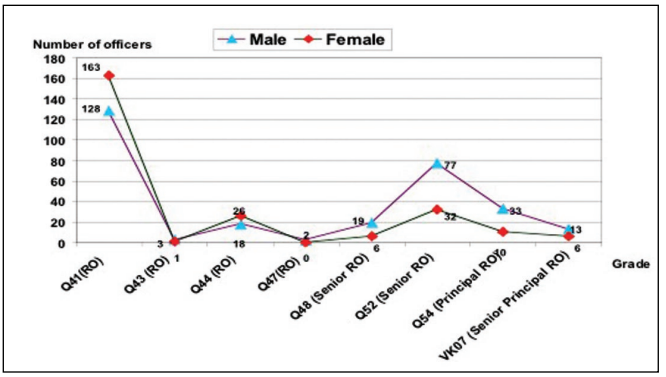


**Figure 4** Research Officers of MARDI by Gender and Grade, 2008
Source: Human Resource Management Division, MARDI (2008)

An almost similar pattern could be seen in gender and job positions in the three institutions. There is a very small gap in terms of numbers of male and female researchers below the position of senior researchers (grade Q53) with the present intake of young researchers appearing to be equal in MINT and with more women than men for both MARDI and MPOB. However, the gender gap becomes more distinct for positions beginning from principal research officer (Q54) and above, where the Q54 men to women ratio for MARDI is 2 : 1, MPOB 5 : 2 and MINT 6 : 1.

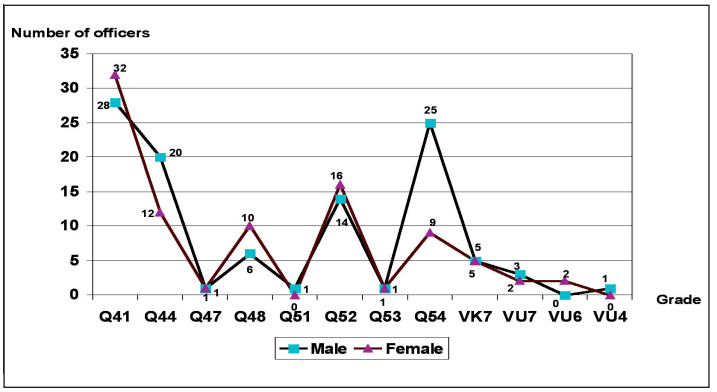


**Figure 5** Research Officers of MPOB by Gender and Grade, 2008
Source: Human Resources Unit, MPOB (2008).

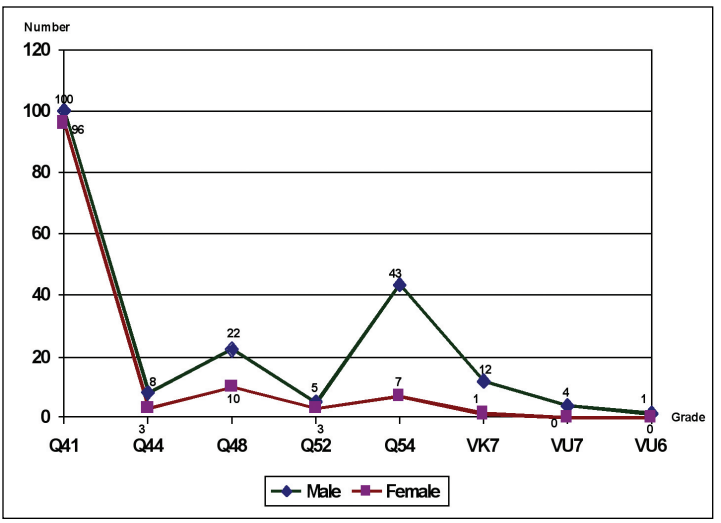


**Figure 6** Research Officers of MINT by Gender and Grade, 2008
Source: Division of Human Resource Development, MINT (2008).

The nature of the research institutions explains the different ratios whereby men prefer to choose engineering and physical science related areas, as are found in MINT, compared to women's choice of bioscience related areas which

are the research emphases of MARDI and MPOB. Hence, a question arises: What is the projected ratio of men and women researchers in the next decade given the current equal intake of young researchers in research institutions? This is a challenge the organizations and the country have to face.

## Gender and Careers in Academia

### *Student Population*

Academia is another area in which the dynamic nature of gender and careers can be observed. For this purpose the population of students at both undergraduate and graduate levels as well as the academics of a selected university, UPM, is used in this analysis.

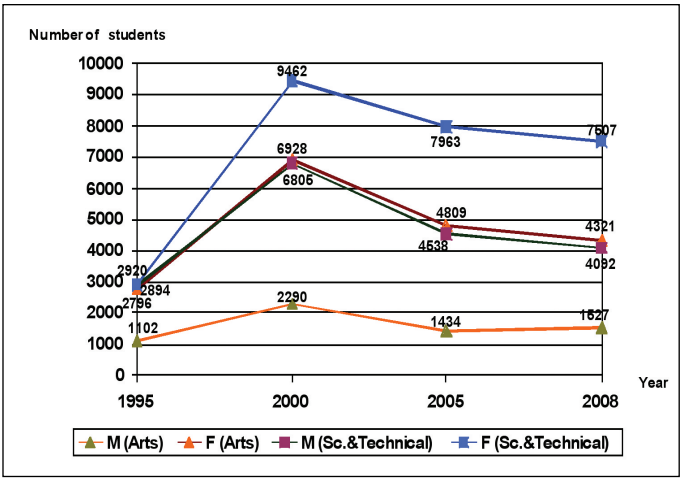


**Figure 7** Students of UPM by gender, fields of study, 1995 to 2008.
Source: Academic Division, UPM (2008)

Figure 7 shows time series data for the undergraduate population at UPM from 1995 to 2008, by gender and field of study. It is very clear that females

have been dominating the campus population and especially the fields of science and technology, from 1995 to 2008, and the gender gap became very distinct as the university's population increased to the present total of 17,477. The male to female ratio currently stands at 32 % and 68 % or 1:2 (Figure 7). However, among the graduate student population, the situation is slightly different (Figure 8). While female students are still dominating the programmes, particularly at the Master's level, their presence in PhD programmes is consistently lower than their male counterparts, for the period 2004 to 2007. This differentiation could be related to the earlier theories (Baily, 2003) in terms of the gendered nature of career in which vertical career movement still favours men over women as the decision to go for higher education e.g. PhD is strongly related to moving up the career ladder.

### *Gender and Careers of Academics*

Table 2 shows the gender proportions of full-time academics in selected Commonwealth countries, in 2000. Based on year 2000 data reported by Singh (2002), there was no clear indication of difference between the proportion of women and men academic staff in developed and developing countries of the Commonwealth, with the exception that, the absolute number is higher for the former than the latter. However, it is encouraging to see that the percentage of women academics in Malaysia (24.8 %) during that year was slightly above the average for Commonwealth countries (22.6 %), and about equal to that in the United Kingdom (24.0 %).

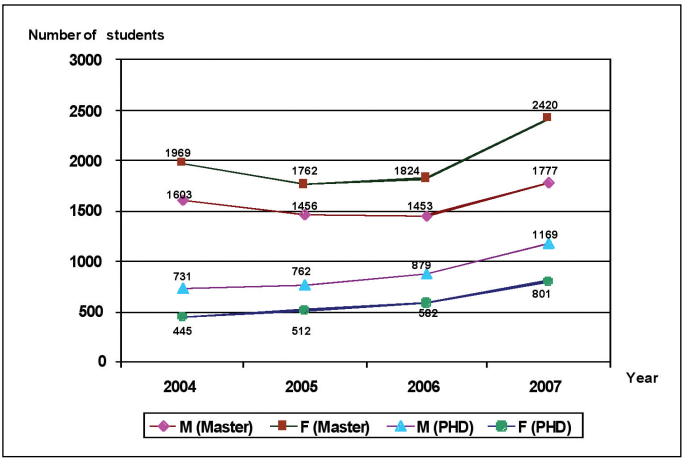


**Figure 8** Postgraduate Students at UPM, 2004 to 2007
Source: School of Graduate Studies, UPM (2008).

**Table 2** Gender Proportion of Academics in Selected Commonwealth Countries, in 2000

| Country | Men | % | Women | % | Total |
|---|---|---|---|---|---|
| Malaysia | 1603 | 75.2 | 528 | 24.8 | 2131 |
| Australia | 12081 | 76.1 | 3787 | 23.9 | 15868 |
| Canada | 19196 | 77.4 | 5618 | 22.6 | 24814 |
| Hong Kong | 1034 | 80.8 | 245 | 19.2 | 1279 |
| India | 10155 | 76.8 | 3067 | 23.2 | 13222 |
| New Zealand | 2397 | 77.3 | 702 | 22.7 | 3099 |
| Singapore | 1766 | 82.8 | 367 | 17.2 | 2133 |
| United Kingdom | 30696 | 76.0 | 9701 | 24.0 | 40397 |
| Commonwealth | 96902 | 77.4 | 28310 | 22.6 | 125212 |

Source: Singh (2002), p.5.

Table 3 further explains the gender proportion of professors in selected Commonwealth countries, in 2000. Overall, 13.1 % of the professors were women, which yields to a men to women ratio of 7:1. As for Malaysia, there was an upward trend in the number of women professors from 9.6 % in 1997 to 16.9 % in 2000, which was above the Commonwealth average of 13.1 %. Similarly in India, the figures increased from 10.5 to 18.0 %, in Hong Kong from 7.3 to 12.4 %, and in Singapore from none to 6.6 %. The significant improvement in the proportion of women professors is noted among Asian countries. This was significantly affected by the marked improvement in participation of women in education, and was parallel with the advancement of women in various sectors of employment such as services, industries and manufacturing (Maimunah and Aminah, 1999; Malaysia, 2000).

**Table 3** Distribution of Professors by Gender in Selected Commonwealth Countries, in 2000

| Country | Women | % | Men | % | Total |
|---|---|---|---|---|---|
| Malaysia* | 77 | 16.9 | 379 | 83.7 | 456 |
| Australia | 286 | 10.9 | 2345 | 89.1 | 2631 |
| Canada | 1570 | 14.5 | 9271 | 85.5 | 10841 |
| Hong Kong | 53 | 12.4 | 376 | 87.6 | 429 |
| India | 769 | 18.0 | 3504 | 82.0 | 4273 |
| New Zealand | 55 | 11.7 | 416 | 88.3 | 471 |
| Singapore | 11 | 6.6 | 156 | 93.4 | 167 |
| United Kingdom | 986 | 11.2 | 7856 | 88.8 | 8842 |
| Commonwealth | 4349 | 13.1 | 28892 | 86.9 | 33241 |

Source: Singh (2002), p. 32-33.

* The data were based on a survey in seven established universities, namely UKM, UPM, UNIMAS, UM, USM, UTM and IIU in 2000.

Table 4 displays the numbers of academics, specifically lecturers and professors by gender in a selected Malaysian public university, UPM, from 1980 t0 2008. The difference in the absolute numbers and percentages for each gender, for these two academic rankings, is clear whereby throughout these years there have been more men academics than women, even though the former is seen to be slightly declining after 2005. However, this is in contrast with men and women professors where the ratio is constantly at 3: 1 throughout the three decades. These distributions are better illustrated by the line charts in Figure 9. Before 2005, there was a big difference in the number of men and women lecturers until they become about equal in 2005. One reason to explain this is the influx of women graduates in the early years of the millennium, some of whom chose to join public universities, including UPM, as their career choice. There is also evidence that women professors in Malaysian public universities have occupied various decision-making positions (Maimunah & Roziah, 2008).

**Table 4** Lecturers and Professors by Gender at UPM, 1980 – 2008

| | Lecturers | | | Professors | | |
|---|---|---|---|---|---|---|
| **Year** | **Men (%)** | **Women (%)** | **Total** | **Men (%)** | **Women (%)** | **Total** |
| 1980 | 118 (68.2) | 55 (31.8) | 173 | 34 (75.6) | 11 ( 24.4) | 45 |
| 1985 | 207 (67.0) | 102 (33.9) | 309 | 48 (73.8) | 17 (26.2) | 65 |
| 1990 | 253 (66.9) | 125 (33.1) | 378 | 48 (73.8) | 17 (26.2) | 65 |
| 1995 | 283 (64.2) | 158 (35.8) | 441 | 49 (74.2) | 17 (25.8) | 66 |
| 2000 | 452 (60.8) | 292 (39.2) | 744 | 61 (75.3) | 20 (24.7) | 81 |
| 2005 | 519 (49.3) | 534 (50.7) | 1053 | 63 (73.3) | 23 (26.7) | 86 |
| 2006 | 638 (54.0) | 544 (46.0) | 1182 | 82 (79.6) | 21 (20.4) | 103 |
| 2007 | 709 (54.6) | 589 (45.4) | 1298 | 111 (75.0) | 37 (25.0) | 148 |
| 2008 | 741 (54.9) | 609 (45.1) | 1350 | 125 (74.9) | 42 (25.1) | 167 |

Source: Registrar's Office, Universiti Putra Malaysia (2008).

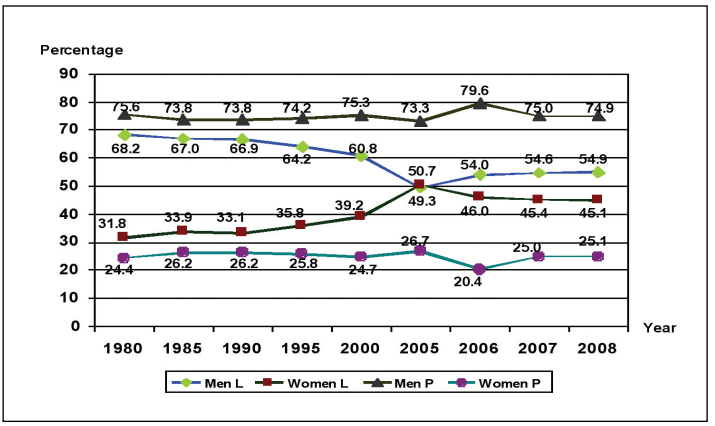


**Figure 9** Line Charts Showing Lecturers and Professors by Gender at UPM, 1980 - 2008

## Gender and Careers among Administrative and Diplomatic Officers

Table 5 presents the distribution of Administrative and Diplomatic Officers (ADOs), by gender and managerial grades, in the Malaysian public services in 2008. The data are based on the hierarchical grades available in the service scheme of ADOs, and are arranged from the lowest to the highest grades, i.e., M41, M44, M48, M52, M54 etc. The entrance level for ADOs in the public service scheme, M41, has the most number of ADOs with about equal numbers of men (1,239 or 49.7 %) and women (1,252 or 50.3 %). However, the gender differences in the rest of the managerial rankings, especially at the highest management levels, are clearly defined. Generally, it shows that as the managerial grade increases, it is accompanied by an increase in the number of male ADOs and the reverse for female ADOs.

Career plateau is another stage in the career path that indicates gender differences (Maimunah, 2008). A recent study by Mat Sani *et al.* (2006) on career plateau and work outcomes of ADOs shows that there is a significant

and negative relationship between subjective career plateau and work outcomes among female ADOs but no significant relationship between these two aspects of career paths among male ADOs. This implies that not much can be said about male ADOs who are at the stage of career plateau, about their optimism or otherwise in relation to their future career paths. Male ADOs treat this stage of career immobility as uncertain; given the appropriate opportunities, however, they might show improvement in terms of moving up the career ladder in the public services sector. Nevertheless, the phenomenon of the glass ceiling might explain the career plateau situation among women ADOs.

**Table 5** Distribution of Administrative and Diplomatic Officers by Managerial Grade and Gender, 2008

| Managerial Grade | Male | | Female | | Total |
|---|---|---|---|---|---|
| | n | (%) | n | (%) | n |
| M41 | 1,239 | (49.7) | 1,252 | (50.3) | 2,491 |
| M44 | 485 | (57.4) | 360 | (42.6) | 845 |
| M48 | 848 | (69.9) | 365 | (30.1) | 1,213 |
| M52 | 392 | (74.4) | 135 | (25.6) | 527 |
| M54 | 356 | (79.5) | 92 | (20.5) | 448 |
| JUSA C | 179 | (81.0) | 42 | (19.0) | 221 |
| JUSA B | 64 | (82.1) | 14 | (17.9) | 78 |
| JUSA A | 30 | (78.9) | 8 | (21.1) | 38 |
| Turus III | 10 | (83.3) | 2 | (16.7) | 12 |
| Turus II | 1 | (100.0) | 0 | (-) | 1 |
| Turus 1 | 2 | (100.0) | 0 | (-) | 2 |
| National Chief Secretary | 1 | (100.0) | 0 | (-) | 1 |
| Total | 3,607 | | 2,270 | | 5,877 |

Source: Services Division, Public Services Department, Malaysia. (2008).

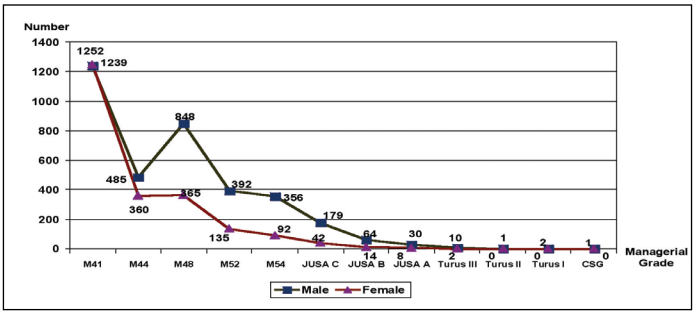


**Figure 10** Line Charts Showing the Administrative and Diplomatic Officers by Managerial Grade and Gender, 2008.

## CONCLUSIONS AND CHALLENGES

This paper draws conclusion and identifies challenges as follows: First, there are more males than females in the economically active (15 to 64 years old) Malaysian population. It is, therefore, a challenge to us and the country to increase the number of male students at the tertiary education levels as well to improve the proportion of workforce with tertiary educated men.

Second, the current ratio of male to female senior members in research institutions and among public sector managers (ADOs) is still behind the national target of 2:1 (or 30 % women at the decision-making level) (Malaysia, 2006). This poses challenges to the organizations concerned to arrive to this gender equity target. Not only is it a challenge to women to be accepted to decision-making posts and to shoulder the managerial careers as required e.g. to act as transformational leaders (that are found to be important in the globalized economy), but also to men to accept women as partners in the decision making ranks of the organizations.

Third, there is a mixed agreement in terms of the dichotomy of career definitions for men and women depending on contexts. While there are some truths about the non-steady, transitory or spiral stages of women's career paths

(Driver, 1992) in practice most measurements of career growth and success are dependent on objective rather than the subjective standards (Evetts, 1996; Maimunah, 2003) to which the former adheres to in the linear career pattern. Therefore, this leaves women with no choice but to conform to the objective and hierarchical career standards that are the norm in many organizations. However, this is only possible if women are aware of their other responsibilities in the domestic sphere as a wife and mother. This further concludes that a successful career woman is said to be one with a stable position in a profession and having a harmonious family.

Finally, understanding the differences in men's and women's career theories and status is important as both equally govern a proportion of the workforce in which education and effort have been invested. Organizations cannot afford to underutilize or lose either gender's talents, more often women. This analysis of gender and career is, therefore, significant for organizations to understand the way men and women prepare, aspire and adjust in their future careers.

It is recommended that theories on gender and careers should be in mainstream literature of areas such as human resource development, educational administration as well as science and technology management. More research should be conducted among male and female employees from various types of organizations in order to find empirical evidence of the differences of each gender in preparing for careers, how they encounter a change in role and how adjustments are made in their new roles. Organizations must have clear gender sensitive policies and employees should understand the policies in terms of their meaning and practice. This is vital to create harmonious employee relations within the organization since the climate of an organizations has been found to be a significant determinant of employees' career development.

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## BIOGRAPHY

**Professor Dr. Maimunah Ismail** was born in Gombak, Kuala Lumpur in 1952. She was a pioneer student of Sekolah Seri Puteri before she joined Sekolah Alam Shah, Cheras in Kuala Lumpur during her Sixth Form. She received her B. Agric Sc. degree from University of Malaya in 1976, M.Sc. (Ext. Ed.) from the University of the Philippines at Los Banos in 1978, and Ph.D. (Ext. Ed.) from Universiti Pertanian Malaysia in 1993. Both her graduate studies were sponsored by the Southeast Asia Research Centre for Graduate Studies in Agriculture (SEARCA).

Dr. Maimunah Ismail has been with UPM as a lecturer for 30 years, beginning as a tutor at the Centre for Extension and Continuing Education. She was appointed to the post of Associate Professor in 1995 and Professor in 2002. Her teaching and research areas are Extension Education, Gender Studies and Career Development. The multiple academic areas she has been engaged in parallel the expansion of these disciplines and the emphases of UPM. She served as the Head of the Department of Professional Development and Continuing Education in the Faculty Educational Studies from 2001 to 2007. She is now the Deputy Dean of Research and Graduate Studies in the Faculty, a post she has held since December 2007. She has been involved in research under various grants such as that from the Intensification of Research in Priority Areas (IRPA); Ministry of Agriculture; Rubber Industry for Smallholder Development Authority (RISDA); United Nations Educational, Scientific and Cultural Organization (UNESCO); UPM research grants and currently Fundamental Research Grant Scheme (FRGS) and Research University Grant Scheme (RUGS).

Dr. Maimunah Ismail's sabbatical leave was at the University of Queensland, Brisbane, Australia in 1985 focusing on research in community development. She then received the British Council Scholarship twice to attend short term courses in Gender and Development at the Coventry College in 1987 and at the University of Sussex, Brighton, United Kingdom in 1989.

Dr. Maimunah Ismail has published numerous journal articles and seven books in her areas of specialization. Her first book, *Extension: Implications to Community Development* (in Malay and published by Dewan Bahasa & Pustaka), received the Language Award from the Malaysian Language Society and Public Bank in 1990; and her recently edited book published in 2007, *Career Development: Advancing Perspective and Practice* (UPM Press) consists of research chapters from 19 contributors. She was one of the finalists for the Best Paper Award at the *5th Asian AHRD Conference* held in Taipei, Taiwan in 2005. Currently she is on the Editorial Review Board (ERB) of several international journals, among which are *Gender in Management: An International Journal,* and *Human Resource Development International.* She is an active member of the Academy of Human Resource Development (AHRD) and regularly participates in AHRD conferences held in Asia and Europe. She was the chair of the 6th *Asian AHRD Conference, 2006* where UPM was the host. She is also a member of the British Academy of Management (BAM).

Dr Maimunah Ismail has supervised more than 40 Master's and PhD students including foreign students from Vietnam, Yemen, Indonesia and the Philippines. She has also presented 32 papers at international conferences based on her research as well as research together with graduate students. In recognition of her contributions to UPM Dr. Maimunah Ismail has received excellent services awards from the university in 1995, 1998 and 2006. She is also the recipient of the Excellent Researcher Award (under the Publication Category for Social Sciences and Humanities) in 2007.

Dr Maimunah is married to Haji Idris Omar and they are blessed with four children. They are Ahmad Fitri (a medical doctor), Ahmad Sabri (an engineer), Siti Fatimah (a pharmacist) and Ahmad Ridhwan (still in school).

## ACKNOWLEDGEMENT

All praises to Allah (SWT), the Almighty, the Omnipotent, and all our worship for Him alone. Praises also upon our beloved prophet (PBUH), the source of guidance for all human beings, and to members of his family and his companions. First, I would like to say a prayer of love to my late parents for their guardianship throughout my childhood and the formative stage of my career. I would like to thank the Selangor State Government for sponsoring my undergraduate studies. To SEARCA, I am indebted for the scholarships to pursue my graduate studies at MSc and PhD levels. I would like to express my sincere thanks to Y.Bhg. Tan Sri Dato' Dr. Haji Nayan Arifin who took me on as one of the members of the then Centre for Extension and Continuing Education of Universiti Pertanian Malaysia (UPM) and Dato' Dr. Alang Perang Abdul Rahman Zainuddin and Professor Dato' Dr. Sulaiman bin Md. Yassin who were instrumental in shaping my early career as an academic at the university. I would also like to thank UPM, the Faculty of Educational Studies, the Department of Professional Development and Continuing Education, and other research grant providers for all the support rendered throughout my career. To all my colleagues and my students, who have shared thoughts and together become wiser through our intellectual engagement in academia, my gratitude. Their contributions will always be remembered. Last but not least, I would like to express my love and sincere thanks to my husband and children for their understanding and support to enable me to navigate my career which not every woman has a chance to do.

## LIST OF INAUGURAL LECTURES

1. Prof. Dr. Sulaiman M. Yassin
   *The Challenge to Communication Research in Extension*
   22 July 1989

2. Prof. Ir. Abang Abdullah Abang Ali
   *Indigenous Materials and Technology for Low Cost Housing*
   30 August 1990

3. Prof. Dr. Abdul Rahman Abdul Razak
   *Plant Parasitic Nematodes, Lesser Known Pests of Agricultural Crops*
   30 January 1993

4. Prof. Dr. Mohamed Suleiman
   *Numerical Solution of Ordinary Differential Equations: A Historical Perspective*
   11 December 1993

5. Prof. Dr. Mohd. Ariff Hussein
   *Changing Roles of Agricultural Economics*
   5 March 1994

6. Prof. Dr. Mohd. Ismail Ahmad
   *Marketing Management: Prospects and Challenges for Agriculture*
   6 April 1994

7. Prof. Dr. Mohamed Mahyuddin Mohd. Dahan
   *The Changing Demand for Livestock Products*
   20 April 1994

8. Prof. Dr. Ruth Kiew
   *Plant Taxonomy, Biodiversity and Conservation*
   11 May 1994

9. Prof. Ir. Dr. Mohd. Zohadie Bardaie
   *Engineering Technological Developments Propelling Agriculture into the 21st Century*
   28 May 1994

10. Prof. Dr. Shamsuddin Jusop
    *Rock, Mineral and Soil*
    18 June 1994

11. Prof. Dr. Abdul Salam Abdullah
*Natural Toxicants Affecting Animal Health and Production*
29 June 1994

12. Prof. Dr. Mohd. Yusof Hussein
*Pest Control: A Challenge in Applied Ecology*
9 July 1994

13. Prof. Dr. Kapt. Mohd. Ibrahim Haji Mohamed
*Managing Challenges in Fisheries Development through Science and Technology*
23 July 1994

14. Prof. Dr. Hj. Amat Juhari Moain
*Sejarah Keagungan Bahasa Melayu*
6 Ogos 1994

15. Prof. Dr. Law Ah Theem
*Oil Pollution in the Malaysian Seas*
24 September 1994

16. Prof. Dr. Md. Nordin Hj. Lajis
*Fine Chemicals from Biological Resources: The Wealth from Nature*
21 January 1995

17. Prof. Dr. Sheikh Omar Abdul Rahman
*Health, Disease and Death in Creatures Great and Small*
25 February 1995

18. Prof. Dr. Mohamed Shariff Mohamed Din
*Fish Health: An Odyssey through the Asia - Pacific Region*
25 March 1995

19. Prof. Dr. Tengku Azmi Tengku Ibrahim
*Chromosome Distribution and Production Performance of Water Buffaloes*
6 May 1995

20. Prof. Dr. Abdul Hamid Mahmood
*Bahasa Melayu sebagai Bahasa Ilmu- Cabaran dan Harapan*
10 Jun 1995

21. Prof. Dr. Rahim Md. Sail
*Extension Education for Industrialising Malaysia: Trends, Priorities and Emerging Issues*
22 July 1995

22. Prof. Dr. Nik Muhammad Nik Abd. Majid
*The Diminishing Tropical Rain Forest: Causes, Symptoms and Cure*
19 August 1995

23. Prof. Dr. Ang Kok Jee
*The Evolution of an Environmentally Friendly Hatchery Technology for Udang Galah, the King of Freshwater Prawns and a Glimpse into the Future of Aquaculture in the 21st Century*
14 October 1995

24. Prof. Dr. Sharifuddin Haji Abdul Hamid
*Management of Highly Weathered Acid Soils for Sustainable Crop Production*
28 October 1995

25. Prof. Dr. Yu Swee Yean
*Fish Processing and Preservation: Recent Advances and Future Directions*
9 December 1995

26. Prof. Dr. Rosli Mohamad
*Pesticide Usage: Concern and Options*
10 February 1996

27. Prof. Dr. Mohamed Ismail Abdul Karim
*Microbial Fermentation and Utilization of Agricultural Bioresources and Wastes in Malaysia*
2 March 1996

28. Prof. Dr. Wan Sulaiman Wan Harun
*Soil Physics: From Glass Beads to Precision Agriculture*
16 March 1996

29. Prof. Dr. Abdul Aziz Abdul Rahman
*Sustained Growth and Sustainable Development: Is there a Trade-Off 1 or Malaysia*
13 April 1996

30. Prof. Dr. Chew Tek Ann
*Sharecropping in Perfectly Competitive Markets: A Contradiction in Terms*
27 April 1996

31. Prof. Dr. Mohd. Yusuf Sulaiman
*Back to the Future with the Sun*
18 May 1996

32. Prof. Dr. Abu Bakar Salleh
*Enzyme Technology: The Basis for Biotechnological Development*
8 June 1996

33. Prof. Dr. Kamel Ariffin Mohd. Atan
*The Fascinating Numbers*
29 June 1996

34. Prof. Dr. Ho Yin Wan
*Fungi: Friends or Foes*
27 July 1996

35. Prof. Dr. Tan Soon Guan
*Genetic Diversity of Some Southeast Asian Animals: Of Buffaloes and Goats and Fishes Too*
10 August 1996

36. Prof. Dr. Nazaruddin Mohd. Jali
*Will Rural Sociology Remain Relevant in the 21st Century?*
21 September 1996

37. Prof. Dr. Abdul Rani Bahaman
*Leptospirosis-A Model for Epidemiology, Diagnosis and Control of Infectious Diseases*
16 November 1996

38. Prof. Dr. Marziah Mahmood
*Plant Biotechnology - Strategies for Commercialization*
21 December 1996

39. Prof. Dr. Ishak Hj. Omar
*Market Relationships in the Malaysian Fish Trade: Theory and Application*
22 March 1997

40. Prof. Dr. Suhaila Mohamad
*Food and Its Healing Power*
12 April 1997

41. Prof. Dr. Malay Raj Mukerjee
*A Distributed Collaborative Environment for Distance Learning Applications*
17 June 1998

42. Prof. Dr. Wong Kai Choo
*Advancing the Fruit Industry in Malaysia: A Need to Shift Research Emphasis*
15 May 1999

43. Prof. Dr. Aini Ideris
*Avian Respiratory and Immunosuppressive Diseases- A Fatal Attraction*
10 July 1999

44. Prof. Dr. Sariah Meon
*Biological Control of Plant Pathogens: Harnessing the Richness of Microbial Diversity*
14 August 1999

45. Prof. Dr. Azizah Hashim
*The Endomycorrhiza: A Futile Investment?*
23 Oktober 1999

46. Prof. Dr. Noraini Abdul Samad
*Molecular Plant Virology: The Way Forward*
2 February 2000

47. Prof. Dr. Muhamad Awang
*Do We Have Enough Clean Air to Breathe?*
7 April 2000

48. Prof. Dr. Lee Chnoong Kheng
*Green Environment, Clean Power*
24 June 2000

49. Prof. Dr. Mohd. Ghazali Mohayidin
*Managing Change in the Agriculture Sector: The Need for Innovative Educational* Initiatives
12 January 2002

50. Prof. Dr. Fatimah Mohd. Arshad
*Analisis Pemasaran Pertanian di Malaysia: Keperluan Agenda Pembaharuan*
26 Januari 2002

51. Prof. Dr. Nik Mustapha R. Abdullah
*Fisheries Co-Management: An Institutional Innovation Towards Sustainable Fisheries Industry*
28 February 2002

52. Prof. Dr. Gulam Rusul Rahmat Ali
*Food Safety: Perspectives and Challenges*
23 March 2002

53. Prof. Dr. Zaharah A. Rahman
*Nutrient Management Strategies for Sustainable Crop Production in Acid Soils: The Role of Research Using Isotopes*
13 April 2002

54. Prof. Dr. Maisom Abdullah
*Productivity Driven Growth: Problems & Possibilities*
27 April 2002

55. Prof. Dr. Wan Omar Abdullah
*Immunodiagnosis and Vaccination for Brugian Filariasis: Direct Rewards from Research Investments*
6 June 2002

56. Prof. Dr. Syed Tajuddin Syed Hassan
*Agro-ento Bioinformation: Towards the Edge of Reality*
22 June 2002

57. Prof. Dr. Dahlan Ismail
*Sustainability of Tropical Animal-Agricultural Production Systems: Integration of Dynamic Complex Systems*
27 June 2002

58. Prof. Dr. Ahmad Zubaidi Baharumshah
*The Economics of Exchange Rates in the East Asian Countries*
26 October 2002

59. Prof. Dr. Shaik Md. Noor Alam S.M. Hussain
*Contractual Justice in Asean: A Comparative View of Coercion*
31 October 2002

60. Prof. Dr. Wan Md. Zin Wan Yunus
*Chemical Modification of Polymers: Current and Future Routes for Synthesizing New Polymeric Compounds*
9 November 2002

61. Prof. Dr. Annuar Md. Nassir
*Is the KLSE Efficient? Efficient Market Hypothesis vs Behavioural Finance*
23 November 2002

62. Prof. Ir. Dr. Radin Umar Radin Sohadi
*Road Safety Interventions in Malaysia: How Effective Are They?*
21 February 2003

63. Prof. Dr. Shamsher Mohamad
*The New Shares Market: Regulatory Intervention, Forecast Errors and Challenges*
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64. Prof. Dr. Han Chun Kwong
*Blueprint for Transformation or Business as Usual? A Structurational Perspective of the Knowledge-Based Economy in Malaysia*
31 May 2003

65. Prof. Dr. Mawardi Rahmani
*Chemical Diversity of Malaysian Flora: Potential Source of Rich Therapeutic Chemicals*
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66. Prof. Dr. Fatimah Md. Yusoff
*An Ecological Approach: A Viable Option for Aquaculture Industry in Malaysia*
9 August 2003

67. Prof. Dr. Mohamed Ali Rajion
*The Essential Fatty Acids-Revisited*
23 August 2003

68. Prof. Dr. Azhar Md. Zain
*Psychotheraphy for Rural Malays - Does it Work?*
13 September 2003

69. Prof. Dr. Mohd. Zamri Saad
*Respiratory Tract Infection: Establishment and Control*
27 September 2003

70. Prof. Dr. Jinap Selamat
*Cocoa-Wonders for Chocolate Lovers*
14 February 2004

71. Prof. Dr. Abdul Halim Shaari
*High Temperature Superconductivity: Puzzle & Promises*
13 March 2004

72. Prof. Dr. Yaakob Che Man
*Oils and Fats Analysis - Recent Advances and Future Prospects*
27 March 2004

73. Prof. Dr. Kaida Khalid
*Microwave Aquametry: A Growing Technology*
24 April 2004

74. Prof. Dr. Hasanah Mohd. Ghazali
*Tapping the Power of Enzymes- Greening the Food Industry*
11 May 2004

75. Prof. Dr. Yusof Ibrahim
*The Spider Mite Saga: Quest for Biorational Management Strategies*
22 May 2004

76. Prof. Datin Dr. Sharifah Md. Nor
*The Education of At-Risk Children: The Challenges Ahead*
26 June 2004

77. Prof. Dr. Ir. Wan Ishak Wan Ismail
*Agricultural Robot: A New Technology Development for Agro-Based Industry*
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78. Prof. Dr. Ahmad Said Sajap
*Insect Diseases: Resources for Biopesticide Development*
28 August 2004

79. Prof. Dr. Aminah Ahmad
*The Interface of Work and Family Roles: A Quest for Balanced Lives*
11 March 2005

80. Prof. Dr. Abdul Razak Alimon
*Challenges in Feeding Livestock: From Wastes to Feed*
23 April 2005

81. Prof. Dr. Haji Azimi Hj. Hamzah
*Helping Malaysian Youth Move Forward: Unleashing the Prime Enablers*
29 April 2005

82. Prof. Dr. Rasedee Abdullah
*In Search of An Early Indicator of Kidney Disease*
27 May 2005

83. Prof. Dr. Zulkifli Hj. Shamsuddin
*Smart Partnership: Plant-Rhizobacteria Associations*
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84. Prof. Dr. Mohd Khanif Yusop
*From the Soil to the Table*
1 July 2005

85. Prof. Dr. Annuar Kassim
*Materials Science and Technology: Past, Present and the Future*
8 July 2005

86. Prof. Dr. Othman Mohamed
*Enhancing Career Development Counselling and the Beauty of Career Games*
12 August 2005

87. Prof. Ir. Dr. Mohd Amin Mohd Soom
*Engineering Agricultural Water Management Towards Precision Farming*
26 August 2005

88. Prof. Dr. Mohd Arif Syed
*Bioremediation-A Hope Yet for the Environment?*
9 September 2005

89. Prof. Dr. Abdul Hamid Abdul Rashid
*The Wonder of Our Neuromotor System and the Technological Challenges They Pose*
23 December 2005

90. Prof. Dr. Norhani Abdullah
*Rumen Microbes and Some of Their Biotechnological Applications*
27 January 2006

91. Prof. Dr. Abdul Aziz Saharee
*Haemorrhagic Septicaemia in Cattle and Buffaloes: Are We Ready for Freedom?*
24 February 2006

92. Prof. Dr. Kamariah Abu Bakar
*Activating Teachers' Knowledge and Lifelong Journey in Their Professional Development*
3 March 2006

93. Prof. Dr. Borhanuddin Mohd. Ali
*Internet Unwired*
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94. Prof. Dr. Sundararajan Thilagar
*Development and Innovation in the Fracture Management of Animals*
31 March 2006

95. Prof. Dr. Zainal Aznam Md. Jelan
*Strategic Feeding for a Sustainable Ruminant Farming*
19 May 2006

96. Prof. Dr. Mahiran Basri
*Green Organic Chemistry: Enzyme at Work*
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97. Prof. Dr. Malik Hj. Abu Hassan
*Towards Large Scale Unconstrained Optimization*
20 April 2007

98. Prof. Dr. Khalid Abdul Rahim
*Trade and Sustainable Development: Lessons from Malaysia's Experience*
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99. Prof. Dr. Mad Nasir Shamsudin
*Econometric Modelling for Agricultural Policy Analysis and Forecasting: Between Theory and Reality*
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100. Prof. Dr. Zainal Abidin Mohamed
*Managing Change - The Fads and The Realities: A Look at Process Reengineering, Knowledge Management and Blue Ocean Strategy*
9 November 2007

101. Prof. Ir. Dr. Mohamed Daud
*Expert Systems for Environmental Impacts and Ecotourism Assessments*
23 November 2007

102. Prof. Dr. Saleha Abdul Aziz
*Pathogens and Residues; How Safe is Our Meat?*
30 November 2007

103. Prof. Dr. Jayum A. Jawan
*Hubungan Sesama Manusia*
7 Disember 2007

104. Prof. Dr. Zakariah Abdul Rashid
*Planning for Equal Income Distribution in Malaysia: A General Equilibrium Approach*
28 December 2007

105. Prof. Datin Paduka Dr. Khatijah Yusoff
*Newcastle Disease virus: A Journey from Poultry to Cancer*
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106. Prof. Dr. Dzulkefly Kuang Abdullah
*Palm Oil: Still the Best Choice*
1 February 2008

107. Prof. Dr. Elias Saion
*Probing the Microscopic Worlds by Lonizing Radiation*
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108. Prof. Dr. Mohd Ali Hassan
*Waste-to-Wealth Through Biotechnology: For Profit, People and Planet*
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109. Prof. Dr. Mohd Maarof H. A. Moksin
*Metrology at Nanoscale: Thermal Wave Probe Made It Simple*
11 April 2008

110. Prof. Dr. Dzolkhifli Omar
*The Future of Pesticides Technology in Agriculture: Maximum Target Kill with Minimum Collateral Damage*
25 April 2008

111. Prof. Dr. Mohd. Yazid Abd. Manap
*Probiotics: Your Friendly Gut Bacteria*
9 Mei 2008

112. Prof. Dr. Hamami Sahri
*Sustainable Supply of Wood and Fibre: Does Malaysia have Enough?*
23 Mei 2008

113. Prof. Dato' Dr. Makhdzir Mardan
*Connecting the Bee Dots*
20 Jun 2008