The role of gender in the outcome of ICT adoption – can nurses be technologists?

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Abstract

The use of computers in the work place has increased in recent years with more and more professions becoming dependent on information and communication technology (ICT).

Research shows that women in general tend to be slow in engaging with computing and there are many records of women’s negative experiences with ICT [1]. Women have often been portrayed as passive users [17]. The female perception of ICT tends to be that it is a male dominated area.

Frenkel [9] states that the computer culture is uncomfortable for girls and women, they are ill at ease in a field that seems to encourage “highly focused, almost obsessive behaviour”, as the key to success. This study investigates the use of ICT in a female oriented work environment. For the purpose of this research the nursing profession was selected as nursing is a gendered job [6], not only because women make up the vast majority of workers but because of the centrality of care (the socially accepted role of women), to the work they perform [3].

This study shows that nurses as carers find it difficult to transfer any previously acquired information technological skills into their work based information technology needs.

The research was carried out in local hospitals and nursing communities. The method used was survey by questionnaire to ascertain previous knowledge, skills and training in ICT together with nurses’ perception of themselves as ICT users.
1 Introduction

Nurses are technologists with extensive technical capabilities and have been for decades. We see them using a huge variety of sophisticated machinery to mediate patient care on a daily basis, from IV therapy in the post war years, ICU in the sixties, to microchip driven IV pumps, blood pressure units and finger thermometers in the nineties as well as many more technological innovations designed to support their role as carer. All of these, nurses have become accustomed to and expert at using. However, a number of case studies show that when it comes to using new technology, especially when it involves administrative and documentation tasks that take the nurse away from the patient, many display the characteristics of the novice use [14, 21, 23]. In other words they exhibit dual personalities when using technology. The ‘expert user’ comes to the fore when they use technology that supports their role as carers, however the ‘novice’ is in evidence when the technology, described as ‘new’ or ‘information’ is used.

Today, the nursing profession is expected to embrace ‘new technology’ as part of its professional activity. The term ‘nursing informatics’ originated by Scholes et al. [15] was derived from the term ‘informatics’ first coined in the 1970s, and used to refer to the computer milieu. Nursing informatics is described by Suba and McCormick [19] as:

‘The use of technology and/or a computer system to…process… and communicate timely data and information in and across health care facilities that administer nursing services and resources, manage the delivery of patient and nursing care…’

Computers and telecommunications are becoming commonplace in healthcare systems. Many hospitals use integrated computer systems to support administrative, financial and clinical functions [2, 7, 11].

Nurses often find themselves required to use computerised systems for the production of detailed plans for the care of hospital inpatients, these systems were introduced in the 1980s and 1990s as part of the Resource Management Initiative. A study carried out by Timmons [23] which involved three hospitals using similar patient care systems, found that user resistance was rife although the systems were not rejected outright, this he called ‘resistive compliance’. A reaction typical of those who consider themselves novice users and a form of system failure referred to by Lyytinen and Hirschheim’s [12] as interaction failure, failure concerned with levels of use and user satisfaction.

The nursing profession has moved towards using evidence based practice (EBP) for example, according to the Strategic Advisory Group for Nursing Information Systems (SAGNIS) nurses are expected to incorporate research-based practice into their professional activities [13]. A key factor in the success of this approach is the use of ICT especially skills needs to interrogate the Internet.
Nurses are expected to be computer literate. They are expected to make effective use of information technology in their profession. Nurse educators are very aware of the impact of ICT has on the health service [24]. Since the introduction of Project 2000 all pre-registration nursing courses must cover ICT. At present the United Kingdom Central Council (UKCC) requires all nursing students to be able to demonstrate the computer skills needed to record, enter, store retrieve and organise data essential for care delivery before their can be put onto the nursing register. It also requires nurses to be able to interpret and utilize data and technology to deliver and enhance patient care.

Despite the attempts of nurse educators and the thrust of government policy, Sinclair and Gardner [16] point out that those entering the profession come from a wide range of educational backgrounds and therefore there is a diversity of previous exposure to and experience of ICT. Regardless of previous experience of ICT researchers find that in general nurses still do not see the use of ICT as central to their work. [21, 23, 25]. They exhibit the behaviour of novice users by denigrating their skills, deploying avoidance tactics or exhibiting compliant resistance. This occurs because they are not able/willing to transfer their ICT skills to their work as carers.

A study by Timmons and Tredoux [22] found that although some of the nurses surveyed had computers at home and had access to the Internet, none had used the Internet in order to find information related to their nursing profession. However, the doctors surveyed all owned computers and all had used the Internet regularly to either communicate with colleagues or retrieve medical information. The survey also found that whilst doctors used the Internet regularly as part of their job, nurses claimed to be ‘too busy’. In other words, the doctors had no problem in transferring the skills they had developed previously to the practice of their profession whereas the nurses, with similar exposure to ICT in their training, had not transferred these skills into their work practice.

Why does this happen? As stated earlier, nurses are competent technologists where the technology supports their role as carer. The answer may lie in the perception nurses have both of new technology and of their chosen profession.

Nursing is the largest female profession in the healthcare service and looks to stay that way in the future with the majority of entrants into the profession being female. (A study carried out by Sinclair and Gardner [16] found that 90% of students on a nursing diploma course were female). This together with its centrality of care (the customary duty of women) makes it an inherently female gendered profession [6]. The role of nurse blurs with that of the ideal woman – self sacrifice, altruism etc. in contrast to the doctors’ expertise which is seen as scientific and the result of acquired knowledge [5]. The domestic roots of nursing gave women the authoritative voice on all matters relating to home, hearth and family – the reign of the woman in the private sphere of the home. When nursing moved to the public sphere of hospitals, nurses could not shake off the socially constructed association between the role of the nurse and the role of the woman – and the role of the woman was to care for the sick. So the social foundation of the nursing profession was based on intuition and empathy, the
time-honoured qualities every woman must have making nursing the archetypal female role. This is in direct contrast to the social foundation of the medical profession where the qualities lauded are empiricism and rationality [8]. Historically, medical tasks have always had a higher status than caring tasks, physicians cure (using that which is scientific, objective, technical and masculine) whilst nurses care (using that which is intuitive, empathic, subjective and feminine). This reflects the gender assumptions that have perpetuated the experiences of both clinicians and patients within the health service.

Society perceives technology as masculine and it acquires from this its superior status.

‘Technology enters into our sexual identity; femininity is incompatible with technical competence; to feel technically competent is to feel manly. The gendering of men and women into ‘masculine’ and ‘feminine’ is a cultural process of immense power. People suffer for disregarding its dictates’ (Coburn, 1986,p.12)

It is well known that women are under-represented in computing from qualifications gained through education to working in the industry [10]. Frenkel [9] states that the computer culture is uncomfortable for girls and women, they are ill at ease in a field that seems to encourage “highly focused, almost obsessive behaviour”, as the key to success. A study carried out by Wishart and Ward [26] that compared attitudes towards and use of ICT between nurse and teacher training students found that males held consistently more positive attitudes towards computers than females.

This paucity of women in computing Smith [18] suggests is because women accept their lack of technological ability as being predetermined by their gender in the same way that men delight in their supposed superior ability. This then suggests that definitions of what constitutes technology may shift over time according to the gender of the user [25]. This can be seen throughout the history of nursing. Technology no longer considered complex by physicians has been passed to nurses, for example taking temperatures and drawing blood. In fact physicians were keen to teach the necessary skills to nurses in return for being relieved from what they considered tedious or boring tasks [8]. Interesting, today nurses differentiate between the technology they use on the wards to support their patient care referring to it as ‘machines’ and the new technology they are expected to use for information system applications which they refer to as ‘technology’ [25].

Nurses want to be valued for what they do. There has been an attempt to address this problem by giving nurses a professional status. However, this professionalism lies within the masculine framework where scientific objectivity, standardized practice and technical know-how are the critical success factors [25]. The dichotomy now facing nurses is whether to align themselves within this professional model or remain within their gendered role of hands-on carers.
Therefore it is likely that they feel that using computers takes them away from the patient and mitigates hands-on care. Also, as feminine culture is associated with caring not science, they are likely to believe computers are not within their realm of capabilities.

2 The study

This research set out to show that nurses as carers find it difficult to transfer any previously acquired technological skills into their work based technology needs and that despite adequate exposure to and training in ICT, nurses refuse to see themselves as expert users. The study was not based in any one institution but used nurses from a number of local hospitals and communities. The work explored the nursing qualifications, ICT training, and nurses own perception of their ICT ability.

This was accomplished through the use of questionnaires designed in two sections. Section A to ascertain the nurses’ qualifications and experience, Section B to gain an understanding of their use of ICT and their perception of their ability in the use of ICT.

The sampling methods used were, firstly, snowball sampling, this is commonly used when it is difficult to identify or contact members of the desired population. Using this method we contacted four members of the nursing profession and asked them to identify and contact further members of the profession. Self-selection sampling was then used on all contacts made. That is, questionnaires were distributed and those that selected to take part returned them. 80 questionnaires were distributed and 46 were returned giving a response rate of 58%.

3 Results

From the questionnaires returned:

<table>
<thead>
<tr>
<th>Gender</th>
<th>Responses</th>
</tr>
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<tbody>
<tr>
<td>female nurses</td>
<td>39 (86%)</td>
</tr>
<tr>
<td>male nurses</td>
<td>6 (13%)</td>
</tr>
</tbody>
</table>

These figures support the finding in the literature that approximately 90% of the nursing population is female.

<table>
<thead>
<tr>
<th>ICT Training</th>
<th>Females</th>
<th>Males</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICT incorporated as part of their course</td>
<td>13</td>
<td>3</td>
</tr>
<tr>
<td>Other ICT training</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>Both</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>None</td>
<td>14</td>
<td>0</td>
</tr>
</tbody>
</table>

It can be seen that 64% of the females and 100% of males had received ICT some type of training.
That is, of the females surveyed, 70% use ICT weekly or daily, and 30% less than this. Interestingly, even though most female nurses use ICT in their job on a regular basis they still did not consider themselves to be experts.

<table>
<thead>
<tr>
<th>ICT Usage</th>
<th>Females</th>
<th>Males</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily</td>
<td>24</td>
<td>5</td>
</tr>
<tr>
<td>Weekly</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Monthly</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Occasionally</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>Never</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

That is, of the females surveyed, 70% use ICT weekly or daily, and 30% less than this. Interestingly, even though most female nurses use ICT in their job on a regular basis they still did not consider themselves to be experts.

However, 87% of the males use ICT weekly or daily, and 13% less than this and all considered themselves to be expert.

Type of ICT related work carried out was looking up blood results in a database, using the patient administrative system (PAS), using the Internet for research, using PowerPoint to prepare presentations, using Word to write letters and reports.

4 Conclusion

This research is a small contribution to the understanding of the role of gender when a gendered profession adopts ICT. The results support many of the findings of the literature review. As a result of wanting to improve their position, nurses have campaigned for professional status. This professionalisation of nursing has forced nurses to embrace new technology in their work and become competent users. It assumes that nurses are comfortable with ICT especially as now it is part of their training. However, the results of the research show that despite the fact that the majority of nurses in the study used ICT on a regular basis, the females still did not consider themselves expert users. They did not see the use of ICT as central to their role as carers and therefore were not concerned with expertise. As discussed by Cockburn [4] ‘technical competency is incompatible with femininity’ and nursing is a gendered profession. The male nurses surveyed had no such concern. All considered themselves to be expert users.

In contrast to this, the technology female nurses are comfortable with is that which has been delegated to them by doctors and so has become degendered. It would appear from this research that men and women still carry their perceptions of gender behaviour into their place of work. Can Nurses be technologists? Yes they can but only in areas of technology that support their primary role as carers.
References


