An assessment of supports and barriers for female researchers in Science, Engineering and Technology within the University of Limerick

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To date, there is a shortage of women in Science, Engineering and Technology both internationally and in Ireland. The Science Foundation Ireland Institute Planning Grant provided the opportunity to conduct a self-assessment of women’s participation in science and engineering research activities and research management. To this end a self-assessment exercise was undertaken within the departments of Science, Engineering and Technology in the University of Limerick between June and September 2005. This report presents detailed information on the barriers that women researchers within SET experience. In addition it examines the supports in place at the University of Limerick and provides an evaluation of the usefulness of the current supports and initiatives in overcoming the barriers that exist for women in SET at present.

Acknowledgement is made to all those who participated so willingly in this self-assessment exercise. This project was funded by Science Foundation Ireland through an Institute Planning Grant.
This literature review seeks to investigate the supports and barriers that exist for female researchers in Science, Engineering and Technology. It begins by examining the experiences of women in the labour market. It subsequently looks at horizontal and vertical segregation within academia. It progresses to discuss resistance to gender imbalance in academic institutions, before examining the initiatives to counter gender imbalance in Science, Engineering & Technology. Finally it specifically examines the initiatives to address women’s involvement in Science, Engineering & Technology at the University of Limerick.

Women in the Labour force:
Major economic, legislative and social changes have occurred in Ireland during the last twenty-five to thirty years. Unfortunately Drudy and Lynch (1993: 171) argue that while legislative changes guarantee equal rights for men and women, they have resulted in few changes in the socio-economic status of women, with horizontal and vertical gender segregation still evident today. It is apparent that industrial expansion and the Celtic tiger have seen an increase in job opportunities for women, with the proportion of women in the Irish labour force increasing. Figure 1 below shows that between 1990-2001 the labour force has grown by approximately 421,100. Almost 60% of this growth was accounted for by females with just over 260,000 more women in the labour force in 2001 than there were in 1990\(^1\).

The projection is that these trends will continue (McKeown, Ferguson and Rooney, 1998). Authors such as Maruani (1992) suggest that the increase in the numbers of women entering employment is the result of changes in the type of employment available. They cite the fact that the major areas of employment availability are increasingly those areas, which have traditionally been characterised by high concentrations of women anyway.

The rise in demand for skilled labour in the 1980s and 1990s in Ireland was due to the contribution of foreign direct investment. It is now the high-tech manufacturing sector, driven by the inflow of FDI that has an above average level of skilled individuals in its labour force. It has been argued that the Celtic tiger was more beneficial to women than to men; however women have only entered traditionally male jobs in those sectors, which have expanded in size. Elsewhere, in sectors with a stable work force, segregation between the sexes has stayed the same or even increased (Bulletin on Women and Employment in the E.U, 1993, No.3: 2). Despite changing attitudes towards women’s employment jobs remain very much gendered.

![Labour Force in Ireland](chart.png)

*Source: CSO Labour Force Survey, various years; CSO QNHS, various periods*
There is a naturalistic gender ideology underpinning these attitudes, which identifies masculinity with physical strength and femininity with caring qualities. This ideology legitimates gender divisions in the paid workforce and suggests that although there is now a gender balance in the paid workforce, gender segregation is more resistant to change. (Charles, 2000: 31-32)

Women & Education:
Is it possible that a similar process is occurring in relation to the numbers of women choosing to pursue studies in science and engineering? Is there a tendency for women to select courses on the basis that the major areas of employment availability are those, which have habitually been characterised by high concentrations of women? Furthermore as the ‘glass ceiling’ is still in place today, are women accepting the ‘compromise’ of traditionally ‘feminine’ professional destinations while still gaining a relative degree of upward mobility through their educational qualification?

Horizontal & Vertical segregation within academia:
Internationally the argument exists that the system of recruitment and career development in the sciences is biased toward the success of males, with opportunities for women starting to vanish once they try to progress beyond junior faculty positions (Marks, 2005) Drudy & Lynch (1993: 168-169) argued women were seriously underrepresented in senior management positions in schools, colleges and universities, while the same was true in research institutes. There appears to have been little change to date. Ruane and Sutherland writing only six years ago found that women constituted 28% of the faculty and approximately 5% of those at professorial level, a situation similar to before the Marriage Bar was lifted in 1973. Similarly in the UK women amounted for approximately 8% of those with professorial status (Hearn, 1999). Even in Finland, which is widely viewed as “the promised land” (Husu, 2000), only 18 percent of those at professorial level are women (O’Connor, 2000: 214). Why is this the case? As suggested by many authors, the causes of women’s under representation in SET appear to be a complex web of interdependent structural, ideological and cultural factors, which we will now endeavour to explore.

Gupta & Sharma (2003: 598) state that in the formal aspects of academic science, there are specific rules and regulations for appointments, promotions, etc but equally
important to achieve appointments etc are the informal aspects which involve informal communication, networking, and human groupings. Research (Etzkowitz et al., 2000, Pattatucci, 1998)) has shown this mentoring process is largely unavailable to women. In addition Hearn (1999:135) highlights that many men at the middle ranks of organizations have ties to male colleagues rooted in their common identity as men, past indebtedness, etc. and conversely the support these men give to women often consists simply of not actively opposing any proposal that might benefit women. (O’Connor, 2000: 217)

There are numerous reasons why women in science, engineering and technology lack these informal contacts. Gupta & Sharma (2003: 610-611) argue they have fewer contacts because of problems in interacting with male scientists, family constraints, lack of mobility and lack of time. In addition, in many cases predominantly female areas of employment had heavier teaching loads than predominantly male areas, a pattern which militated against women within an increasingly research conscious academy. Thus the narrowness of the “channel” from which senior academics were recruited further militated against the existence of women at senior level. (O’Connor, 2000: 217) Interestingly Gupta & Sharma’s study (2003: 610-611) found high levels of participation in conferences, seminars & research activity in the 50–55 age group in comparison to younger cohorts, the suggested reason being that these older women have less family constraints and consequently more contacts and networks.

Apart from the structural constraints touched upon above, career difficulties faced by women are also as a result of ideological and cultural factors, such as gender-role stereotypes. Research (Rasmussen, & Hapnes, 1991, Byrne, 1993) exploring women’s position in masculine domains in third level education explains it as a struggle to maintain their female identity. Thus Drudy & Lynch (1993: 177) argue forcefully that overcoming the cultural barriers that discourage pupils from choosing non-traditional subjects for their particular sex is still a major task for those wishing to eliminate inequalities arising from curricular choice. By extension it can be argued that the same task applies to those whose wish it is to see more women taking science, engineering and technology courses at third level.
Finally, Cronin & Rogers (1999: 643) revealed a variety of reasons for women opting out of or experiencing difficulty within science, engineering, and technology at various points along their educational paths or academic careers. These included:

1. The image of science, engineering, and technology subjects (e.g., masculine, concerned with things rather than people), particularly engineering, computing and physics
2. The stress and isolation of being in a minority
3. Negative attitudes of male peers, lecturers and other staff
4. Lack of opportunities for cooperative or interactive learning
5. Inadequate counselling and advising
6. Concerns about combining an SET career with having a family

Quantitative evidence indicates that women leave during their courses, after graduating, while many who remain in science, engineering and technology report experiencing particular difficulties (Cronin & Rogers, 1999: 643). Thus it is now apparent that increasing access in isolation will prove to be insufficient to make a significant impact in the numbers of women engaged in science, engineering and technology at third level.

In examining the University of Limerick it is apparent that the University is committed to the development of a workplace that is supportive of careers for women, and programmes instigated by groups or individuals within the University have promoted equality for many years. However, there is also evidence that the problem of a “leaky pipeline” still exists for women in science and technology in UL, and as is the case in all Irish Universities, women virtually disappear at senior levels, regardless of discipline. Table 1 illustrates that the glass ceiling for the majority of women is at College Lecturer level. Interestingly in the Colleges of Informatics & Electronics, Engineering & Science, there is only one female professor as opposed to 16 male professors (chair), with Professor Mary O’Sullivan only recently having been appointed as Professor of Physical Education & Youth Sport.
Table 1: Position of women in academic and research posts at University of Limerick

<table>
<thead>
<tr>
<th>Title</th>
<th>Prof/Assoc Prof</th>
<th>S Lecturer</th>
<th>College Lecturer</th>
<th>A L</th>
<th>Res Scholars</th>
<th>Post doc</th>
</tr>
</thead>
<tbody>
<tr>
<td>10%</td>
<td>15%</td>
<td>37%</td>
<td>48%</td>
<td>30%</td>
<td>30%</td>
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**Resistance to Gender Imbalance in Academic Institutions.**

O’Connor (2000) identified several strategies which females use to resist these forms of gender segregation in academic institutions. We will now examine three of these strategies. She argues that ‘Individual Distancing is an approach whereby the academic in question withdraws socially, emotionally, and/or physically from the wider organizational structure, and instead focuses their “energies on that limited arena in which the maximum level of control can be exerted” (O’Connor, 2000: 215). However she argues that this form of resistance has negative implications in that it was seen as “evidence that they had little commitment to the wider organization and so were not promotable” (ibid.).

The second form of resistance examined is termed ‘Whistle Blowing’. Rothschild and Miethe (1994: 254) defined whistle blowing as “the disclosure of illegal, unethical, or harmful practices in the workplace to parties who might take action”. However O’Connor (2000: 218) again argues that the personal and financial costs of attempting to raise gender-related issues through whistle blowing is usually considerable. In 1998 eight female faculty at UCD publicly highlighted the position of women in the institution. This in turn prompted the Employment Equality Agency to take a case on behalf of all women faculty at UCD, resulting in a number of the women involved in the initial whistle blowing being subsequently promoted. (ibid.)

Finally we examine ‘Creating/Mobilizing Allies’ as a form of resistance. As touched on previously, it is apparent that women are lacking in the area of informal contacts within academia, however, O’Connor (2000: 218) notes that electronic networking between women is now important “in terms of the transmission of information and the creation of a feeling of collective strength and identity amongst what is a very scattered and fragmented community”.

6
Therefore it appears that resistance can be quite useful in creating and sustaining awareness of the gender imbalance, yet O’Connor (2000: 219) argues that awareness is simply not enough as it may result in increased frustrations on the part of the women concerned and thus the intensity of their backlash. In addition it is argued that as a result of these strategies of resistance counter-strategies are put in place which include the stigmatisation of initiatives favouring women, and the setting up of ‘organizational roadblocks, which result in the introduction of new initiatives which positively discriminate in favour of men. (Price and Priest, 1996 cited in O’Connor, 2000: 219) Thus the process of bring about change through strategies of resistance is proving to be an extremely lengthy one.

Initiatives to counter gender imbalance in Science, Engineering & Technology:

If strategies of resistance are proving to be slow in bringing about change then what initiatives are countering the gender imbalance in science, engineering and technology? There are in essence three main types of initiatives: firstly, initiatives which aim to encourage females to enter science, engineering and technology, secondly, initiatives which endeavour to support women currently studying or pursuing careers in the area, and finally, initiatives those which aspire to change the culture of science, engineering and technology to make it more inclusive (Cronin & Rogers, 1999: 646).

Cronin and Rogers (1999) further argue that all initiatives fall under five ‘postions’. Position 1, “Foster public understanding of SET,” holds that science and technology should be presented in a more positive and accessible manner, through publicizing science, engineering, and technology as useful, progressive, and benevolent, thus encouraging more people, both female and male into the area (Cronin & Rogers, 1999: 646). The second position, “Recognize SET’s Economic Contribution” holds that developments in science, engineering and technology are central to a state’s global economic competitiveness. Actions motivated out of this position have included wider access to higher education, and a vocational emphasis in education and training, in order to enlarge the pool of talent in science, engineering, and technology, consequently ensuring the nation’s continued economic competitiveness in the global economy. (Cronin & Rogers, 1999: 647) The third position “Promote Equality of Opportunity”, includes an analysis of gender in its assessment of the
problem, primarily focusing on structural obstacles to women’s equity, with the view being taken that males are socialized to aspire to scientific and technological careers, while females are socialized to aspire to traditional female roles. (Cronin & Rogers, 1999: 650) The masculine stereotypes of science, engineering, and technology do not tend to attract girls and women, and perhaps more important, stereotyped notions of women’s abilities, interests, and potential serve to justify their exclusion from progressing in science, engineering, and technology, particularly at higher levels. (ibid.) The work of Stepulevage & Plumeridge (1998: 314) highlights this. A respondent in their study remarked that “a few years ago when they put forward a new pathway, ‘gave it a softer name’ (Software Design) and changed entry requirements (no longer requiring science or mathematics A levels), more enquiries came from women and mature students”. Thus initiatives for increasing the representation of women as a result of this position include media campaigns to change the image of science, engineering, and technology, the provision of role models, mentors, and career information and guidance for women. These initiatives have provided many women with the opportunity to embark upon careers in SET. (Cronin & Rogers, 1999: 650)

In keeping with these positions, Marks (2005: 790) argues strongly for assigning more women to serve in leadership positions, where in addition to being role models, they are in a position to enact a change in policies and enforce guidelines to increase diversity. In addition special attention must be paid to the most critical stages of career development, the transitions from trainee to faculty and timelines for promotion to tenure need to be extended so that there is no penalty for raising a family, and day care for preschool children should be provided at universities (Ibid.). It was also muted that students participate in mentoring programs and peer study groups, which would afford students the opportunity to make contacts with their peers who could provide more pragmatic information on various matters of difficulty which students may be experiencing (Nauta et al., 1999: 73).

However we must also be aware that there are many criticisms of these ‘positions’. Position 1 is criticized for its failure to theorize a gender dimension. In addition it is argued that initiatives to increase access must be accompanied by initiatives to address the problems women experience throughout their academic careers, i.e.,
widening the funnel at every stage. (Cronin & Rogers, 1999: 644). Moreover Henwood (1996) argued that industrial needs rather than concerns for social justice, were of paramount importance in initiatives resulting from position 2. Most of the initiatives which have been tried in the past 2 decades, tended to treat the problem as one of a deficit on the part of women, and those who prepare them for higher education, and are as a result insufficient (Cronin & Rogers, 1999: 655). Authors such as Devine (1992) and Erwin & Maurutto (1998) argue that many women in science, engineering, and technology are marginalized, discriminated against, and harassed in an overwhelmingly male-dominated environment, which appears to fly in the face of position 3. Therefore position 3 sees women encouraged to adapt to fit into science, engineering and technology, rather than challenging the masculine culture of science and technology (Cronin & Rogers, 1999: 650). However most importantly, position 3 is the base camp for an ever developing understanding of the issue, thus allowing additional far-reaching approaches, which are described next, to emerge.

The fourth position, “Subject science, engineering and technology to critical analysis,” sees women’s under representation as being primarily the result of inherent bias within the social construction of science, engineering, and technology (Cronin & Rogers, 1999: 651). In addition the final position, “Change SET Culture” sees the emphasis turning to create a more inclusive science, engineering and technology culture (ibid, 1999: 652). Position 5 holds that as a result of the cultural construction of these fields as masculine, women can experience a conflict between their gender identity and the masculine culture of science, engineering and technology (See Cockburn, 1985; Wajcman, 1991).

Followers of these two positions suggest a complete reframing of the problem of women’s under representation in science, engineering and technology, where women’s agency is recognized (Cronin & Rogers, 1999: 654). Therefore proposed solutions concentrate on both sides of the conflict between feminine gender identity and the masculine culture of science engineering and technology, with the result being the proposal of curricular and pedagogical changes, and training to increase the awareness of teaching staff. Alterations to teaching and strategies include the adoption of gender-inclusive approaches which can provoke confidence in all students. (Moxham & Roberts, 1995; Roychoudhury, Tippins, & Nichols, 1995, cited in Cronin
Initiatives to address women’s involvement in Science, Engineering & Technology at the University of Limerick:

While much of the work addressing women’s involvement in SET has not been at the level of Research Activity and Management, there are and have been initiatives in place that address the under-representation of women within SET. Since 1999, under the management of Patricia-Anne Moore, Department of Life-Long Learning, a course team, directed by Dr. Catherine Adley, (Dept Chemical and Environmental Sciences) had been running a Foundation Course in Science, Engineering and Technology for Women jointly with Limerick Institute of Technology. The course is an access course aimed at providing pathways into certificate, diploma and degree programmes within SET and successful candidates are found to be confident about progressing directly into one of the two institutions to embark on a longer-term course. The primary aim of this access course is to provide candidates with a third level learning experience on a course taught by and provided within third level institutions.

The objectives of the course are:-

◊ to introduce candidates to a third level education environment
◊ to equip candidates with requisite knowledge for moving into third level education
◊ to equip candidates with transferable skills which can help further their personal academic development
◊ to build up candidates’ confidence in their own abilities
◊ to equip candidates with basic knowledge of Science, Mathematics and Technology.

This course is run for women over 22 years of age and gives people who often had not the prior opportunity to attend classes in SET to continue to under-graduate education. Encouragingly this programme has attracted over 80 enrolments and about 50% of attendees continue to further education.
For the promotion of research within the College of Informatics and Electronics, faculty have been running a PhD forum since 1995. This forum runs monthly, and gives PhD students, particularly part-time students, a forum within which they discuss their research. Many students see this as an essential support within the University system and about 50% of the presenters are female post-graduate students.

Dr. Ita Richardson, (Dept CSIS), and Dr. Catherine Adley (CES), have organised and participated in role model days for young women run by Women in Technology and Science (WITS). These role model days give schoolgirls an opportunity to hear about SET careers from women working in SET, and to discuss these careers in an informal setting. Dr. Richardson also talks to female second-level students on a regular basis about careers in computing and software engineering. Through WITS, she has had an input into SET policy at National level and also to the recent Forfás report on Womens’ participation in Science Engineering and Technology. In the proposal for the Irish Software Engineering Research Centre, Dr. Richardson’s role includes the position of Outreach and Equality Manager, within which she will have responsibility for the promotion of software engineering to women and other potential third-level students.

Through the Equal Opportunities Committee, within the past year the University has secured funding through the University of Limerick Foundation for the implementation of positive actions for women within the University. This includes actions such as the employment of an Equality Manager, the development of training programs for support staff and setting up a womens’ network. The Centre for Teaching and Learning has run writers’ retreats within the University of Limerick since 2000 and up to 80% of participants have been women. Output from these retreats has included publication of journal and conference papers, collaboration with other researchers and the development of writing skills among researchers.

To date at the University of Limerick many equality initiatives have been instigated by individuals who had an interest in gender equality but were not specialists in the area of gender equality. In contrast, the aforementioned Equality Manager will focus on the needs of female faculty and staff. This is a wide focus and will not address
gender issues specifically relating to Science and Engineering faculty, researchers and potential future researchers.

The University proposes these and other initiatives (see Table 2) will be expanded in the future, through continued initiatives including those now offered by SFI, resulting in tangible changes to the role of women in Science and Technology at the University. This Self-Assessment Exercise will enable the University to add to these initiatives and to determine how each of the existing initiatives can be leveraged for women in science and engineering research, thus completing table 2.

**Table 1.2: Ongoing Initiatives**

<table>
<thead>
<tr>
<th>Initiative</th>
<th>Brief Description</th>
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</thead>
<tbody>
<tr>
<td>Equal Opportunities Committee</td>
<td>An Equal Opportunities Committee was established by the Vice President Academic and Registrar in 1998 and has been very active in facilitating and driving equality in the University of Limerick.</td>
</tr>
<tr>
<td>Vice President Research</td>
<td>Research Scholars – This initiative created dedicated posts at senior research fellow level across the University. Currently 50% of theses positions are held by women.</td>
</tr>
<tr>
<td>Support Groups.</td>
<td>Under Sustaining Progress, the University of Limerick has established support programmes for women in support staff and faculty roles.</td>
</tr>
<tr>
<td>Targets for representation of women in key grades.</td>
<td>The University has committed to the development of targets for women in key grades, as well as a Positive Action Plan for women.</td>
</tr>
<tr>
<td>Other Proposed Initiatives</td>
<td>Key equality priorities over the coming 18 months include plans to run equal opportunities awareness training, positive action training, and to create a UL women’s forum. The extent of these activities will be subject to funding.</td>
</tr>
<tr>
<td>Career Development for Women Programme</td>
<td>This programme has already been run and a further rollout is planned for later in 2005.</td>
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To conclude, it is apparent that while legislative changes guarantee equal rights for men and women, they have resulted in few changes in the socio-economic status of women, with horizontal and vertical gender segregation still evident today. In addition the major areas of employment availability are increasingly those areas, which have traditionally been characterised by high concentrations of women anyway.

We saw how career difficulties faced by women are as a result of structural constraints, and ideological and cultural factors, such as gender-role stereotypes, and how women use several strategies to resist these forms of gender segregation in academic institutions. It was then shown how there are primarily three types of initiatives being used to counter this gender imbalance, initiatives encouraging females to enter science, engineering and technology, initiatives which support women currently studying or pursuing careers in the area, and initiatives which aspire to change the culture of science, engineering and technology to make it more inclusive. We then saw how these types of initiatives fall under 5 ‘positions’, before looking at initiatives in the university of limerick. What was clear from this was that the initiatives at the University of Limerick mainly fall under positions 1 to 3. We identified the advantages and shortfalls of each of these ‘positions’ and will now test these initiatives empirically to investigate the supports and barriers that exist for female researchers in Science, Engineering and Technology at the University of Limerick.
It was felt that Qualitative evaluation techniques were the best option for capturing information on female students’ reasons for their choices, their experiences as students and members of staff, and their reactions to various initiatives and intervention strategies within SET. Creswell (1998: 15) described qualitative research as a process of understanding based on distinct methodological traditions of inquiry that explore a social or human problem, with the researcher building a complex holistic picture, analysing words, and reporting the views of respondents. Therefore it was felt that the qualitative paradigm was more appropriate for this particular topic as it allowed us to gain an insight into the respondents’ perceptions and beliefs on what barriers and supports exist for women within SET at the University of Limerick. In terms of secondary research, published material on women in Science, Engineering, and Technology was sourced. These reports were then used as background reference material for this report. The literature review in turn influenced the content of the open-ended questions in this qualitative study.

**Grounded theory:**
Strauss and Corbin (1990: 24) describe grounded theory as “a qualitative research method that uses a systematic set of procedures to develop an inductively derived grounded theory about a phenomenon”. It was decided to use grounded theory as the chosen method of data analysis as it was felt that it was most apt for developing emergent theory, even if the generated theory conflicted with findings from previous research on this subject. Glaser and Strauss (1967) argued that we should allow theory to develop from data interpretation but we are inevitably faced with the problem of making sense out of vast amount of data. Mintzberg (1979) described two essential steps in inductive research, firstly where we search through a phenomenon looking for order, following one lead to another and ultimately followed by a creative leap, where we generate theory from the data.

When considering the performance of grounded theory, it was vital to recognise that there was some conflict between the fact that the research was theoretically driven and the purist qualitative / grounded theory belief that the theory should emerge from the data. Nonetheless both viewpoints are compatible as the ‘facts’ that emerge from
the data speak for themselves and are separate from a researchers’ theoretical framework and prior understanding. Parry (1998) argues that comparing the emergent theory with existing literature helps us to avoid the possibility of existing theories or biases being forced onto the data we collected. Additionally Corbin and Strauss (1990: 7) believe that theories cannot be constructed only from actual incidents / themes emanating from the raw data. Instead these incidents / themes are analysed as potential indicators of phenomena, and are consequently given conceptual labels.

Selection of participants:
In July 2005, all female post-graduate students, faculty, and post doctoral students were e-mailed, informing them of the research and inviting them to participate in the project. Fourteen people from this group then volunteered to take part in the study. The names of the respondents have been changed to preserve confidentiality.

The interview guide was made up of a series of semi structured open-ended questions which enabled the discussion of issues that arose from a critical reading of existing literature but also allowed the flexibility to deviate as other issues emerged. These new emerging issues were included in subsequent interview schedules. This fits well with the adaptability provided by a qualitative methodology. The interview schedule covered the experiences of female researchers in SET and their perceptions of the supports that exist within the University of Limerick in particular. The first section of the interview schedule focused on the respondents views on participation rates of women in SET. The second section dealt with their views on the experiences of women within SET. The third section of the interview schedule focused on the views of the respondents in relation to how policy impacts on the numbers and experiences of women in SET. The fourth section dealt with the respondents’ evaluation of University policy with regards to women in SET. The final section of the interview schedule focused on any changes the respondents wished to see introduced in the area.

Analysis and writing up:
Having obtained the data, notes made from the data were used to identify developing themes. The analysis of the raw data was based on data reduction and interpretation of that data. Nvivo computer software was used to assist in this analysis of the data. The analysis was based on immersion in the data. Grounded theory provides a procedure for developing categories (open coding), interconnecting the categories (axial coding),
building a story that connects the categories (selective coding) and ending with a set of discursive theoretical propositions (Creswell, 1998: 150).

The diagram below is a useful guide for reducing the data into themes and creating a theoretical account to explain this social phenomenon. Through a process of reading through the data line by line, time after time, emergent themes, codes and categories were searched for.

Figure 2.1:

![Diagram](image)

*Source: Creswell, (1998) page 160*

Particular attention was paid to issues that had not appeared in the literature review and most flexibility in generating new categories existed in the earliest stages of this research as the analysis began with open coding. Strauss and Corbin (1990: 97) described open coding as the process that “fractures the data and allows one to identify some categories, their properties and dimensional locations”. In this phase the data was examined for significant categories supported by the text, and the data set was continually reduced set using the constant comparative approach until saturation

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2 I continued looking for instances that represent the category until all the new information didn’t provide further insight into the category (Creswell, 1998:150). This was done for each of the categories identified during the open coding of the data.
point had been reached. This process resulted in a set of themes and categories that characterised the phenomenon being explored (Creswell, 1998: 150).

Three criteria were then concentrated upon (Creswell, 1998: 302) to select core categories from the data, those being (a) the centrality of a category in relation to the other categories, (b) the frequency with which it occurs in the data, and (c) the simplicity of its inference for producing the emergent theory. From these categories the central phenomenon was identified. The transcripts were then read horizontally and through the process of axial coding, described by Strauss and Corbin (1990: 97) as putting the data “back together in new ways by making connections between a category and its subcategories” the inter relationship of categories was explored. From here a process of connecting the categories through selective coding was undertaken in order to end up with theoretical proposals (Creswell, 1998: 150).
Presentation of Findings

3.1 Women and Work:

Legislative Changes:

Eight respondents\(^3\) felt that legislative changes now guarantee equal rights and have resulted in changes in the socio-economic status of women. The general view was that “legislative changes did not solve all the problems regarding the socio-economic status of women, but… they helped and gave women confidence.” In addition a respondent spoke of how she remembered, “when women used to have to resign when they got married” and how “a lot has changed and younger women these days don’t really appreciate the changes that have occurred in say the last 30 years”.

Six respondents\(^4\) in contrast felt that while legislative changes now guarantee equal rights, in reality they have resulted in few changes in the socio-economic status of women. A respondent put it best when she said “I believe that in some parts of the world and in some areas of work things are very much the same despite changes in legislation…. In the end, I don’t think legislation can force these things to happen. It helps of course, but it takes a change in traditions and culture and to be fully successful”.

Gendered Employment:

Furthermore eleven\(^5\) of the fourteen respondents felt that that despite changing attitudes towards women’s employment, jobs remain very much gendered. In general these respondents felt that certain jobs very much remain gendered but that the situation was changing slowly. A respondent had forceful views on this matter stating:

“Look at the number of male to female professors at UL and no women in Science! Attitudes don’t change behaviour. Although there are many more women involved in science now... it is a slow process and many of the people at the top come from an era when women were excluded. Jobs continue to be very gendered.”

\(^3\) Four respondents were faculty, three were post doctorates and one was a post graduate.

\(^4\) Two respondents were faculty, two were post doctorates and two were post graduates.

\(^5\) Four respondents were faculty, three were post doctorates and four were post graduates.
Interestingly when women move into traditionally male areas they have to out-perform their male colleagues just to hold on to their jobs, whereas the converse is true when men move into female dominated areas”.

In contrast to this viewpoint only three\textsuperscript{6} of the respondents believed that jobs are no longer gendered. A respondent highlights this when saying “the jobs themselves are not gendered, the infrastructure is there, access to training and education is available on an equal basis, opportunities are available on an equal basis”. In addition she felt that “Some of the legislative changes have allowed women but haven’t forced women to do things like SET. Women make choices”.

It was interesting to find that in spite of the vast majority of respondents believing that jobs remain gendered, only 1/3\textsuperscript{rd} of the respondents\textsuperscript{7} believed that women are accepting the ‘compromise’ of traditionally ‘feminine’ professional destinations, happy to be gaining a relative degree of upward mobility through their educational qualifications. The dominant belief was that the compromise is often brought on by family commitments, with “women in middle-youth … changing career paths to organisations that are more family friendly”. Conversely eight respondents\textsuperscript{8} didn’t believe women were accepting this form of ‘compromise’. A respondent provides a good example of this viewpoint when she spoke of how

“women my age with my opportunities don’t even stop to think about what they are doing. Like I would never have thought that it would be unusual to do physics. I did applied physics as my primary degree…. I kind of always had the view, sure why would there not be girls in it & it’s very normal…. but then when I went out into industry to work, I noticed a big difference in the numbers of women in the jobs and in the higher end jobs especially”.

\textsuperscript{6} Two respondents were faculty and one was a post graduate.

\textsuperscript{7} Two respondents were post doctorates, one was faculty and one was a post graduate.

\textsuperscript{8} Three respondents were faculty, one was a post doctorate and four were post graduates.
Finally it is interesting to note that A respondent felt that issues such as “childcare costs are forcing women into that situation where they take second place to a partner who can achieve greater career mobility”.

3.2 **Barriers to women in SET:**

As is apparent from figure 3.1 below, there are two main barriers experienced by women in SET, those being barriers to entry to SET and barriers faced by women already involved in SET.

*Barriers to Entry:*

Four respondents\(^9\) spoke of how second level needs to change if we are to see the changes required at third level. A respondent felt that “socially there still is a perception that boys do things like applied maths and those kinds of subjects, so I think boys schools do offer male subjects and girls schools offer more feminine subjects”. In addition and more worryingly another respondent believes that

> “There is a big gap between 2nd and 3rd level. Whatever the teachers are doing in secondary school now they are spoon feeding them and when they come here they want to be spoon-fed here as well. They don’t want to think. They don’t want to think in class and they certainly don’t want to think in an exam. It is all focused on the leaving cert”.

Following on from this, four respondents\(^10\) feel that career guidance teachers at second level have a pivotal role in encouraging more women to undertake SET. However three of these four respondents expressed the view that those guidance counsellors are not adequately trained to fully inform students of the opportunities, pitfalls, advantages etc of careers in SET. This point was aptly highlighted by a respondent who said that

> “I went to my career guidance teacher and she again was on about all that nursing, occupational therapy stuff, and I was like, I just said

\(^9\) Three respondents were faculty and one was a post doctorate  
\(^10\) Two respondents were faculty and one was a post doctorate
I’m not good with people and I like science, what should I do? They assume if you like science that you like biology, she wasn’t clued into the other options that were available to me at the time”.

Two additional factors which may be preventing people applying for courses in SET were highlighted by a respondent. Employment rates for students from some courses in SET have been relatively low for the last number of years and this may be resulting in women believing that “there are more attractive opportunities available in other areas that are more traditional, like the humanities”. Furthermore the fact that there are such high failure rates within certain colleges in SET and these rates are known, impacts on the applications for those courses, “because it is seen as a harder option”.

Figure 3.1:
**Negative Impact Policies:**

Seven Respondents\(^{11}\) felt that there were no policies introduced at UL which had a direct negative impact on women in SET. Conversely three respondents\(^{12}\) highlighted issues which they felt did have a direct negative impact on the participation of women in SET. Firstly a male dominated ethos at management level was identified as impacting negatively. Secondly it emerged that a research / teaching imbalance exists which results in researchers not having “the career path that people who are lecturing have”. Finally the importance placed on the number of publications was highlighted as something that impacts detrimentally on women in SET as it is often at odds with family commitments.

**Inherent Bias?**

Only two women\(^{13}\) held the opinion that women’s under representation in SET is primarily the result of inherent bias within the social construction of SET. In contrast eight respondents\(^{14}\) did not believe this to be the case, with more than half of these women believing motherhood to be the biggest hurdle to women in SET. A respondent puts this best when saying that many women in SET “feel guilty about ‘neglecting’ their families/children. They always put themselves last I think”. In relation to the argument that the cultural construction of SET as masculine results in women experiencing a conflict between their gender identity and the masculine culture of SET, only one respondent\(^{15}\) believed this to be the case. In contrast nine women\(^{16}\) had not experienced any difficulties in this area.

Eight respondents\(^{17}\) believed both the system of recruitment and career development in SET are biased toward the success of males. One respondent spoke of how she believed that “there is a bias against acknowledging the different working ways and methods required by women” while another believed that “not from policy but from what I have heard people saying, that if you have a family and things like that, then you are not considered to have enough dedication to the job, and therefore

\(^{11}\) Four respondents were faculty, while three were post graduates  
\(^{12}\) Two faculty and one post doctorate  
\(^{13}\) One faculty and one post doctorate  
\(^{14}\) Three faculty, one post graduate and four post doctorates  
\(^{15}\) A postgraduate  
\(^{16}\) Five faculty, two post graduate and two post doctorates  
\(^{17}\) Four faculty, two post graduate and two post doctorates
management roles and higher up roles wouldn’t be preferred for those”. This point was reiterated by a further respondent who states that “it is biased towards those who can work long hours in stressful and demanding positions. This is why some of the most successful and high profile women in SET are either (a) unmarried and/or (b) childless”. In comparison to this point of view six respondents didn’t believe that the system of recruitment or career development within SET is in any way biased towards the success of males. One respondent eloquently expresses the prevailing view when saying

“I don’t think that the system is biased in any way. Males outnumber females but I think this is due to the smaller number of females in SET. I think this will gradually change in the future as more women choose careers in SET”.

When asked specifically whether is a male dominated ethos at management level in UL, ten respondents believed this to be the case. A respondent believed that there is a “very male dominated culture / subtext of “boys” club evident… specifically in Science”. While another also believed this to be the case she believed that “the problem lies in the fact that women are only starting to get more involved” and sees this situation changing as women gain experience.

In spite of the widespread belief that a male dominated ethos exists at management level in UL only four respondents believed male personnel in senior positions within UL have a dismissive/patronising attitude towards women at a professional equal level. A respondent felt that “UL is not woman friendly as the prevailing culture favours competitive aggressive people”, while another states “the predominant attitude is rather dismissive at worst or disengaged at best”. In contrast six of the participants did not believe this to be the case. Additionally they expressed the view that they did not believe that the male culture is particularly oppressive of women within or outside UL. In fact one respondent expressed the view that in her “more

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18 Two faculty, three post graduate and one post doctorates
19 Six faculty and four post graduates
20 Two faculty and two post graduates
21 Three faculty, two post graduate and one post doctorate
cynical moments I would say they can be equally dismissive/patronising of their male colleagues”.

It emerged from the data that all of the respondents believe that informal communication, networking, and human groupings are important to achieve appointments etc. However there were variations on just how much influence these informal networks have. For example one respondent said she didn’t believe “people are appointed to positions on the basis of networking etc, but it can help to get to the interview stage”, while another believed these networks are important at “a certain stage in your career but ….at entry level jobs particularly in the big companies its very rigid”. An additional respondent believed that informal networks play a big part in the recruitment process stating

“A lot of people get jobs through people that they know from being at conferences or groups that they are in or things like that. Often you would see a job advertised, you would know the company and you would know the person who is going to get the job, because they know somebody or they have worked there before or that”.

There were also an almost even split between the respondents over whether they believed that women in SET are lacking in these informal contacts. Seven respondents22 believed that women lack these contacts while six respondents23 did not believe this to be the case. One respondent believes there is “more heterogeneity amongst women working in SET so less chance of common ground for networking”, while another provides an interesting insight when saying

“I think being female constrains making these contacts in lots of ways especially when much of the hierarchy is already male. For example difficulty of having friendships with men (what will their wives think? What will my husband think?), not playing golf, not wanting to/able to spend hours in the pub and so on”.

22 Four faculty, two post doctorates and one post graduate.
23 Two faculty, one post doctorate and three post graduate
The opposing viewpoint offered was that women don’t lack these networks or there are no reasons why women should lack them. One particular respondent believes that

“The networks happen, but tend to happen among women in the same circumstances, look at the coffee sessions after PhD Forums; groupings tend to be similar age profiles, similar career stages, similar family circumstances”.

In addition the view was expressed that lacking these networks is not as a result of being male or female. It is more a matter of “personality and communication skills…. Some academics are better than other in creating links, whether male or female. The opportunities are there”. Finally a respondent made an interesting point in relation to these forms of networks when she said people in UL “used to rely on informal contact and now rely on the itd e-mails…. A lot of people don’t have time to read those e-mails today and they are cluttering up their inbox so they delete them”.

Several measures were identified by the respondents, which could address women’s lack of these informal networks. The overall feeling was that there needs to be a greater cultural acceptance of career women, which would then allow women to build up these informal networks that we have spoken of. One respondent pointed out that “with the expense of childcare it is sometimes necessary for one parent to stay at home and socially it is more accepted for a woman to do this”. This has a detrimental impact on women. Thus we should “widen family friendly policies within organisations and address the gender imbalance in family responsibilities”. To this end two respondents24 were adamant that “government funded crèches for working parents would help make the decision for women to focus more on their careers easier”. Finally it was argued that women’s lack of informal networks needs to be addressed through “an examination of cultures rather than through trying to make women more like men”.

24 A postgraduate and a member of faculty
However two respondents felt women’s lack of informal networks was primarily their own choice. “If they feel they aren’t making enough contacts, it’s up to them to do something about it”. This point was reiterated by another respondent who stated:

“If people are just more brave about taking things on and not being afraid to say yes I am here and I am defiantly capable but I also have a family and that is part of who I am. I think it is down to the individual”.

Nine respondents believe that family constraints impact on women’s ability to build more contacts and networks. One individual spoke of knowing “several women that in order to compete in a predominantly male environment have delayed or decided against having children or given up their jobs when having children”. Furthermore an additional respondent spoke of her fear of being able to progress up the career ladder and have a family at the same time. “I feel under pressure to make a decision one way or another, to do one thing or the other and not be able to do both”. Finally one of the study’s participants spoke of having first hand knowledge of how having a family constrains women in particular and creates a conflict between career and family.

“In my own case, my children, especially when they were young, where we were located was particularly important. The idea of going to Dublin because there was a better job there would have scared the hell out of me because of the changes that it would have made to my children’s location, and I think its possible that men don’t take those things into account as much and are more inclined to move”.

However five women did not believe that family constraints impact on network building. The prevailing view was that it is a personal choice. One individual felt that “at some stage each person, male and female, has to decide which to put first, job or family… In my own experience I think that some men are just as willing as women to put their family before this career”.

25 Five faculty, two post doctorate and two post graduate
26 One faculty, one post doctorate and three post graduate
It emerged from the data that the respondents believe initiatives which, favour women are stigmatised within academia. A respondent spoke of how “initiatives within SFI in particular which are aimed at encouraging women back into SET are derided by some male academics who think the science is less if it is funded on a gender basis”. In addition a clear division exists between respondents as to whether positive discrimination on gender basis is helpful in trying to attain acceptance for women. This division is aptly highlighted by one woman who states.

“I know some women who would not apply for special funding for women. They said no way. If they want to be treated as an equal then why should they get special treatment? I think these opportunities are great for women. In any job you take what you have and you use it to your benefit, and if being a woman in my job helps me to get ahead then I would use that and I don’t see it as being a problem, in the same was as being big and strong helps you to be a builder. You use what you have got”.

Vanishing Opportunities in Academia?
In relation to whether respondents believe opportunities for women start to vanish once they try to progress beyond junior faculty positions, five respondents believed this to be true. In contrast nine respondents did not agree. One participant believes that “SET has been dominated by men in the past so it is only natural that until more women establish themselves in this area men will occupy the more senior positions as they are more qualified”. One final point of interest in relation to opportunities for women starting to vanish once they try to progress beyond junior faculty positions was made by another respondent. She spoke of two promotions to higher jobs. One way was to become a professor without any administrative responsibilities, and the other was to become a head of department. The second option “has an awful lot more administration and headaches because everybody wants to come and tell the head of department things. I would say it is probably much easier for a woman to get that job”.

27 Two Faculty, two post doctorates and a post graduate
Seven respondents\textsuperscript{28} experienced absolutely no difficulty within SET along their educational paths or academic careers. Conversely almost half (six) respondents\textsuperscript{29} had experienced difficulties. In keeping with what was mentioned earlier about family constraints, one participant expresses the view of three respondents when said she had experienced no difficulties in her academic career until she had a child.

“Now there are practical difficulties e.g. not wanting to travel to conferences too far abroad for too long though they are a necessary part of academic life... if I have more children which results in gaps in my CV - publications, presentations, supervision and therefore difficulty in getting promoted. Research is a continuous process and gaps make it difficult”.

In addition an individual spoke of having enormous stress from trying to meet many and multifarious goals simultaneously...(with) the university disinterested in the person they employed”. Four respondents\textsuperscript{30} had first hand knowledge of resistance to forms of gender segregation in academic institutions as identified by O’Connor (2000). One respondent represents the views of these four when she states

“It’s often tempting to withdraw from the wider organizational structure as there are so many battles it takes too much energy. Commonly have to make the decision whether to ignore sexist/patronizing remarks or come up with a response and make people feel uncomfortable; sometimes cannot be bothered”

In addition a participant said she has “experience of women I know well having to disclose certain practices in the workplace bullying, harassment” though she hadn’t had to do this herself. In contrast nine respondents\textsuperscript{31} had no experience of this withdrawing from the wider organizational structure or disclosing illegal, unethical, or

\textsuperscript{28} Four respondents were faculty, one was a post doctorate and two were post graduates.
\textsuperscript{29} Two Faculty, one post doctorate and three post graduates
\textsuperscript{30} Two faculty and two post graduates
\textsuperscript{31} Three faculty, three post doctorates and three post graduates
harmful practices in the workplace to parties who might take action etc, (O’ Connor, 2000).

3.3 Current Supports and Initiatives:
This section presents the respondents views on current initiatives which seek to promote SET to women. In addition it focusing on what supports exist for women already in SET at UL. As can be seen from figure 3.2 there are three main initiatives to attract women into SET.

Figure 3.2

![Figure 3.2: Current Supports & Initiatives](image-url)
Promoting SET

All bar one\textsuperscript{32} of the respondents believe that role model days where women get to hear about careers in SET from women working in area will help to increase the numbers of women participating in SET. One woman felt that “if women see someone they can identify with, they can imagine themselves doing something similar and know that it is possible”. Furthermore a respondent felt it is important to include young children and target primary schools also. Another individual felt that the role model initiative is good because

\begin{quote}
the schools aren’t driving it and the teachers don’t really seem to care, well maybe that’s a bit unfair, they come in to teach a subject and they don’t really care where you go after school. You know they just want to get you to get your exams. So I think the universities need to drive what’s happening in the schools to get them in afterwards
\end{quote}

One woman made a very interesting point in relation to this initiative. She believes that the universities should send out younger women maybe starting a PhD rather than older women in the higher positions within the university.

\begin{quote}
you have only got half an hour to make an impact and you know yourself when you are a teenager anybody over 20 is old…. there is kind of a cultural gap between people like me, who left school 30 years ago and today’s school leavers and the kind of things that they are interested in and the kind of things they pay attention to
\end{quote}

It emerged that that only two respondents\textsuperscript{33} believe initiatives promoting equality of opportunity will not prove to be successful in encouraging more women into SET. However eleven respondents held opposing views and did believe that these kinds of initiatives would be successful in attracting more women into SET. One represents the views expressed by these respondents when saying these initiatives which promote equality of opportunity “have a part to play in demonstrating that this is an area where

\textsuperscript{32} A faculty member
\textsuperscript{33} Both post graduates
women’s issues are understood and women have a fair chance”. In addition another individual believes they will be successful in encouraging women to stay in SET.

Seven respondents\(^{34}\) were in favour of the implementation of positive actions for women such as the employment of an Equality Manager, the development of training programs for support staff and setting up a women’s’ network within the University. A participant believed that it “sets a standard and shows that these things are important. Having these positions as formal arrangements show the public that we care about these issues” This in turn “reinforces the commitment of the university to equality and democracy. Gives a positive impression, makes it desirable for good people to join the UL staff”. However four respondents\(^{35}\) were not in favour of the implementation of these positive actions for women. Three of the four respondents felt equality manager was a good idea only if it meant equality for both genders otherwise it would breed resentment. One woman felt that “The aim should be to fully integrate both sexes as the number of women in SET grows”. Another went a step further and expressed a view that there are more important roles in HR to fill that would benefit all employees.

“As far as I know there isn’t a Training and Development Manager or a manager / senior officer within HR dealing with Employee Well Being / Family Friendly policies within UL. This surely should take priority; the University has to be seen as taking a holistic approach to the development of all her employees”.

The data showed that five respondents\(^{36}\) did not believe that initiatives that simply widen access to higher education would prove to be successful in encouraging more women into SET. In addition two respondents\(^{37}\) believed that widening access would be equally beneficial for males and females. In contrast seven respondents\(^{38}\) were adamant that widening access would encourage more women into SET.

\(^{34}\) Three faculty, two post graduates and two post doctorates
\(^{35}\) Two post graduates and two faculty
\(^{36}\) Two faculty, one post doctorate and two post graduates
\(^{37}\) One faculty and one post doctorate
\(^{38}\) Three faculty, one post doctorate and three post graduates
One individual argued they are important as

“A lot of women for various reasons get sidetracked doing various things at earlier stages in their lives like babies and that... I know lots of women who have changed career or got into a good career after not having a career in their thirties. It seems to be something that women seem to tune into that very well”.

Thus widening access will allow women to avail of a second chance opportunity to make up for getting ‘sidetracked’ at earlier stages in their lives. However one particular woman felt that if

“widening access to higher education’ means lowering entry standards, then ultimately, it is pointless. There is no getting around it, the sciences and engineering are difficult and demand competency in mathematics and critical thinking, from everyone”

In addition it is encouraging to note that almost all of the respondents believed that the Foundation Course in SET for Women at UL will have a positive impact on the numbers of women in SET, with a respondent echoing the views expressed previously by another woman when she said “for older women this might have an impact. Women that wouldn’t have had the opportunity to pursue careers in SET when they were in second level school”. Only one respondent felt that the Foundation Course in UL would not have an impact “at any significant level- they are tokenism”.

**Supports:**

Five respondents\(^\text{39}\) believe that the PhD forum run by the College of Informatics and Electronics is beneficial for women in SET in UL. Respondent spoke of how the forum gives “people the opportunity to present their work in a non-threatening environment and to then obtain feedback on their work before they present more formally”. In addition “it helps to know someone is going thro what you’re going thro and have the same experiences/insecurities etc”. However eight respondents\(^\text{40}\) believed that the forum is “no more or less beneficial (for Women) than it will be to

\(^{39}\) Two faculty and three post graduates

\(^{40}\) Four faculty, a post graduate and three post doctorates
all other PhD students”. Finally only one respondent\textsuperscript{41} didn’t feel that the forum is beneficial for women in SET, as it is “hard to carve out yet more time. There is not a culture of allowing that even within female led departments”.

Four respondents\textsuperscript{42} believe that the Writers Retreats run by the Centre for Teaching and Learning at UL is beneficial for women in SET. One woman argued it was helpful as it provides “a forum for women to discuss relevant issues away from the daily routine”. Additionally five respondents\textsuperscript{43} believed the writer’s retreats were not any more beneficial for women than they were for men as “any initiative that involves the interaction of men and women within SET is worthwhile and beneficial to both sexes”. However in reply to this another participant believes

“I suppose it might be a bit unfair to say that women might be a bit more inclined to do these things, but they generally are more inclined to sign up for the things... So in that sense it will benefit them more... the fact that they are being run and mostly being taken up by women, generally speaking, gives you all these tools to progress, get better at your job. So in an indirect way it probably has helped women more”.

Finally only two respondents\textsuperscript{44} didn’t feel the retreats are beneficial for women in SET, with one participant arguing that as “a female with children how would I ever manage to find time to go on one?”

Several measures introduced at UL were identified by the respondents as having positively impacted on women in SET. Two respondents\textsuperscript{45} mentioned the on – campus crèche and the maternity leave system as being particularly helpful. One individual spoke of the University promoting talking to guidance teachers. In addition she mentioned STARS for science teachers who were doing research last summer. She believed that “because they had spent so much time in here and were then going

\textsuperscript{41} A post graduate
\textsuperscript{42} Two faculty one post doctorate and a post graduate
\textsuperscript{43} One post doctorate and four post graduates
\textsuperscript{44} Two faculty
\textsuperscript{45} One post graduate and a faculty member
back to their schools they may influence future students”. Additionally a respondent mentioned a couple of measures in particular.

“I know mechanical engineering is bringing in a new module into 1st year... they are bringing in this introduction to engineering module which is where they learn about the ethics in the profession and there is no exam at the end of the semester, which is great, we do a lot of company visits and you do group projects and presentations. You learn presentation skills. So it’s an introductory subject that makes you actually like engineering, so I think that would be helpful towards drop out rates”.

In addition she felt that the “initiative where you could work for term time only and take the summer off, but you would get paid your salary paid out over the year” was a very good programme. She added “I’m sure if I did have a family and I was 10 years older I would probably try that programme”. Finally she noted that

“I’m in the institute of physics and they have a lot of initiatives going on like these science busses going around on tours and big displays on science and just getting kids in general interested in science, which again is a general initiative but it should hit more girls at that age too”.

In contrast five respondents said they knew of no measures introduced at UL which had impacted in a positive manner on women in SET. Finally an interesting point was raised by a respondent when she said “I know from friends who are industry we have a good work life in comparison to people who work and have to be on shift or don’t have a crèche on site and things like that”.

Recruitment in UL:
Nine of the respondents believed that the system of recruitment in UL is fair. One individual summed up the general feeling when stating “my experience was very positive and any that I have been directly involved with has been positive so far”. In

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46 Four faculty and a post graduate  
47 Four faculty, two post doctorate and three postgraduates
contrast only two respondents spoke badly of the system of recruitment in UL, with another individual describing it as “Cumbersome and inefficient”. An additional respondent went a step further, stating that UL’s system of recruitment is “apparently designed to put people off rather than to encourage their application”.

**UL Plans:**

As mentioned in the literature review UL has made a commitment to the development of targets for women in key grades, a Positive Action Plan for women, and plans to run equal opportunities awareness training, positive action training, and to create a UL women’s forum. The responses from the participants to these commitments by the university were varied. Three respondents\(^{48}\) did not believe these plans would be beneficial. They believe separating women from men is not the way to proceed. In response to the Women’s forum, one respondent had particularly strong views.

“I think creating a women’s forum is, for want of a better word, idiotic. No good can come from setting up a forum where woman only share their work with each other. The aim should be to get women more involved in mixed gender forums. I would not get involved in any initiative that is aimed solely at women. It is pointless and would provide no assistance to me in furthering my career”.

However seven respondents\(^{49}\) believed these plans would prove beneficial. It was argued that they would create awareness, confidence, and stimulate an exchange of ideas. One individual believes that “they are good plans that can be run right now and then be evaluated to see how they turned out in order to plan for the future”. In addition it was noted that “any initiative should be of benefit if it is implemented appropriately and with involvement from all relevant people”. However while one participant agreed these plans would prove to be beneficial for women in SET at UL she countered this by saying that she didn’t really

“agree with having a percentage of the staff of any grade, be it university or industry, and I think it’s a bit unfair on men to be honest,”

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\(^{48}\) Two postgraduates and one faculty member  
\(^{49}\) Three faculty, two post doctorates and a postgraduate
to say that we are going to hire $X$ amount of women for these jobs, because I think the best person for the job should be hired, be they male or female”.

3.4 Are Current Supports & initiatives the ideal ways of addressing this issue?
This section of the report now details the respondents’ views on whether the supports and initiatives in use at UL at the present time are the ideal ways of addressing the shortfall of women in SET, or if there are other initiatives that the respondents see as being preferable.

**Ideal Ways:**
Five respondents\(^{50}\) believed that the current supports and initiatives were the ideal ways of addressing this issue. In relation to not enough female students of SET, one respondent believes that “UL has been trying just as hard as any other institution”. She further states that in relation to not enough female faculty in SET, “we have a problem anyway, because due to falling student numbers in general, nobody is getting hired”. Finally another participant echoes the sentiments of the other four when she states that “the action plan, targets etc. will hopefully make a contribution and after that it’s up to us”. The belief that the initiatives and supports at present are new and need to be tried for a while was also present. “It takes time to see the benefits accrued at the end, you are not going to see the benefits at the start of a new initiative”. However it is noteworthy that there appears to be a complete lack of awareness of the support programmes for women in support staff and faculty roles that UL has established. Out of thirteen respondents only one was aware of some of these support programmes.

**Alternatives to current supports & initiatives:**
Seven respondents\(^{51}\) did not believe that the supports and initiatives in their current form were the ideal ways to address the issue of women in SET. Instead several suggestions were made as to changes which if introduced by UL would impact positively on both the participation rates and experiences of women in SET. One

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\(^{50}\) Two faculty, two post doctorates and a postgraduate

\(^{51}\) Three faculty and four post graduates
participant argued “the initiatives represent a benign way of addressing the issues”, while another offered an alternative viewpoint when stating

“I think that if the best idea for integrating women into SET is to set up events solely for women then there is an issue with the staff responsible for integrating women. I don’t think the amount of effort being put in to including women is necessary. It will happen as more women enter the workforce, which is happening. I think all these initiatives are having an opposite effect, they are making women feel more on the outside than they actually are”.

Thus she thought “organizing as many mixed gender events as possible is the best way forward”. Another respondent spoke of students with really good leaving cert results coming to UL and failing. She proposed to “try to get aptitude tests to students before they came in to see if the aptitude tests would be a better predictor of their success”. In addition two respondents suggested that “a concentration on making sure that everyone does enough mathematics so that they do not cut off their choices at tertiary level” would prove very beneficial. An additional respondent felt “a more open minded approach from the senior managers and Heads of Department” is what is needed, while finally one woman suggested the appointment of “people who have experience outside Ireland in key positions who would probably have greater acceptance/awareness of the role of women” was the way forward.

In addition to the alternative strategies offered, respondents identified strategies that could be used to counter shortfalls in the initiatives currently in place. A respondent argued that while open days are good “you have to be the type of student who wants to go to the stand and ask the questions”. Therefore she believed that focused school would prove to be more beneficial. In addition another felt that it is important for young girls to see women in SET positions and that when these young girls come to open days at university and only see men at the SET stands it can be really discouraging. Therefore she believes that prior planning of these open days must

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52 One Faculty and one post doctorate

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ensure that female faculty members are present “to show to second level students that it is possible for women to build successful careers in these areas”.

Those respondents who felt there were preferable approaches that should be used had a number of beliefs as to why the University is not currently using such approaches. Two respondents53 felt it was as a result of a male dominated hierarchy in the university “who are not used to be challenged by women”. One respondent was very sceptical as

“They tend to do things here(UL) in a top down way and occasionally they consult us and ask us what you think we should do. I had the experience of being on a committee in the college and it was when the numbers began to drop in the courses. There was one very powerful person on the committee. We came up with a few suggestions as to what could be done and the powerful person said we are wasting our time unless the money comes. Nothing was done because the will to spend the money wasn’t there.”

Finally respondents wishing to see the provision of alternative supports / initiatives provided opinions on just who must provide these alternatives. One participant believed that it probably take “a totally different management group/structure” or that “designated women’s groups could advise management on a full range of issues”, which would in turn enable the provision of alternative solutions to those currently in place. In complete contrast another woman who took part in the study believed that it is “up to women themselves to get involved. If women are content to sit back and have others push them forward than the situation can never change”.

3.5 Success of Supports & Initiatives at UL:

This final section presents the views of the respondents on whether the supports and initiatives in place for women in SET at UL at the present time will ultimately prove to be successful.

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53 Two faculty
Initiatives as a deficit:
Five respondents\(^{54}\) believed that most of the initiatives which have been tried in the past tend to treat the problem as one of a deficit on the part of women, and those who prepare them for higher education. In contrast only two respondents\(^{55}\) did not believe this to be the case. As a result six respondents\(^{56}\) thought that these types of initiative are insufficient, with one stressing the need for a “multifaceted approach”.

National intervention or individual university intervention?
Four respondents\(^{57}\) believed that to have the greatest chance of success it would be better for this issue to be addressed at a national level then rather than leaving it at the level of each individual university. One respondent believed if it is addressed at a national level it would be taken more seriously while another felt there was a need for a national campaign as she works in the college of engineering and doesn’t “even know that these things are happening”. In contrast only one respondent favoured “local action and autonomy rather than centralized dictat and control”. The majority of respondents\(^{58}\) felt the need for “a dual approach, national and university, as there will always be issues at a local level that need addressing locally”. One participant provided an insight when stating:

“There are some things like research which is better to do on a university basis... When it comes to recruiting undergrads the different colleges that are really stuck for students are trying to cooperate with each other. At the end of the day we hope that the students will come here rather than DCU but when DCU goes to the paper, on morning Ireland etc it will also have a knock on effect for us”.

Size to policy:
Ten respondents\(^{59}\) were of the opinion that size of the population of women in Science, Engineering and Technology (SET) will ultimately determine the policy

\(^{54}\) Two faculty and three postgraduates
\(^{55}\) A post doctorate and a postgraduate
\(^{56}\) Two faculty, one post doctorate and three postgraduates
\(^{57}\) A faculty member, a post doctorate and two post graduates
\(^{58}\) Four faculty and two post graduates
\(^{59}\) Three faculty, three post doctorates and four postgraduates
responses to the situation. “If there continues to be significantly fewer numbers of females in SOME areas of SET, there will continue to be initiatives to encourage more to participate”. Therefore there is a need for a critical mass if change is going to occur. The number of women in this area is still too small to have a real impact but as the numbers of women increase policies will change accordingly. To this end one respondent believes that a “united voice from people who believe in any particular issue can change policies. It not just about numbers in the group it’s more concerned with the strength of view held”. However another participant argued that it “depends on the outlook of the people who succeed to positions of influence and how they got there; they are often not sympathetic to the challenges faced by women, particular those with families”. Thus “it depends on the political will and interest in legislating in the area”.

Aspire to change the culture of SET

It was interesting to note that six respondents believe that initiatives promoted at UL to counter the gender imbalance in SET primarily encourage women to enter SET and or support women currently in the area, but don’t aspire to change the culture of SET to make it more inclusive. Respondents identified several implications for women as a direct result of the initiatives at UL not aspiring to change the culture of SET. One participant felt it led to “difficulty pursuing careers or getting promotion”. This point was reiterated by another who states,

“Where female gender issues come into play is when women try and progress through the hierarchy of their profession and work within multi-professional committees/structures. Many male personnel in senior positions within UL have a dismissive/patronising attitude towards women at a professional equal level. This is not so evident at junior faculty level, perhaps because the need for kudos is not so well developed”.

In addition the failure to address the culture of SET

“creates an imbalance in the sense that you are hoping the women will join. Then the women all join and there is a group of women in

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60 Four faculty, one post doctorate and one postgraduate
One respondent strongly believed that women would be “more comfortable joining a department if they felt that the men in the department were not old fashioned and sexist… the older generation who weren’t used to working with women. All they have ever had was a female secretary; they have never had a female who is a peer”. Thus the importance of addressing the male culture within SET becomes apparent. Finally two respondents\(^{61}\) felt it was up to women entering SET to bring about the necessary change as "this cannot be done from the outside or by legislation... only by being present you can make a difference”.

**Usefulness of self assessment exercise.**

There were conflicting opinions as to whether this self-assessment exercise will prove to be useful in enabling the University to add to current initiatives. Seven respondents\(^ {62}\) believed this self-assessment project would prove to be beneficial. One respondent made the point that the University needs to become aware of what women at the university think about working there and that self-assessment will play a major role in this. Additionally three respondents\(^ {63}\) felt the assessment would be useful from the point of informing the university that some of their initiatives need more publicity, a point made aptly made by one woman:

“I do think this is a good idea, to get peoples opinions on what is happening. Its come across from this that I don’t really know what initiatives are there and maybe a better promotion of what is there... and then you can figure out what is or isn’t working, but people don’t even know what’s going on to a certain extent. I mean there are things on offer that people don’t even know about”.

\(^{61}\) One member of the faculty and one postgraduate  
\(^{62}\) Four faculty, a post doctorate and two postgraduates  
\(^{63}\) A member of the faculty, a post graduate and a post doctorate
Of these seven respondents, four\textsuperscript{64} felt the usefulness of the project is dependent on whether “very senior management takes it seriously. There are many other initiative such as these which in themselves are extremely useful, that are then totally dismissed or paid lip service to within UL”. To this end one respondent suggested that anything this report recommends “should be carefully costed and somehow the costs justified otherwise they will just think of an excuse to put it on the shelf”.

Finally three respondents\textsuperscript{65} believed this self-assessment project would prove to be of no benefit. One participant argued it would not be beneficial, as “those in power are not interested in sharing or relinquishing their power”. Another individual concurred with some very forthright views saying that the project

“appears to be another ‘bottoms-up’ initiative. For example who initiated this survey? My understanding is one female member of staff who is genuinely interested in promoting women in SET and will work on this personally regardless of whether there is University support or not. What management support was shown in the covering letter? None... if the organisation was serious then the MD / President or as a minimum the HR Director would have sent a covering memo saying how committed the organisation was to change etc. etc... What was in the preliminary communications? References to an opportunity for funding! Again the subliminal message, UL will of course endorse anything that can bring external funding”.

\textsuperscript{64} Two faculty members, a post doctorate and a post graduate
\textsuperscript{65} Two faculty and a post graduate
Discussion of Findings

4.1 Analysing Women & the Labour Market:
As mentioned in the literature review, Drudy and Lynch (1993: 171) argued that while legislative changes guarantee equal rights for men and women, they have resulted in few changes in the socio-economic status of women, with horizontal and vertical gender segregation still evident today. From the findings it is clear that a majority of respondents did not agree with this assessment, with the general view being that while legislative changes haven’t solved all the problems regarding the socio-economic status of women they have helped.

In addition we saw in chapter one how authors such as Marauni (1992) suggest that the major areas of employment availability for women are increasingly those areas, which have traditionally been characterised by high concentrations of women. The findings show that that vast majority of respondents agree that jobs remain very much gendered, with the situation changing slowly. Thus Charles (2002) would appear to be correct in his assessment that although there is now a gender balance in the paid workforce, gender segregation is more resistant to change.

Finally in contrast to what was written about women perhaps accepting the ‘compromise’ of traditionally ‘feminine’ professional destinations while still gaining a relative degree of upward mobility through their educational qualification, the research shows only 1/3rd of the respondents believed this to be true. The dominant belief was that the compromise is often brought on by family commitments. It is clear therefore that a relationship exists between family commitments and the position a woman obtains in the labour market.

4.2 An analysis of the barriers faced by women in SET:
It was suggested in the review of previous literature that the causes of women’s under representation in SET appear to be a complex web of interdependent structural, ideological and cultural factors. This was borne out in the findings of the study.
Structural Constraints:
We saw earlier how Marks (2005) believes the system of recruitment and career development in the SET is biased toward the success of males, with opportunities for women starting to vanish once they try to progress beyond junior faculty positions. The majority of our respondents were in agreement that both the system of recruitment and career development in SET are biased toward the success of males. However in contrast to this view almost two thirds of our respondents did not believe that women’s opportunities vanish beyond junior faculty positions. In light of this it was noteworthy that only two respondents spoke badly of the system of recruitment.

Additionally Cronin & Rogers (1999: 643) revealed a variety of reasons for women opting out of or experiencing difficulty within SET at various points along their educational paths or academic careers. It is somewhat worrying to note that almost half of the respondents had experienced these difficulties, with family constraints imposing the greatest difficulty. Additionally as mentioned earlier, O’Connor (2000) identified several strategies which females use to resist forms of gender segregation in academic institutions. It was very encouraging to note that more than two thirds of the respondents had no first hand knowledge of these forms of resistance. However it would appear that Price and Priest (1996 cited in O’Connor, 2000: 219) are indeed correct when saying that counter-strategies to these strategies of resistance are put in place which includes the stigmatisation of initiatives favouring women. The majority of respondents believe that initiatives which favour women are stigmatised within academia and there was a clear division between the respondents as to whether positive discrimination in favour of women is helpful in trying to attain acceptance for women. Thus it is apparent that the process of bring about change through strategies of resistance that O’Connor refers to will indeed prove to be an extremely lengthy one.

One of the main areas of structural constraints was the lack of informal networks that women have. We saw how women are said to have fewer contacts because of family constraints, lack of mobility and time. While all of the respondents believe that informal communication, networking, and human groupings are important to achieve appointments etc, there were variations on just how much influence these informal networks have. In addition it is interesting that there was almost even split between
the respondents over whether they believed that women in SET are lacking in these informal contacts.

Finally in relation to structural constraints, it is encouraging to note that the majority of respondents believe that no policies were introduced at UL, which had a direct negative impact on women in SET.

**Ideological and cultural Constraints:**

As we saw earlier the argument exists that career difficulties faced by women are also as a result of ideological and cultural factors. It was extremely encouraging that only one respondent believed that the cultural construction of SET as masculine results in women experiencing a conflict between their gender identity and the masculine culture of SET. However the majority of respondents believe that family constraints impact on women’s ability to build more contacts and networks, and the overall feeling of the respondents is that there needs to be a greater cultural acceptance of career women, which would then allow women to build up these informal networks. To this end it was argued that there should be a widening of family friendly policies within organisations as well as attempting to address the gender imbalance in family responsibilities. To this end it is interesting to note the suggestion of one of the respondents who argued that government funded crèches for working parents would help make the decision for women to focus more on their careers easier”.

**An Evaluation of the Initiatives to address the gender imbalance in SET:**

It is very noteworthy that the majority of respondents felt the issue should be addressed simultaneously from a national level and at the level of each individual university. In addition it was argued that the size of the population of women in SET will ultimately determine the policy responses to the situation, with the need for a critical mass if change is going to occur.

In reviewing previous literature on this subject we saw how (Cronin & Rogers, 1999: 646) argued that there are three main types of initiatives in relation to women in SET, those being initiatives which aim to encourage females to enter SET, initiatives which attempt to support women currently in the area, and finally initiatives which aspire to
change the culture of SET to make it more inclusive. Cronin and Rogers (1999) further argued that all initiatives fall under five ‘positions’.

The first three of these positions seek to promote SET and focus on addressing the structural obstacles to women’s equity. It was slightly worrying that half of the respondents did not believe that initiatives that simply widen access to higher education will prove to be successful in encouraging more women into SET. However in it was very encouraging to note that the respondents almost in their entirety believed that the Foundation Course in SET for Women at UL will have a positive impact on the numbers of women in SET.

In relation to role model days, it was very encouraging to note that all bar one of the respondents believe that role model days will help to increase the numbers of women participating in SET. However the view expressed that universities should send out younger women was convincing and should be considered strongly.

We saw earlier how the PhD forum in UL has approximately 50% female presenters. In keeping with these figures the majority of our respondents believed that the forum is no more or less beneficial for Women than it is for men. Thus it would appear that this particular support is not the most valuable in existence at UL. The majority of respondents didn’t believe that the Writers Retreats were any more beneficial for women than they were for men. However it is encouraging that only two respondents didn’t feel the retreats are of any benefit. Additionally it was pointed out that in an indirect way it probably has helped women more. This fact seems to corroborate the information relayed in the literature which stated that up to 80% of participants on these writers retreats have been women and output has included the publication of journal and conference papers.

In relation to the implementation of positive actions for women within the University, it was very encouraging to observe that respondents favoured the implementation of positive actions for women by a ratio of almost two to one. We also saw from the findings that a number of other initiatives and supports were identified as having a positive impact on women’s participation rates within SET at the University of Limerick.
Thus it is apparent from the findings therefore that the initiatives at the University of Limerick mainly fall under positions 1 to 3. A sizeable minority believed current supports and initiatives were the ideal ways of addressing this issue with the belief that the initiatives and supports at present are new and need to be tried for a while. However the majority of respondents believe that most of the initiatives, which have been tried in the past, treat the problem as one of a deficit on the part of women, and those who prepare them for higher education, and as a result thought that these types of initiative are insufficient.

The fourth position, “Subject science, engineering and technology to critical analysis,” as identified by (Cronin & Rogers, 1999: 651) sees women’s under representation as being primarily the result of inherent bias within the social construction of SET. Again it is encouraging that only two women held this view. It is noteworthy that ten respondents believed there is male dominated ethos at management level in UL, yet only four respondents believed male personnel in senior positions within UL have a dismissive/patronising attitude towards women at a professional equal level. This would seem to suggest that women’s’ under representation within SET at UL is not as a result of any inherent bias within the social construction of SET.

*Should we aspire to change the culture of SET?*

Cronin & Rogers’ (1999: 652) final position, “Change SET Culture” sees the emphasis turning to create a more inclusive science, engineering and technology culture. The majority of our respondents (six) believe that initiatives promoted at UL to counter the gender imbalance in SET primarily encourage women to enter SET and or support women currently in the area, but don’t aspire to change the culture of SET to make it more inclusive. As mentioned above respondents were adamant that the failure to address the culture of SET meant that initiatives were insufficient. Thus the importance of addressing the culture of SET becomes apparent.

*How useful was this self assessment exercise?*

It is interesting to note that there were conflicting opinions on the usefulness of this self assessment exercise. While the majority of respondents believed this self assessment project would prove to be beneficial, more than half of this group felt the
usefulness of the project is conditional on whether senior management at the University takes it seriously. In addition a sizeable minority believed this self assessment project would prove to be of no benefit as it would not be taken seriously by management within the university and instead they would just pay the report lip service. The results worryingly suggest that a sizeable proportion of the respondents were sceptical as to whether management within the university would act on this report.
Conclusions

The purpose of this self assessment study was to examine the barriers faced by women’s in science and engineering research activities and research management and the measures introduced by the University of Limerick to address these barriers, to see what impact they have had. A secondary analysis of relevant literature was conducted in order to examine what barriers women in SET face internationally, in order to form a context in which to examine the difficulties which women in SET face within the University of Limerick. Consequently we could then examine how the University of Limerick has addressed these barriers that women in SET face. Having done so we can now evaluate the success or failure of the strategies introduced at UL in addressing the under-representation of women in Irish science and engineering research.

It is clear that a majority of respondents believed that while legislative changes haven’t solved all the problems regarding the socio-economic status of women they have helped. In addition we saw how the vast majority of respondents feel that jobs remain very much gendered, with the situation changing slowly. It is apparent that the causes of women’s under representation in SET are a complex web of interdependent structural, ideological and cultural factors. With this in mind it is noteworthy that the majority of respondents believed the system of recruitment and career development in SET are biased toward the success of males. However in contrast to this view almost two thirds of our respondents did not believe that women’s opportunities vanish beyond junior faculty positions, and almost all said the system of recruitment within UL was fair. It is somewhat worrying to note that almost half of the respondents had experienced difficulties within their careers in SET, with family constraints imposing the greatest difficulty.

It is apparent that believed that women in SET are lacking in informal contacts, family constraints again being the chief factor impacting on women’s ability to build more contacts and networks. Thus it would seem obvious to suggest that we need to see a greater cultural acceptance of career women, which would then allow women to build up the informal networks, which they lack.
A further barrier identified was the male-dominated ethos at management level in UL, yet it was encouraging that very few believed male personnel in senior positions within UL have a dismissive/patronising attitude towards women at a professional equal level. This would seem to suggest that women’s under-representation within SET at UL is not primarily as a result of any inherent bias within the social construction of SET. It was very encouraging to note that more than two thirds of the respondents had no first-hand knowledge of the forms of resistance identified by O’Connor (2000). However, the prevalence of the stigmatisation of initiatives favouring women continues to allow the justification of the under-representation of women in Irish science and engineering research.

So what of these initiatives/supports that are in place for these women? Have they positively impacted on the numbers and experiences of women in SET at the University of Limerick? It is now apparent that the majority of respondents felt the issue should be addressed simultaneously from a national level and at the level of each individual university, in order to bring about the greatest positive effect. It was very positive to see that the respondents almost in their entirety believed that the Foundation Course in SET for Women at UL and the role model days being run, will have a positive impact and help to increase the numbers of women participating in SET.

In contrast, two of the supports in existence, the PhD forum and the Writers Retreats, were deemed by the respondents to be no more beneficial directly for women than they are for men. However, it was pointed out that they may prove to be more beneficial for women in an indirect way. Thus, it would appear that these particular supports are not the most valuable in existence at UL. It must be noted that it respondents favoured the implementation of positive actions for women and believed they would be a very welcome addition to the supports already in place. In addition, we also saw that a number of other initiatives and supports were identified as having a positive impact on women’s participation rates within SET at the University of Limerick. However, respondents were adamant that the failure to address the culture of SET meant that these initiatives in isolation are insufficient. This is significant in that it sees the need to create a more inclusive SET if we are to bring about a situation
where more women will become part of the SET family. Thus the importance of addressing the culture of SET becomes apparent.

It is noticeable that there is still a shortfall in accurate information on the barriers faced by women in SET. We must have accurate information if we are to identify core groups and needs, and consequently address those needs based on that information. The lack of accurate data on the nature and extent of these problems is allowing the barriers to remain unchecked and thus impact negatively on the participation rates of women in SET. To this end the self assessment exercise just undertaken should go some way to addressing this shortfall in information. However while the majority of respondents believed this self assessment project would prove to be beneficial from the point of view of informing those who instigate initiatives as to what is required and what the barriers are, it was worrying to see that a sizeable proportion of the respondents were sceptical as to whether management within the university will act on this report.

To conclude, I am now firmly of the opinion that strategies and initiatives introduced at the University of Limerick are having a positive impact on the numbers and experiences of women in SET here. However they appear to be part of a slow moving process and need to be undertaken in conjunction with initiatives which seek to tackle the culture of SET. To sum up the impact of the initiatives in addressing the barriers experienced by women within Science, Engineering and Technology at the University of Limerick, I adapt a Fianna Fáil election mantra from the 2002 general election, A lot done, even more to do.


*Chronicle of Higher Education Almanac* (September 1996).


# Appendix I: Description of Codes

1. **Access**  
   Description: Widening access to third level

2. **Aspire to Change culture**  
   Description: Initiatives do not aspire to change the masculine culture of SET

3. **Aware 1**  
   Description: Respondent is not aware of support programmes in place for women in support staff and faculty roles

4. **Aware 2**  
   Description: Respondent is aware of support programmes in place for women in support staff and faculty roles

5. **Barriers**  
   Description: Barriers existing for female researchers in SET at UL

6. **Career Guidance**  
   Description: The need to educate career guidance teachers at 2nd level as to opportunities available in SET

7. **Compromise 1**  
   Description: View expressed that women are not accepting the compromise of traditionally feminine professions

8. **Compromise 2**  
   Description: View expressed that women are still accepting the compromise of traditionally feminine professions

9. **Employment opportunities**  
   Description: Decline in employment opportunities for graduates from certain courses impacting on numbers entering SET

10. **Equality of Opportunity**  
    Description: Equality of Opportunity resulting in more women in SET

11. **Failure Rates**  
    Description: Failure rates in certain courses impacting on numbers entering certain SET courses

12. **Family constraints**  
    Description: Family constraints impact on women’s ability to build networks

13. **Foundation course 1**  
    Description: View expressed that Foundation course in SET will impact positively on women in SET

14. **Foundation course 2**  
    Description: View expressed that Foundation course in SET will not impact positively on women in SET

15. **Gender Conflict 1**  
    Description: View expressed that there is a conflict between the respondent’s gender identity and the masculine culture of SET
16 Gender Conflict 2
Description: View expressed that there is no conflict between the respondent’s gender identity and the masculine culture of SET

17 Gendered Jobs 1
Description: View expressed that jobs are still gendered today

18 Gendered Jobs 2
Description: View expressed that jobs are no longer gendered today

19 Ideal Ways 1
Description: View expressed that initiatives currently being used by UL are the best ways to deal with the issue

20 Ideal Ways 2
Description: View expressed that initiatives currently being used by UL are not the best ways to deal with the issue and there are preferable ways that should be tried

21 Inherent Bias 1
Description: View expressed that there is an inherent bias in the social construction of SET

22 Inherent Bias 2
Description: View expressed that there is no inherent bias in the social construction of SET

23 Initiatives 1
Description: Initiatives favouring women are stigmatised

24 Initiatives 2
Description: Initiatives favouring women are not stigmatised

25 Initiatives 3
Description: Not aware of whether initiatives favouring women are stigmatised

26 Initiatives as deficit 1
Description: Initiatives tended to treat problem as one of a deficit on the part of women and those who prepare them for higher education

27 Initiatives as deficit 2
Description: Initiatives did not treat problem as one of a deficit on the part of women and those who prepare them for higher education

28 Initiatives as deficit 3
Description: Initiatives did not treat problem as one of a deficit on the part of women and those who prepare them for higher education and are thus sufficient

29 Initiatives as deficit 4
Description: Initiatives tended to treat problem as one of a deficit on the part of women and those who prepare them for higher education and are thus insufficient

30 Legislative Changes 1
Description: Legislative changes have resulted in a change in women's socio economic status.
31 Legislative Changes 2  
Description: Legislative changes have not resulted in any change in women’s socio economic status.

32 Male Dominated  
Description: View expressed about a male dominated ethos at management level in UL

33 Measures  
Description: Measures that can be taken to address impact family constraints

34 National or individual 1  
Description: Better for this issue to be addressed at a national level

35 National or individual 2  
Description: Better for the issue to be addressed at the level of individual universities

36 National or individual 3  
Description: Better for the issue to be addressed at both a national level and at the level of individual universities combined

37 Negative impact  
Description: Measures introduced at UL which have impacted negatively

38 Networks 1  
Description: Informal networks are important

39 Networks 2  
Description: Women lacking in informal networks

40 Oppressive 1  
Description: View expressed that there is not an oppressive male culture within UL

41 Oppressive 2  
Description: View expressed that there is an oppressive male culture within UL

42 Opting out 1  
Description: View expressed that respondent has not opted out of or experienced difficulty within SET along their educational paths or academic careers.

43 Opting out 2  
Description: View expressed that respondent has opted out of or experienced difficulty within SET along their educational paths or academic careers.

44 PHD Forum 1  
Description: View expressed that PhD Forum will impact positively on women in SET

45 PHD Forum 2  
Description: View expressed that PhD Forum will not impact positively on women in SET

46 Positive action for women 1  
Description: Respondent is not favour of the implementation of positive actions for women, such as the employment of an Equality Manager, etc
47 **Positive action for women 2**
Description: Respondent favours the implementation of positive actions for women, such as the employment of an Equality Manager, etc.

48 **Positive impact**
Description: Measures introduced at UL which have impacted positively.

49 **Promoting SET**
Description: Publicising SET courses as useful and progressive.

50 **Resistance 1**
Description: Respondent has no first hand experience of any of the forms of resistance as identified by O’Connor (2000).

51 **Resistance 2**
Description: Respondent has first hand experience of any of the forms of resistance as identified by O’Connor (2000).

52 **Role Models 1**
Description: View expressed that Role Model days will impact positively on women in SET.

53 **Role Models 2**
Description: View expressed that Role Model days wont impact positively on women in SET.

54 **Second Level**
Description: Important need to address the issue at 2nd level if we want to see benefit at third level.

55 **Shortfall**
Description: What can counter the shortfalls of previous initiatives?

56 **Size to Policy**
Description: View expressed that the size of female population in SET determines the policy response.

57 **System of recruitment 1**
Description: View expressed that system of recruitment is biased towards men.

58 **System of recruitment 2**
Description: View expressed that system of recruitment is not biased towards men.

59 **UL Plans 1**
Description: Belief that initiatives UL has planned will not make a positive impact.

60 **UL Plans 2**
Description: Belief that initiatives UL has planned will make a positive impact.

61 **UL Recruitment 1**
Description: Positive View expressed about system of recruitment in UL.

62 **UL Recruitment 2**
Description: Negative View expressed about system of recruitment in UL.

63 **Usefulness of assessment 1**
Description: This self assessment project will be useful in enabling the university to add to current initiatives.
64 **Usefulness of assessment 2**  
Description: This self assessment project will not be useful in enabling the university to add to current initiatives

65 **Vanishing 1**  
Description: View expressed that opportunities for women vanish after junior faculty positions

66 **Vanishing 2**  
Description: View expressed that opportunities for women no longer vanish after junior faculty positions

67 **Writers Retreats 1**  
Description: View expressed that Writers Retreats will impact positively on women in SET

68 **Writers Retreats 2**  
Description: View expressed that Writers retreats won’t impact positively on women in SET