

## **Islam and Modernity: A Case of Muslim Female Engineers in Malaysia**

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### **Abstract**

Malaysia is portrayed as one of the modern and developed Muslim nations. Its rapid modern development in physical structure impressed many people. However, little is known about the situation of its non-physical structure, particularly the religious and normative values. This paper rests on the stance that individuals' religious values remain despite the nation's effort towards modernisation, particularly in the relations of women and profession. To achieve the purpose, this article explores the paradoxes relating to the intricate relationships between the traditional feminine social expectations and modern engineering profession experienced by Muslim female engineers and students in Malaysia. The research is a structured interview design on thirty-six Muslim female engineers and engineering students. It found that there were potential self-presentation crises, particularly when women participated in a male-dominated workplace. The gendering issues in engineering overwhelmingly projected the collision between modernism and traditionalism. Such a blending situation depended on very careful management as being women with a clear expectation towards traditional feminine roles and responsibilities, while at the same time they have to present themselves in a business-like, modern manner in terms of competence, commitment and ambitious targets to claim a rightful place in the engineering world. Modernisation has not been able to change women's traditional attitude. Though they may be modernised, educated and professional, these women are still traditional at heart.

**Keywords:** Malaysian women, Gender, Employment, Modernisation, Traditionalism, Islam

### **Abstrak**

Malaysia digambarkan sebagai salah satu daripada negara-negara Islam yang moden dan maju. Pembangunan pesatnya yang moden dalam struktur fizikal telah mengagumi ramai orang. Walau bagaimanapun, sedikit yang diketahui tentang keadaan non-fizikalnya, terutamanya nilai-nilai agama dan normatif. Karya ini terletak pada pendirian bahawa nilai-nilai individu kekal walaupun negara berusaha ke arah pemodenan negara, terutamanya dalam hubungan wanita dan profesion. Untuk mencapai tujuan itu, artikel ini meneroka paradoks yang berkaitan dengan hubungan rumit antara harapan sosial perempuan tradisional dan profesion kejuruteraan moden yang dialami oleh jurutera Islam dan pelajar wanita di Malaysia. Penyelidikan ini berstruktur temu bual terhadap 36 jurutera wanita Islam dan pelajar kejuruteraan. Ia mendapati bahawa terdapat potensi krisis pembentangan diri, terutamanya apabila

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wanita mengambil bahagian di tempat kerja yang dikuasai lelaki. Isu-isu jantina dalam bidang kejuruteraan hangat menjangka pertembungan antara modenisme dan tradisionalisme. Situasi pencampuran bergantung kepada pengurusan yang sangat berhati-hati sebagai wanita dengan jangkaan yang jelas terhadap peranan tradisional dan tanggungjawab feminin, manakala pada masa yang sama, mereka perlu mengemukakan diri mereka dengan cara seperti ahli peniaga, dan moden dari segi kecekapan, komitmen dan bercita-cita tinggi untuk menuntut tempat yang sah dalam dunia kejuruteraan. Pemodenan tidak mampu mengubah sikap tradisional wanita. Walaupun mereka moden, berpendidikan dan profesional, wanita masih tradisional di hati.

**Kata kunci:** Wanita Malaysia, Jantina, Pekerjaan, Pemodenan, Tradisionalisme, Islam

### **Introduction: The Traditional Expectation in a Modern Setting**

Modernization is a social process of becoming modern. In particular, modernization has affected the lives of working women in various ways. Indeed, modernisation is one of the outcomes of a nation's development that changed the women's existence – from traditional to having a modernised outlook. How far do the so-called "modern" women emancipate themselves from being traditional? Women's work, for instance, seems to be more integrated nowadays yet at the same time also fragmented by the traditional and religious influences.

This paper connects the issues of modernism as portrayed by engineering branch of knowledge with traditionalism of female attitude and social expectations surrounding female engineers in Malaysia. Men are firmly established in engineering. Women, on the other hand, are looking for a position to work together with the men in this masculine-laden field. They are a group of workers, which are different from the vast majority of other female occupations. The engineering profession is seen as a gendered space that segregates women and men (Devine, 2003). It suggests a strong 'deviant' image for women.<sup>1</sup> Apparently, a female engineer represents an incongruity. She has crossed an invisible

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<sup>1</sup> Barbercheck, M. 2001. "Mixed Messages: Men and Women in Advertisements in Science". In Wyer M., Barbercheck, M. Giesman D., Ozturk O. and Wayne M. *Women, Science and Technology: A Reader in Feminist Science Studies*. New York: Routledge

but well-defined boundary from the private-feminine-traditional world of women and entered a public-masculine-modernized world where she is competing with men.<sup>2</sup>

### 1. Methods, Methodologies and Sampling

This paper observes the biographical experiences of female engineers in Malaysia. The data was obtained from two phases of fieldwork projects. The first phase in 2004 was the most extensive study as I interviewed thirty female engineers at a petroleum company. The aim of the 2004-study was to gather women's personal and professional experiences working as engineers. The second phase in 2011 was the interview sessions with six engineering students who were studying at the three local universities in Malaysia. The objective of this 2011-study was to get inside information of becoming female engineers. As far as the objective concerned, the data collection phases were carefully chosen in connecting issues of traditionalism and modernity experienced by women in engineering. The two study periods are significant to indicate the different perceptions by women who involve in engineering. It manages to bring about the changes in the perceptions almost a decade after.

The selection of the sample was based on snowballing sampling. It is a technique for developing a research sample where existing sample recruit future samples from among their acquaintances, who share the same experience with them.<sup>3</sup> One basic criterion used is that these women must have a direct knowledge and expertise in engineering field. Thus, female engineers and students in engineering are rightfully chosen. They come from all over Malaysia hence suffice to represent the Malaysian context.

Using sets of semi-structured interview guide to different sample categories, the study was able to gather issues affecting traditionalism and modernism in engineering field onto the lives of women engineers.

### 2. The Effects of Islam and Adat on Woman and Work

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<sup>2</sup> Barret E. 2001. *Women and Employment: Mainstreaming Equality*. London: Longman

<sup>3</sup> Neuman, W. L. (2006). *Social Research Methods: Qualitative and Quantitative Approaches*. 6<sup>th</sup> ed. Boston: Pearson

It is clear that Malay women's roles were reinforced by a strong ideology that stressed a male dominance in certain important social processes. The key to women's standing is thus to look at the ways in which maleness and femaleness are culturally constructed. In raising the issue of gender in Malaysian society, religious systems - specifically Islam - have to be mentioned. By definition, a Malay individual is also a Muslim. She follows Muslim rules of behaviour and Islamic laws. Religion does not belong to the domain of privacy but is a collective and public matter. Not adhering to Islamic prescriptions such as eating in public during the fasting month or breaking the rules of sexual relationships are matters subject to public accusation and punishment. This 'restrictive' phenomenon is further strengthened by the Malay adat<sup>4</sup>, which is the axis of social and cultural organizations in Malay society.<sup>5</sup>

Adat or custom appears to be influenced by the past and present religions of the Malays.<sup>6</sup> The concept of 'good' (or uprightness) in the Malay ethical code might not refer to 'pleasant' but more to be understood as proper. Normally, to be well thought of, and what is good for the community, is also assumed to be good for the individual. It is because an individual generally is regarded as secondary to the community. Formalities and ritual rites rate very highly in the Malay concept of values. To depart from formality is considered "improper, unbecoming and rude".<sup>7</sup> Therefore adat is an indispensable institution in Malay sociological analysis. It represents the formal and conscious beliefs of the Malays from which one could trace cultural and social production of ideas and relations in the wider society. Society on the other hand, expected members to abide by adat or they would face social stigma.

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<sup>4</sup> Adat is a customary law in Malaysia.

<sup>5</sup> Wilkinson R. J. 1957. "Malay Customs and Belief". Reprinted in *Journal of the Royal Asiatic Society, Malayan Branch*. Vol. 30. No. 4; 204-210

<sup>6</sup> Hew Cheng Sim. 2007. (Ed.) *Village Mothers, City Daughters: Women and Urbanization in Sarawak*. Singapore: Institute of Southeast Asian Studies; Mahathir M. 1970. *The Malay Dilemma*. Singapore: Asia Pacific Press Pte. Ltd; Wazir-Jahan K. 1998. *Do Culture Never Die? Advanced Social Theory*. Occasional Paper in the Seminar of the Indigenization of Modernity: New Cultural Formations of the 21<sup>st</sup> Century. January

<sup>7</sup> Mahathir M. 1970. *The Malay Dilemma*. Singapore: Asia Pacific Press Pte. Ltd.p.157

These traditional perspectives have to a certain extent had an effect on common people's lives, and women have been an important target group because they are regarded as guardians of moral order and carriers of traditional values.<sup>8</sup> The subsequent sub-topic explains briefly the effect of Islam and adat in the social system. However, what follows does not pretend to deal systematically or comprehensively with the cultural traditions of women in Malaysia. It is rather to shed some light on women's position in the country and the impact of cultural traditions on the society.

### **3. A Clash of Traditionalism and Modernism Experienced by Muslim Female Workers**

The fundamental issue of this sub-topic develops around the position of cultural traditions in Malaysia. Cultural traditions persist in different ways and in different parts of the country. They uniquely characterise the Malaysian way of life and thus guided people in every sense.<sup>9</sup> The East Coast of Malay Peninsula has stronger Islamic influences and customary practices than other parts of Malaysia. Malay women on the West Coast appeared to challenge a strong uniformity of cultural traditions. They were beginning to re-evaluate these traditional authorities. It is an indicative of change towards modern perspectives. The wave of modernity at present has gradually changed the depth of cultural traditions in Malaysia as a result of the effects of industrialisation and globalisation. However, current cultural paradigms are frequently contradictory in an era of industrialisation and globalisation in Malaysia.

Most discussions on cultural traditions are about Islam and adat - the systems that most immediately affecting the Malay life. Both are

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<sup>8</sup> Heyzer N., Anwar Z. and Zain K. 1989. *Islamic Revivalism and Women in Malaysia: A Case Study*. Kuala Lumpur: Asian and Pacific Development Centre; Sharon A. 2006. *The Tension between Women's Rights and Religion: The Case of Malaysia*. Lewiston, N.Y. : Edwin Mellen Press; Sharon A. 2006. *The Tension between Women's Rights and Religion: The Case of Malaysia*. Lewiston, N.Y. : Edwin Mellen Press

<sup>9</sup> Root, R. 2006. "Family Values and Islamic Revival: Gender Rights and Stare Moral Projects in Malaysia". In *Women's Studies International Forum*. Vol. 29:4, Jul-Aug 2006, pp. 354-367; Stivens M. 2000. "Becoming Modern in Malaysia: Women at the End of Twentieth Century". In Edwards L and Roces M. (Eds.). *Women in Asia: Tradition, Modernity and Globalisation*. Australia: Allen and Unwin

prominently placed in public consciousness. Islam and adat put an extreme importance on women's homemaker role. In most families in Malaysia, the husbands are heads of the household and when wives are employed, the husbands' position remains unchanged (even in cases when wives are earning more than their husbands). The legacy of the earliest structural conditions of Malaysian society, particularly from the 1950s to 1970s showed that women were perceived as being responsible for giving birth, rearing children and the maintenance of the home.<sup>10</sup>

As Malaysia becomes more modernised, its women particularly the professional group, is expected to be rational beings as against to traditional lifestyle. However, this is unnecessarily true as the traditional and normative values still capture the life of Malaysian female professionals in setting their priority right despite being influenced by modernisation. Their work orientation may have changed from providing affectionate comfort to searching for material comfort. But, that does not mean the latter supersedes the former. The issue of women and work in Malaysia is generally directed towards understanding the condition of women in the workplace.<sup>11</sup> In her study, Jamilah Ariffin (2001)<sup>12</sup> found that women's work orientation in Malaysia was seen as more towards family work rather than market work.

In addition, religious and cultural values place extreme importance on the women's homemaker role.<sup>13</sup> Indisputably, the work pressure on married female workers increases when they started to have

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<sup>10</sup> Nik Safiah K. 1992. "Women and Development". In Tan P. C. *Status Of Malaysian Development: Policy Implications And Recommendation*. Faculty of Economics and Administration, University of Malaya. Collaboration with the National Development and Family Development Board, Ministry of National Unity and Social Development. Research Report

<sup>11</sup> Kaur A. 2000. Working on the Global Conveyor Belt: Women Workers in Industrialising Malaysia. In *Asian Studies Review*. Vol. 24. No. 2, pp. 213-230

<sup>12</sup> Jamilah A. 2001. "The Changing Malaysian Family: Tracing its Changes Through Trend Data and Research Findings". In Jamilah A. and Louis A. (Eds.). *Family Wellbeing: Learning From the Past for the Betterment in the Future*. Proceedings of the APFAM Asia Pacific Forum on Families. International Conference. ISI Publications. Johor

<sup>13</sup> Noraini M. N. 2001. *Family and Women's Well-Being: Selected Papers*. First Edition. Kuala Lumpur: International Islamic University Malaysia Press

husbands and children.<sup>14</sup> Female workers with family in Malaysia also face the same pressure.<sup>15</sup> Both areas of work demand competency. As women are expected to manage the domestic jobs, they are also expected to be competent at work.

#### 4. Women's Career Prospects in Engineering

Many people believed that gender aspects in engineering are not as tough these days. The nature of the market has changed, which has also affected engineering. The workforce today is not thinking or looking at gender differences. Confidence and professional success are the main things people (employers) are looking for now. However, McRae et. al. (1991)<sup>16</sup> looked at the issues of women and engineering in terms of employer's policies and practices. They found that the employment market in Britain was less welcoming to women's participation in engineering. Additionally, women engineers accepted that success in their chosen profession would only happen if they appeared committed to their work and responsive to the demands made by it.<sup>17</sup> Within the same line, my study has revealed that these female engineers were a special bunch of women who dared to be different from others. Tijan [From 2004-study] said, "to work in engineering you have to be both women and men, you are expected to be tough", which actually summarised a distinctive work paradigm among female engineers. They needed to ensure that they possessed the characteristics of each gender type in order to continue working in engineering.

However, the problem for women was that being 'tough' conflicts with being 'feminine'. The classic "double-bind"<sup>18</sup> for women working

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<sup>14</sup> Crompton R. 2001. *The Flexibility Debate and Women's Employment*. Paper presented in the 5<sup>th</sup> Conference of the European Sociological Association. 28<sup>th</sup> August-1<sup>st</sup> September. Helsinki, Finland

<sup>15</sup> Lie, M. 2000. "Two Generations: Life Stories and Social Change in Malaysia. In *Journal of Gender Studies*. Vol. 9:1, Mar 2000, pp. 27-44

<sup>16</sup> McRae S., Devine F. and Lakey. J. 1991. *Women into Engineering and Science: Employers' Policies and Practices*. Policy Studies Institute. London: Booktrade Representation

<sup>17</sup> Myer M. and Baubercheck M. 2001. "High Hopes, Broken Promises and Persistence: Educating Women for Scientific Careers". In Myer M and Baubercheck. (Ed.). *Women, Science and Technology*. London: Routledge

<sup>18</sup> A situation whereby women in leadership position are portrayed as exercising controlling authority onto others, but when they actually do this many men and some women will think the less of them. These women are caught in-between situations,

in a male-dominated-oriented profession and the basic incongruity between their personal identity as 'feminine' and their involvement in a profession that was strongly recognised as 'masculine' placed these women in a no-win situation. If they attempted to conform to the dominant male norms of the profession they would be regarded as unnatural women, but if they distanced themselves from the professional norm, men would not accept them as competent professional colleagues. In the end, whatever women actually do and however they behave, they are still left with the persistent problem that is based on a gender contextual perspective.

It appears that a woman in Malaysia is expected to be and act like a woman. In this line of work, a female engineer might be harshly criticised if she tried to act otherwise. Trying to be too strong and tough was abhorred. It was not surprising to find that most female engineers used a more common strategy of 'reversal effect'. If they could not be tough in dealing with people, then they should be soft. Tijan [From 2004-study] commented, "When dealing with the male subordinates, you **have to keep in mind** that you are **a lady** who are also their superior officer. You have to be **clever** to make it work. I work **differently** from my male colleagues. They just **ordered** technicians to do this and that. But for me, I called them personally. I instructed one particular task to one person at a time. Treat him like a friend. Sit side by side while clearly explaining to him about the job". (\* **Highlighted**). This phenomenon is probably not happening to male engineers.

The psychological condition known as the "chameleon syndrome" experienced by female employees at work in relation to achievement happens whereby they change their behaviour to suit the expectations and anticipation of others.<sup>19</sup> Likewise in this study, a few female engineers had to use 'charming feminine assets' just to make sure things were done. Damia [From 2004-study] explained "As a female engineer, it is easier to ask male workers to cooperate. Use your **charming asset**; be nice, say nice things to them, they will do the job. Ask them for favours, nicely. If you keep demanding things to be done, then you end up being hated". (\* **Highlighted**). Charming assets might

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where the job demands they abandon feminine characteristics but society also requires them to compromise their femininity.

<sup>19</sup> Rosen B. C. 1989. *Women, Work and Achievement: The Endless Revolution*. London: Macmillan



include politely asking the subordinates to do their tasks, smiling a lot, and having a nice personality so that co-workers feel happy to work with her. This means that women employees have to bring their feminine nature into the workforce with them. Trying to change it by being tough will create tension and hatred.

However, female interviewees found that this contradiction sometimes helped them to survive in the men's world. Tijan [From 2004-study] stated, "Women are regarded as '**flowers**' to cheer, liven up and create happy atmosphere. In fact most male technicians like to have female engineers and similarly female technicians like to be with male engineers. I think this situation is applicable in all places. **Opposite attraction** in the working environment is good". (\* **Highlighted**). The rule of 'opposite attraction' in gender might be working for the benefit of female engineers in the workplace. However, based on the above example, female existence was heavily feminised whereby they were seen to motivate a positive atmosphere at the workplace. Women's professional functions in the office were less recognised, yet their 'natural feminine' attributes were applauded.

I found that if they play the 'feminine side' in such situations female engineers has advantages in a male-dominated area at work, and thus 'opposite attraction' applies. Yet at the same time a "double-bind" situation still exists.<sup>20</sup> This study envisages an unpromising situation for women's career prospects in engineering, though, in general, women may have an advantage in the non-technical side of professional practice in engineering. The process of striving to get accepted in the engineering profession poses numerous paradoxes for women. According to Savage and Witz, "female engineers must behave like men but not be men and behave unlike women and yet be women".<sup>21</sup>

### **5. Women's Critical Step in Choosing a Career Path in Engineering**

It has been argued elsewhere that the traditional labelling of engineering as a 'man's world' makes the process of choosing engineering by female entrants quite distinctive.<sup>22</sup> Based on that

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<sup>20</sup> Walesh S. G. 2000. *Engineering Your Future: The Non-Technical Side of Professional Practice in Engineering and Other Technical Fields*. Reston: American Society of Civil Engineers

<sup>21</sup> Savage M and Witz A. 1992. (Eds.) *Gender and Bureaucracy*. Oxford: Blackwell, p.53

<sup>22</sup> Cockburn C. and Ormrod S. 1993. *Gender and Technology in the Making*. London: Sage Publications; Davidson M. J. 1989. "Restructuring Women's Employment in

argument, my study sought to know what the significant points are in the lives of female engineers when deciding that engineering was their career path. To understand this, I examined the biographical stages of the female engineers from their student years until their working life.

In my interviews I probed the way in which the women had taken the critical step to opt for engineering – a career that seems to challenge the traditional expectations of women’s existence. I asked them about their life ambitions and the process leading up to the point where they were following a definite path into the profession. Due to the fact that engineering is a non-traditional choice of profession for women, I had expected to find a high level of enticement into engineering from an early stage among my interviewees. The home environment and experiences at school and university might be the central forces that shaped their interest in engineering.

### 6.1 The Influences at Home

Information on the interviewees’ family background was of great consequence in understanding the effect of having professional family members on their career choice. The findings from both study periods inclined to indicate that having a positive role model in a family have some bearing on interviewees’ attitudes towards engineering. Moreover, the interviewees themselves were positively referred to as a role model for the younger members of the family. Having and/or becoming a positive figurative model were regularly quoted in this study. Parents’ occupations appeared to influence the career choice of the children in a family.<sup>23</sup> Most interviewees from both study periods have professional parents, mostly their fathers. Some of these parents worked (and a few are still working) as an engineer, either practicing engineering or teaching in the field. The influence of family members in choosing career direction among female interviewees was unmistakable noticeable.

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British Petroleum”. In Elson D. and Pearson R. (Eds.). *Women’s Employment and Multinationals in Europe*. London: The Macmillan Press Ltd; Newton P. 1984. *Female Engineers: How Different Are They?* Paper presented to Conference on ‘Girl Friendly’ Schooling. Manchester Polytechnic. September

<sup>23</sup> Burke R. J. 1994. “Career and Life Values and Expectations of University Business Students”. In *Psychological Reports*. No. 75. Vol. 1; 147-160

Simultaneously, the interviewees might also turn out to create a positive image to the younger members of the family, particularly among the siblings, cousins and relatives. Needless, to say that there were obvious cases whereby the occupations of the older siblings influenced the career choice of engineering among the interviewees. For that matter, this study was more concerned about the effect that the interviewees had on the younger family members, in order to show a chain of effect on the occupational outcome in their lives. Many interviewees from both study periods elucidated the situation in which they had become the positive exemplar to the other family members and relatives. Ghadat-Hidni [From 2004-study] said, “I have two brothers and I’m the only girl. My (younger) brother is studying in material engineering now. I think he got my influence to pursue in this field. I’m happy because it was part of my responsibility as an elder sibling to provide a good example about life to him”. Becoming a role model to the family motivates female employees in life. They assumed that other members of the family might follow in their footsteps, so they had to show their maximum ability academically and be successful. The burden was even higher for the first child in a family. Bazla [From 2011-study] said, “In a way **being an elder**, (I) have a very **big responsibility** to my younger brother, who is just graduated at the matriculation centre. He looked upon me (as his role model). So I said to myself that **I have to be strong**. If I appear to be weak then he might be weak too. I don’t want that to happen” (\* **Highlighted**).

The role model effect showed the occupational success of an older member might determine the future occupation of a younger member of a family. Since engineering is reputable profession in Malaysia, a younger sibling often pursues a similar engineering career like that of an elder family member. Interviewees felt a responsibility to be the inspirational figure to other family members. Social responsibility towards the family was significant among the respondents. The points mentioned above clearly indicate the influence of traditional expectation in a modern setting.

## 6.2 Getting into Engineering

A few interviewees say that they should not have taken an engineering course in the first place. Ghusni [From 2004-study] said, “After working for 4 years, I know I want to do interior design.

Engineering is just not suitable for me”. One might wonder how some engineers like Ghusni [From 2004-study], who did not enjoy her work, would be able to endure working in this career. There are some puzzling issues involved here: Why should there be the conflicting situation of choosing engineering, yet in the end not wanting to work as engineers? Why did some female engineers feel that engineering was unsuitable for them?

I traced the biographical experiences of my interviewees, especially those who cited that engineering was not their real ambition in childhood. A few interviewees cited wanting to be a doctor in childhood, but they could not stand studying medicine due to its infamous memorisation study requirement. Others wanted to work as an accountant, teacher or architect but throughout their lives due to factors such as peer influences, their aptitude in Maths and Science, good career prospects and the good image of this field, engineering became their academic choice, and consequently they became engineers in later life. The life experience of Piah [From 2004-study] described the correlation of all factors in choosing engineering in the university yet subsequently she is not whole-heartedly accepting work as an engineer. She said, “There are many reasons. To be honest, I decided to do engineering due to the ‘**splendid**’ image engineering carries. When I was in matriculation centre, I had a housemate who was studying engineering. I always observed her, and thought how ‘**cool**’ she was doing in engineering. You know, being a girl and all but did engineering, there were not many girls doing chemical engineering. I also wanted to be like them in this ‘**cool**’ engineering course. Plus, at the same time engineering was seen to be **the best career** in the country, which I also still think the same. It is (Engineering) a well **sought-after** occupational category that people in general associated **with its good image and good pay**. So for me, engineering was just ‘**cool**’. In the end of our second year at the Matriculation Centre, we have to select the degree to be pursued. So to be seen as ‘**cool**’, I put engineering as my first choice. Since I was always good in Maths and Science, I have no problem to take engineering. At that time, I never thought whether I really wanted to be an engineer or not. I never really asked myself before. I just wanted to appear to be ‘**cool**’. I think that was the mistake because I was not sure whether I really wanted to be an engineer. In the end, I found out that I didn’t like it, so it was a mistake. Now I tried to console myself saying I received the knowledge, the

experience, so not that bad”. (\* **Highlighted**). The overwhelming image of engineering vocation is most definitely influenced people to choose the discipline as their academic major and subsequently becomes their profession. But, not all of them were pleased with their choice.

Conversely, with so many positive labels attached to engineering together with the urge of the nation towards science and technology, the discipline easily wins hearts of many people. In fact, many interviewees in the study regarded becoming engineers as the greatest achievement in life. All interviewees from 2011-study and some from 2004-study were contented to study engineering at universities and felt proud to be known as female engineers and work side by side with men. For example, when I asked about her greatest achievement in life, Che-Dania [From 2004-study] replied, “Engineering was always my **ambition d ever since childhood**, thus I think it was not so difficult for me to study engineering course. I received first class honours, you know. Being the only one at the university (in Britain) and I was Malay, I felt so **proud** of myself. And later, when worked as an engineer at the company I promised to really practice my engineering job, I mean all of technical stuff so that I can challenge men’s (skills) domination in this area. At the moment I feel **proud** of myself because I was appointed as the team leader to a group of men to handle big projects. I’m happy”. (\* **Highlighted**). At the same time, Syafira (From 2011-study) added, “C’mon, this is engineering! By majoring in engineering, getting jobs will be easy. After all, Malaysia needs us!”.

In relation to the above quotations, does a job position influence how interviewees see engineering, and consequently feel satisfied to be an engineer? The citation from Ely-Fadwah [From 2004-study] who was a project leader might explain this situation clearly. She said, “Well, I didn’t really like my previous work, too demanding, too much work, too little time. I was just not contented. As a leader now, I can really manage and plan the projects with other colleagues, see the progress of that project and finally be satisfied once that project is completed. This area of engineering is more enjoyable yet at the same time challenging too”.

Evidently, the life situation of each female engineer needs to be scrutinised too. The stark contrasting personal experience of Ghusni and Ely-Fadwah might justify their current career directions. At the time of interview, Ghusni was eight months pregnant suffering a weekend wife

syndrome while her job transfer application was still undecided. On the other hand, Ely-Fadwah was comfortably staying with her husband and two boys, with no obvious either personal or professional problems. In addition, Ghusni was in a stage of establishing herself in an engineering career with not more than five years working experience, whereas with more than ten years working experience in engineering, Ely-Fadwah was now in a comfortable zone. As indicated by Qamra [From 2004-study], "I would say studying engineering is tough, but when it comes to work, it's not that tough. You might required a lot of engineering input if you are in R&D but considering at our site now, I don't think I am using even 20 percent of what I (have) learned. I don't think (the work I'm doing now) really of engineering type, it's more on the daily co-ordinating stuff".

In brief, this study found that the personal and professional situations of the female engineers seem to influence how they look at their career direction in engineering. The dilemma of modernity to be professional while at the same time to subdue to the traditional expectation is strikingly shown from the cases above.

## 6. The Professional, Modern Image of Female Engineers

To be treated professionally, female engineers felt that it was important that they presented an appropriate 'image' of a professional. But, for an engineer that image was male. The authority of the dress code was quite powerful in any corporate company. Conformity in appearance is important, especially in companies where there is a "corporate culture".<sup>24</sup> To blend in, fitting in the rest would seem necessary to the whole situation. To be different might be seen as provocative and against the traditional manner, which might halt future career prospects. McDowell (1997)<sup>25</sup> explored the corporate culture in banks in which gender presentation plays a significant factor for recruitment and promotion in the corporate hierarchy. Image, as against intelligence or capability among female workers was essential for their career. The image that the women engineers were trying to project had

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<sup>24</sup> Kanter. R. M. 1993. *Men and Women in the Corporation*. New York: Basic Books

<sup>25</sup> McDowell L. 1997. *Capital Culture: Gender at Work in the City*. Oxford: Blackwell Publishers Ltd.

to reflect femininity and traditional and yet be serviceable for the number of different and sometimes dirty tasks that their work entailed.

Working style and the ability to project a certain kind of personality were also crucial. Although women might wear versions of the male suit, they felt that they must not mimic male styles of behaviour, but had to find some ways of being feminine and demanding respect. Tijan [From 2004-study] spoke for many of the interviewees who felt that they should project a good image for the benefit of their gender. She said, “Even though we have to work in a men’s world and act like men, **we have to remember that we are woman. We have to be what are**”. (\* Highlighted)

The engineers in the company learned to obey unspoken rules about their appearance and behaviour to pass as engineers. However, the persona they projected had also to declare their physical femininity, since being a masculine woman would be even more unacceptable to their male colleagues. Women are not liberally permitted to exercise masculine leadership unless it is considered as ‘appropriate’ to their gender. Additionally, presenting a professional image was not only restricted to clothes, but also associated with other physical attributes especially the physical stature. Damia [From 2004-study] said “Looking how **small you are physically**, male colleagues and technicians may judge that you are incapable to do an engineering job”. (\* Highlighted). To project as professional engineers, females must pay attention to their physical appearance and attributes. With the right projection, female engineers might receive better co-operation from others.

Women in the United States and United Kingdom viewed engineering much more negatively than other scientific careers and have seen the field as extremely ‘unfeminine’.<sup>26</sup> Apparently, it is not much different in Malaysia. Although most interviewees in this study have the general view that engineering was like any other occupation that accepted the participation of women, quite a number of them strongly stated that engineering was not a job for a woman. Ghusni [From 2004-study] believed that engineering was unsuitable for women because “it consumed a lot of your time, a lot of your energy and you

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<sup>26</sup> Meiksins P and Smith C. 1993. “Organising Engineering Work: A Comparative Analysis”. In *Work and Occupations*. No. 20. Vol. 2; 123-146

have to sacrifice a lot”. Haifa [From 2004-study] also added, “My opinion? I have a sister. I’m **not encouraging** her to take an engineering course. I think computer science or accountancy is more appropriate for women, not engineering. I’ve already experienced it. Not suitable for women unless if you are willing to **sacrifice**. When you are married you need to **sacrifice** your commitment to your family. But for me, I’m not. It is just too late ehh? (laugh)”. (\* **Highlighted**)

Even though other jobs require sacrifice too, engineering is said to demand a greater degree of sacrifice from female engineers because of its tough nature. The physically and mentally challenging nature of engineering interrupts the progress of female engineers in the field. Syaza [From 2011-study] gave her personal view about the appropriateness of engineering for women “To answer the question, you may think that I’m a hypocrite because I’m by the way would end up to be an engineer. I would say that it is good to encourage more women in engineering because it is indeed a well-respected occupation, but I would **not encourage** my kids to pursue engineering at all because it is very **tough**. Not only does it require your **full physical capacity**, it also **challenges you mentally**. It will give you headaches. Take other subjects, just don’t pursue in this line”. (\* **Highlighted**)

Indeed, engineering is a well defined occupation that has certain positive reputation in many societies, including Malaysian. However, due to the dilemma of being competent in both spheres of life, professionally and domestically, many women who directly involve in this male-dominated occupation end up to be in administrative line such research and planning, which may not be good in terms of receiving perks from the organisation.

## 7. Engineering as a Profession for Women: A Conclusion

On various occasions, this study indicated the discouraging perception felt by the interviewees. Many of them persuaded other women against joining engineering. Engineering seems unsuitable for women due to its physically demanding role that challenges the traditional feminine attributes, a mentally challenging profession that requires a full focus on the job and the difficulties in pursuing a career, due to the limitations of being a woman, particularly during pregnancy and child caring. This study also found some external factors that deter



women in engineering such as discrimination in the organisation and the lack of confidence from male colleagues.

Based on these career impediments, an issue can be raised: Why did they choose engineering in the first place? This study found the associations of the engineering image, socialisation with the father and individual masculine attributes were among the factors that attracted some women to engineering. Additionally, they chose to be engineers due to the feeling of responsibility towards the family. Since engineering is always associated with success in Malaysia, by becoming engineers, they were hoping that their siblings and other family members would also imitate their successful life path, even though engineering might not be to their liking. Their familial commitment unmistakably demonstrates that these 'modern' women were still traditional at heart. They still acted upon the traditional expectation of 'adat to lead their lives.

In a nutshell, female engineers and students involved in both study periods indicated clash of interest between the modern demands in the field of engineering and the traditional expectation set by the society. Obviously nothing has changed much, even after almost a decade.