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An Investigation of the Impact of Recertification Requirements on Recertification Decisions

Abstract
Certification has become a popular adjunct to traditional means of acquiring information and communication technology (ICT) knowledge and skills and many employers specify a preference for those holding certifications. Many ICT certifications include a requirement to recertify regularly, but little is known about the impacts of recertification requirements on the intention to maintain certification. This research explores the factors that influence the recertification decision. The perspectives of both ICT students and ICT professionals were sought. Both students and ICT professionals were very positive about the benefits of certification and highlighted that intrinsic desire for improved knowledge and skill, as well as job related benefits, motivated them to obtain certification and maintain it. The ICT professionals also emphasized the importance of certification to their employers. ICT professionals had strong knowledge of the recertification requirements for the certifications they held. This was not, however, the case for the ICT students; many students had little knowledge of what recertification might entail. A key factor contributing to intention to recertify was flexibility to seek higher paying jobs. The cost of recertification was not found to be a major issue. Support from employers in providing time for obtaining recertification was considered important. Given the huge range of different certifications available, and the varying value of these to the holder at different points in their career, ICT professionals appeared to take a strategic approach to the decision to recertify. They appeared to have considered, and selectively chosen, those which are worth recertifying given their current position and career aspirations.

Categories and Subject Descriptors
K.7.1 [THE COMPUTING PROFESSION] Occupations

Keywords
ICT Personnel, ICT Professionals, ICT Certification, Recertification
An Investigation of the Impact of Recertification Requirements on Recertification Decisions

INTRODUCTION

Certification has become a popular adjunct to traditional means of acquiring information and communication technology (ICT) knowledge and skills and many employers specify a preference for those holding certifications. Certification intends to establish a standard of competency in defined areas. Unlike traditional academic degrees, certifications tend to be specific to narrow fields or even to individual products. They are designed to provide targeted skills that have immediate applicability in the workplace.

Previous research has considered the benefits and risks of ICT certification and its importance in obtaining employment, both from the student perspective (Hunsinger and Smith 2008; McGill and Dixon 2005; Rajendran 2011) and from a workplace perspective (Cegielski 2004; Cegielski et al. 2003; CompTIA 2011; Hunsinger et al. 2011). Certification is perceived as an important factor in achieving employment. Students undertaking certification anticipate that it will lead to substantial financial benefits (McGill and Dixon 2005), ICT employees believe that it will benefit their careers (Rajendran 2011) and managers making hiring decisions consider ICT certifications as important in validating skills and expertise (CompTIA 2011).

Many ICT certifications include either a requirement to recertify regularly or a requirement to undertake a certain number of hours of professional development per year. The impact of the ongoing commitments associated with maintaining certifications has not previously been researched. The project described in this paper investigates the impacts of recertification requirements on the intention to maintain certification, and explores the factors that influence the decision to recertify. The perspectives of both ICT students who have yet to certify, and
ICT professionals in the workplace who have previously obtained certifications, are considered.

**BACKGROUND**

Vendors such as Microsoft and Cisco Systems dominate the vendor specific certification market worldwide with qualifications such as Microsoft Certified Systems Engineer (MCSE) and Cisco Certified Network Associate (CCNA). Vendor neutral certifications such as those provided by the Institute for Certification of Computing Professionals (ICCP) and the Computer Technology Industry Association (CompTIA) also play an important role. Even relatively new fields have quickly introduced many certifications. For example in 2008 computer forensics had over 298 certifications (Lim 2008). ICT certifications have also become important for educational institutions in attracting students and placing graduates, with many universities aligning courses with certifications (Hitchcock 2007; Koziniec and Dixon 2002; Randall and Zirkle 2005).

A number of studies have considered the benefits to employees of certification (e.g. Anderson et al. 2005; Rajendran 2011). These benefits appear to include: increased credibility, flexibility to change jobs, increased salary, and increased job security. These potential benefits are also a powerful incentive for university students to undertake certification as part of their studies (Hunsinger and Smith 2008; McGill and Dixon 2005). These potential benefits therefore provide an incentive for those in the ICT industry, and those hoping to join it, to obtain certifications.

Employers have been shown to strongly value certification of employees and potential employees. Employers rely heavily on professional certifications when hiring ICT professionals to ensure a base level of required knowledge and skills and to improve skill
levels through on-going professional development (CompTIA 2011). The credibility of the organization, via the credibility of its employees, has been found to be an important benefit for companies (Anderson et al. 2005). Certification of employees can also facilitate access to additional discounts, information, and support from vendors; the Cisco System Gold Certified Partnership program provides an example of this. This kind of benefit is rated very highly (Anderson et al. 2005) and contributes to pressure being placed on employees to certify. Tim Herbert, the Vice President, Research, of CompTIA recently noted that the benefits of certification to organizations could be enhanced further via “Stronger links with education; easier methods of verification; greater understanding of what ICT certifications can and cannot do; and more organizational support for certifications as part of a professional development program.” (CompTIA 2011).

A number of authors have noted that the rapidly changing ICT knowledge base can mean that certification is not of lasting value (Quan et al. 2007; Randall and Zirkle 2005; Ray and McCoy 2000). In order to assure currency of knowledge, many certifications have regular recertification requirements. Despite the focus on benefits of ICT certification to the various stakeholders, little research has been done on employees and how the demands of recertification affect them as they progress through their career.

One of the key barriers to obtaining certification has been identified as the associated cost (Tate et al. 2008). This is particularly the case when students are obtaining certification (Hunsinger and Smith 2008; McGill and Dixon 2005). In their study, Hunsinger and Smith found that little more than half of the undergraduate student participants had the money to meet the costs of ICT certification. These costs can include textbooks, training sessions, travel, and examinations. Whilst financial benefits are a key benefit and incentive for initial certification (Quan et al. 2007) it is unclear that recertification provides additional financial
benefits to balance the associated costs. However, as presumably those facing the requirement for recertification are more likely to be in employment, cost may be less of an issue for recertification. Many organizations will provide reimbursement of expenses incurred in obtaining the certification (Ejiaku et al. 2010), and if this is not the case, employees should be better placed financially to meet the costs than those seeking their first ICT job are.

Finding the time to study and take examinations has also been identified as an issue for obtaining initial certifications (Hunsinger and Smith 2008), and is likely to be a continuing issue with recertification. Finding additional time to study for recertification may be even more of an issue than for initial certification as employees are enmeshed in their ongoing employment, and obtaining time release from employers seems likely to be an important factor in the decision to recertify.

In order to better understand recertification, this study explores the factors that influence this decision. Factors considered include: the cost of recertification, employer support, the requirement for recertification to keep an existing job, and the possibility of recertification leading to a higher paid position. The perceptions of ICT students who are about to embark on their careers and who face a professional lifetime of commitment to maintaining their ICT knowledge are considered, as are those of ICT professionals in the work place who have previously obtained certification.

**METHOD**

The project involved two different types of data collection. Students undertaking courses that led to ICT certification completed an online survey, and ICT professionals were interviewed. Each of these phases of the study is described below.
ICT Student Data Collection

The student participants in the study were students enrolled in seven ICT courses at a Western Australian university. Students who successfully completed these particular courses could also pursue Cisco certification, as the courses made use of the Cisco curriculum. Potential participants (109 students) were contacted via email and invited to participate in the study by completing an online questionnaire. Completion of the questionnaire was voluntary and all responses were anonymous. The questionnaire took approximately 10 minutes to complete.

The questionnaire contained five main sections. The first group of questions obtained background information about the student participants. This included age, gender, and previous ICT experience. The second group of questions related to students’ perceptions of the importance of industry certification for employment and gauged their intention to obtain certification. Those participants who were not currently working in the ICT industry were firstly asked to rate the importance of industry certification for obtaining their initial ICT employment. This item was measured on a 5 point scale ranging from (1) ‘Not Important’ to (5) ‘Vital’. Those participants who were currently working in the ICT industry were instead asked to rate the importance of industry certification for getting ahead in their current employment. This question also used a 5 point scale ranging from (1) ‘Not Important’ to (5) ‘Vital’. These questions were based on those used by McGill and Dixon (2005).

In the third group of questions student participants were asked for their perceptions of the relative importance of various proposed benefits of certification. A list of eleven potential benefits of certification for ICT students (McGill and Dixon 2005) was presented. Each potential benefit was rated for importance on a 5 point scale ranging from (1) ‘Not Important’ to (5) ‘Very Important’ (see Table 3 for a list of the proposed benefits included).
The fourth section first explored students’ knowledge of recertification requirements. These questions were developed specifically for the study. Participants were asked to rate their level of knowledge of recertification requirements for the certifications they could take based on their university studies on a 5 point scale ranging from (1) ‘No knowledge’ to (5) ‘Detailed knowledge’, and to describe the recertification requirements for CCNA, which was the initial and most commonly taken certification for these students. Participants were then asked how much influence they thought recertification would have on both their initial decision to obtain certification and on their decision to maintain certifications. These questions were answered on a 5 point scale ranging from (1) ‘No influence’ to (5) ‘Large influence’.

The final section asked participants to indicate how important they considered a range of factors to be in their decision to maintain certification. These factors were derived from the literature on ICT certification (Hunsinger and Smith 2008; McGill and Dixon 2005; Tate et al. 2008), and were rated on a 5 point scale ranging from (1) ‘Not Important’ to (5) ‘Very Important’.

**ICT Professional Interviews**

Australian ICT professionals who had obtained certifications at some point in their career were targeted for this research. They were contacted through snowball sampling. Potential participants were invited to participate via a telephone call or email. If they were interested they were sent an information letter and consent form. Interviews were at a time and location convenient to the participants and took approximately 30 minutes.

Interview questions were designed to be consistent with those in the student questionnaire where possible. Participants were first asked to provide some background information, focusing on their work in the ICT industry and the certifications they had obtained. They were
also asked to provide their perceptions of the importance of certification to their employer.
The next group of questions focused on the recertification requirements for the certifications they held. The final group of questions explored the participants’ perceptions of the importance of a range of factors in influencing their decision to maintain certification. These factors mirrored those included in the student questionnaire. Participants were asked to both rate the importance of each factor on a 5 point scale ranging from (1) ‘No influence’ to (5) ‘Large influence’ and to discuss the influence of each. The qualitative responses to each question were classified into general themes. The themes were permitted to emerge from the data.

RESULTS

Student Perceptions

Forty four responses to the student survey were received. This corresponds to a response rate of 40.4%. The student participants had an average age of 25.9 years (with a range from 18 to 41) and were overwhelmingly male (93.2%). The gender proportions in this study are consistent with the low representation of females in ICT courses (Computing Research Association 2011) and in particular with the very low proportion of females who are interested in networking courses (Gras-Velazquez et al. 2009). The participants who had previously been employed in ICT related work had an average of 4.6 years experience. Table 1 summarizes some of the background information about the participants in this study.

<table>
<thead>
<tr>
<th>Table 1: Background information about the student participants</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
</tr>
<tr>
<td>Male</td>
</tr>
<tr>
<td>Female</td>
</tr>
<tr>
<td><strong>ICT work experience (mean = 4.6 years)</strong></td>
</tr>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
</tr>
</tbody>
</table>

Intend to obtain certification?
The vast majority of the student participants (86.4%) intended to obtain some form of certification. Only three students indicated that they did not intend to pursue certification and three were unsure if they would. Whilst not all students enrolled in the targeted courses participated, given the centrality of certification to employment in networking, the responses appear likely to reflect those of non participants. This eagerness to undertake certification reflects the widespread acceptance by students of its importance in obtaining employment (Hunsinger and Smith 2008; McGill and Dixon 2005; Rajendran 2011). CCNA was the most popular certification: 35 students (79.5%) intended to obtain it and six (13.6%) already held it. The second most popular certification was Cisco Certified Network Professional (CCNP) with 25 (56.9%) of the students intending to obtain it. Small numbers of participants also hoped to obtain a wide range of other certifications such as Cisco Certified Internetwork Expert (CCIE), Certified Information Systems Security Professional (CISSP) and Microsoft Certified Solutions Associate (MCSA).

ICT certification was perceived as very important for getting ahead if currently employed in the ICT industry, but not for getting an initial ICT job. The average importance rating given to ICT certification by those not currently employed in ICT was only 2.0 (out of 5), yet it was 4.1 for those currently employed in the ICT industry (see Table 2 below). The relatively high importance placed on obtaining certification by students who are already working in the ICT industry is consistent with previous research (McGill and Dixon 2005; Rajendran 2011), and with research on the wider industry; for example, Alexander’s (1999) survey of 470 ICT contractors described found that 83% of the contractors believed that ICT certifications were either 'very important' or 'somewhat important' to their prospects for career advancement.
Table 2: Perceived importance of certification for student participants

<table>
<thead>
<tr>
<th>Importance of certification for initial job</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Min.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Importance of certification for getting ahead in current job</td>
<td>28</td>
<td>4.1</td>
<td>0.9</td>
<td>2</td>
<td>5</td>
</tr>
</tbody>
</table>

Table 3: Benefits of certification as perceived by student participants

<table>
<thead>
<tr>
<th>Rank</th>
<th>Benefits</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Min.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Widely recognized qualification</td>
<td>43</td>
<td>4.5</td>
<td>0.7</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>1</td>
<td>Greater knowledge/skill</td>
<td>44</td>
<td>4.4</td>
<td>0.6</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>Practical experience with real networking tasks</td>
<td>44</td>
<td>4.4</td>
<td>0.9</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>Experience with real equipment</td>
<td>44</td>
<td>4.4</td>
<td>0.9</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>Obtaining a formal marketable qualification</td>
<td>44</td>
<td>4.3</td>
<td>0.8</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>Able to apply for the increasing number of jobs that require certification</td>
<td>44</td>
<td>4.3</td>
<td>0.8</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>Increased credibility</td>
<td>43</td>
<td>4.3</td>
<td>0.8</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>8</td>
<td>Increased self-confidence</td>
<td>44</td>
<td>4.2</td>
<td>0.9</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>9</td>
<td>Higher salaries</td>
<td>44</td>
<td>4.0</td>
<td>0.8</td>
<td>2</td>
<td>5</td>
</tr>
</tbody>
</table>

The lower level of perceived importance for students who were not yet working in the ICT industry is unexpected. McGill and Dixon (2005) found that students who had not yet obtained ICT employment rated certification even more highly than those currently in the industry. This difference may be due to the buoyant Western Australian economy resulting from a resources boom; students may anticipate that obtaining their initial job will be easy. Table 3 further explores the students’ perceptions of the importance of initial certification by presenting the average perceived importance of each of the different benefits of certification. As can be seen, although in general students did not strongly believe that certification would be required to obtain initial employment, they were fully cognizant of its benefits. All the listed benefits were ranked relatively highly, with averages above the midpoint of the scale. The most highly ranked benefit in terms of importance was having a widely recognized qualification (rated 4.5 out of 5). ICT certifications are global and enable those who have them great flexibility in terms of obtaining employment around the world.

The next most highly ranked benefits related to the knowledge and skills that those obtaining certifications gain. Student participants perceived the knowledge and skills they obtain (4.4), and particularly the practical experience with real networking tasks (4.4) and experience with real equipment (4.4), as very important. This finding is consistent with the fact that the students were primarily undertaking Cisco certifications. Wilde (2000) claimed that Cisco Systems has the most ‘realistic’ certification program, requiring those undertaking certification to perform real tasks, using real equipment. These relatively high rankings suggest that the intrinsic value of the knowledge and skill obtained during certification is perceived as important beyond the job related benefits that may eventuate.

Proposed benefits relating to the role of certification in improving opportunities to obtain jobs (4.3), and relating to credibility (4.3) and self-confidence (4.2) were fairly highly rated. These results are consistent with those of Hunsinger and Smith (2008). Improving employment opportunities is clearly important to those who undertake certification, but the slightly higher rankings of practical experience and improving knowledge and skill suggest that employment is not the sole motivation for undertaking certification. The perceived importance of practical experience obtained goes beyond just improving marketability.

Higher salaries was ranked last in terms of importance. Whilst potential salaries perhaps receive the most publicity in terms of benefits to holders of certifications, this ranking suggests that whilst important (4.0), salary is not the major driving factor for students.

Ongoing access to some of the benefits of certification requires maintaining certification.

Students were asked rate their knowledge of recertification requirements for the certifications.
they could take based on their university studies (see Table 4). There was a wide range of knowledge of recertification requirements for these certifications. The average level was 3.1 out of 5, but two students rated themselves as having no knowledge and only two considered themselves to have detailed knowledge. The students were also asked to describe the recertification requirements for CCNA, the most commonly acquired certification. Only around half of the participants (21 students) answered this question. The key knowledge about recertification as a CCNA provided was that it entailed re-sitting exams and that it was required every three years. Nineteen students who had indicated they intended to obtain CCNA certification were unable to provide any information about what recertification might entail. Twelve students noted that the time period after which recertification was required was three years, and 12 were aware that recertification required an examination. Only six students noted that obtaining a higher qualification provides recertification for the lower qualification.

Table 4: Student knowledge of recertification requirements

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Min.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge of recertification</td>
<td>43</td>
<td>3.1</td>
<td>0.9</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>requirements</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amount of influence recertification</td>
<td>42</td>
<td>3.2</td>
<td>1.3</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>requirements will have on <strong>initial</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>decision to obtain certification?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amount of influence recertification</td>
<td>42</td>
<td>3.4</td>
<td>1.2</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>requirements will have on decision to</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>maintain certifications?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4 also summarizes the responses to the questions about the likely influence of recertification requirements on intention to obtain initial certifications and intention to maintain certifications by recertifying. Again there was a wide spread of responses. Five respondents (11.9%) felt that the requirements for recertification would not influence them at all in their decision to obtain initial certification, and four of these (9.5% of all respondents) did not anticipate the requirements influencing their recertification decision either. The majority of participants did, however, recognize that these requirements would play a role in their decisions to some degree, and responses to the two questions were strongly correlated.
(r=0.606, p<0.01), indicating that the factors that influence the initial decision to certify are likely to still be important in the decision to recertify.

Student participants were also asked to consider the factors that have been identified as relevant to the decision to certify and to rate their likely importance in the decision to recertify. Table 5 lists these factors in average importance order. All potential factors were generally perceived as fairly important, receiving mean ratings of above the mid point of the scale. Employer time release had the highest average rating (4.4), with employer financial support rated a little lower (3.9). It seems likely that from the perspective of a student, time will be in short supply once they start working full time, but money will be less of an issue. Consistent with this, certification costs was the second lowest ranked factor (3.8).

The second and third most highly ranked factors were flexibility to seek higher paying jobs (4.2) and recertification as a requirement for promotion (4.1); the student participants appeared to already be looking beyond their initial job to their future career progression. Recertification was seen as less important on average for keeping a current job (3.5). However, it is clear that there is a wide range of perspectives with each of the factors being considered extremely important by some participants, but with all factors except employer time release having some participants rating them relatively unimportant.
Table 5: Factors influencing recertification

<table>
<thead>
<tr>
<th>Rank</th>
<th>Factors influencing recertification</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Min.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Employer time release</td>
<td>44</td>
<td>4.4</td>
<td>0.5</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>Enable flexibility to seek other higher paying jobs</td>
<td>44</td>
<td>4.2</td>
<td>1.0</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>3</td>
<td>Requirement for promotion</td>
<td>44</td>
<td>4.1</td>
<td>1.0</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>4</td>
<td>Employer financial support</td>
<td>44</td>
<td>3.9</td>
<td>1.0</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>Certification costs</td>
<td>44</td>
<td>3.8</td>
<td>1.0</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>6</td>
<td>Requirement for job already have</td>
<td>42</td>
<td>3.5</td>
<td>1.2</td>
<td>1</td>
<td>5</td>
</tr>
</tbody>
</table>

**ICT Professional Perceptions**

Twelve Australian ICT professionals who had obtained certifications at some time during their careers were interviewed. They ranged from 26 to 50 in age (with a median age of 37.5 years), and all but one were male. This low proportion of female participants is consistent with the Certification Magazine’s 2009 Salary Survey, which found that 90% of those with certifications are male (Prokopeak 2009).

The ICT professionals had a wide range of experience in ICT (see Table 6). The number of years they had worked in ICT ranged from 5 years to 26 years (with a median of 11.8 years), and the number of jobs that the participants had held ranged from three to 10. There was also a very large range of time that they had held their current job: three months to 14 years. Four of them were considering changing jobs within the next year.

Table 6: Background information about the ICT professional participants

<table>
<thead>
<tr>
<th></th>
<th>Median</th>
<th>Min.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time in the ICT industry</td>
<td>11.8 years</td>
<td>5 years</td>
<td>26 years</td>
</tr>
<tr>
<td>Number of ICT jobs held</td>
<td>6</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>Time with current organization</td>
<td>4 years</td>
<td>3 months</td>
<td>23 years</td>
</tr>
<tr>
<td>Time in current position</td>
<td>1.8 years</td>
<td>3 months</td>
<td>14 years</td>
</tr>
</tbody>
</table>
The ICT professionals had a wide variety of educational backgrounds: four had an ICT bachelor degree of some kind; six had undertaken postgraduate conversion qualifications, one had a sub-degree diploma in ICT and two had no tertiary ICT qualifications.

The importance of certification to the participants’ employers was explored. Six of the ICT professionals considered it to be very important in their organization, and four of them believed that it was somewhat important. Only two interviewees felt that it was not important in their organization. Several different main reasons for the importance of certification to organizations were provided. The most common reason was to ensure that employees have the necessary skills to do their jobs (5 comments). This was seen to be particularly important for new employees, though was also mentioned with respect to promotion. This is consistent with the existing literature on certification and hiring (CompTIA 2011). Having certified employees was also considered important as a means of establishing credentials for customers and potential customers (2 comments) as indicated by the following quotes:

*Very important I think, since they use it as the primary means of proving the organizations qualifications, experience and ability to obtain new work…. We try to put a lot of emphasis on the fact that we have a lot of people who are very highly qualified and certified as well. Even to the point of actually getting recommendations from the vendors themselves.*

*Our customers they feel that if you are in this high tech area they need to see that our people are certified as well*

Where companies are resellers of hardware or software, partnership arrangements often require certain levels of certified staff, thus providing additional pressure for certification of employees (Anderson et al. 2005). Three participants mentioned this as a driver for their organization as reflected in the following quotes:

*Certainly Microsoft certification as it gives us benefits as a partner.*

*We are dealing with Cisco technologies and other manufacturers who demand that the company must have people certified before they can even sell them those products. They don’t want you to handle their products unless they know your people are certified.*
All participants displayed good, accurate knowledge of the recertification requirements for the certifications they had obtained during their careers. All 12 ICT professionals still held some certifications; these included a wide range of Cisco, Microsoft, Novell, Prince, ITIL and Algosec certifications.

The different certifications held by the participants had a range of different requirements related to maintaining certification. Participants responded in a variety of ways to these requirements. Also, individual participants responded differently to different certifications they had held. Five main categories of responses were identified and are discussed below:

- **Recertify when it is required** (5 participants)
  When a particular certification had current relevance and importance to the participant, they undertook the actions required to recertify.

- **Maintain certification by obtaining a higher level certification** (3 participants)
  Obtaining recertification by gaining a new certification proved to be a strategic move for some participants. For example, one participant described renewing Cisco CCNA by obtaining Cisco CCNP:

  > I’ve never had to take the same assessment twice. The reason for that is because I got my CCNA and then as that was about to expire you can update your CCNA for another 3 years by taking a CCNP level certification.

- **Let certification lapse** (3 participants)
  If a particular certification was no longer actively required, and the benefits not compelling, some participants would let it lapse:

  > I haven’t kept it up as it’s not really relevant to my role.

- **Direct recertification not required** (6 participants)
  Some certifications did not have recertification requirements, rather participants have to seek certification for each new relevant release, as one participants describes below:
Like the Microsoft model where they release new versions of the certification and the old versions just become outdated. So that will be another thing that will have to be upgraded over time.

- Recertification not yet required (3 participants)

Participants did not appear to consider the onerousness of requirements from the certification body as a major factor driving their decision to recertify or not. It was notable, however, that the participants were strategic in their selection of what certifications to maintain. They appeared to have considered and selectively chosen those which are worth recertifying given their current position and career aspirations as indicated by the following quotations:

..since then I have decided to be more in coordination and management so I didn’t see that there was a benefit for me to go down that track. As it wasnt going to benefit me personally so I didn’t bother, I know it would have probably benefitted the company at the time.

If I was to move jobs into another employer it would be extremely important, I would have to sit down and recertify myself.

Participants were also asked to consider the factors that have been identified as relevant to the decision to certify and to rate their likely importance in the decision to recertify. Table 7 lists the factors in average importance order. The flexibility to seek higher paying jobs had the highest average rating (4.3) followed by employer support and time release (3.7). In general, recertification was seen as less important for holding a current job (3.6), or getting promoted within the organization (3.3). However it is clear that there is a wide range of perceptions with each of the factor being considered extremely important by some participants, and several as not at all important to at least one participant (certification costs, and employer support).

<table>
<thead>
<tr>
<th>Factor</th>
<th>Mean</th>
<th>Min.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flexibility to seek higher paid jobs</td>
<td>4.3</td>
<td>2.5</td>
<td>5</td>
</tr>
<tr>
<td>Employer support (financial and time)</td>
<td>3.7</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Requirement for current job</td>
<td>3.6</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Required for promotion</td>
<td>3.3</td>
<td>1.5</td>
<td>5</td>
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As anticipated, overall the cost of recertification appeared to be the issue of least concern to the participants. Participant responses however encompassed a range of perspectives ranging from those who found recertification costs high and hard to justify – particularly the exams and the travel sometimes needed to take them – to those who found it expensive but considered it a worthwhile investment, and finally those for whom it was not an issue as costs were completely covered by their employer. The quotes below illustrate these perspectives:

*Certification can be a financial drain that is sometimes difficult to justify.*

*I think the exams / books is a low cost but the exams can be more expensive costing thousands of dollars.*

*Microsoft and Cisco the initial thing is pretty cheap around the $200 range but once you get up to the CCIE level it starts becoming cost prohibitive for someone here in Western Australia and that is why I never took it any further.*

*You have to have it, and yes cost is a factor, but you have to. Cost wouldn’t stop me. It makes me more employable.*

*[Costs] are important to me, but in my current position it is usually my employer who would pay for most of my certification and training costs.*

*My employers have paid in the past so the cost is less real in those cases. So all of it is free.*

Certification Magazine suggests that around 50% of those who seek certification have their cost covered by their employers (Green 2009). So, whilst some employers provide support many do not, making employer support a more important issue than recertification costs. Several participants noted that employers who provide financial and/or time release support for certification and recertification are seen as more attractive than those that do not. As the following quote indicates, they also noted that by providing support to employees, employers signal the importance of ongoing certification to the organization:

*I think it is important as it shows that it has some importance to them. If they were unwilling to pay then I would think that it had little or no importance to them.*
The flexibility to obtain higher paying jobs outside the current organization appeared to be more of a driver for recertification than either meeting the requirements of a current position or progressing within the same organization. Whilst several participants noted that they needed to demonstrate up to date knowledge to either keep their job or to gain promotion, a more common sentiment was that it was not so important once an initial position had been obtained within their firm:

*Staying here it has no importance*

However, participants were mindful that certifications are a particularly important source of information to people who do not already know you, as indicated by the following quotes:

*If I wanted to go somewhere else I would definitely consider it worthwhile recertifying.*

*...because you have to be able to demonstrate more easily your level of skill to people who don’t actually know you*

The ICT professional participants also identified a number of other factors that either have, or will, influence their decision to recertify. These are described below:

- **A desire to update knowledge** (6 participants)
  Consistent with the students’ strong desire to improve their knowledge and skills by gaining initial certifications, half of the ICT professionals mentioned they were motivated to recertify by a desire to update their knowledge; for example:

  *So just expanding your knowledge, that is another factor – staying up to date, because the IT industry changes so fast if you don’t recertify or sit any of these sort of courses you will be left behind.*

- **Recertification is a requirement of stakeholders such as vendors or professional bodies** (2 participants)
  For these participants the pressure to recertify extended beyond their immediate personal goals as illustrated by the following quotes:

  *We are dealing with Cisco technologies and other manufacturers who demand that the company must have people certified before they can even sell them those products.*
It is critical for professional bodies to know that you are continuing to study. For example the ACS. I am a member of the ACS and they insist that you must meet a certain number of PDUs in a year, so for every certification that you are working on it counts as a number of PDUs that you can have. At the end of the year you have to fill in a form to show that you have been studying. So certification counts for that.

- **Availability of testing centers** (1 participant)

Higher level certification often entails travel. For example Cisco CCIE lab exams can only currently be taken at 10 locations around the world (Cisco Systems n.d.). This can influence decisions relating to whether recertification is a practical option and goes beyond straightforward cost and time issues:

> Availability of testing centres is actually a big thing. One of the problems with testing centre or certification at the moment is the whole planning of the activity. Obviously you want to be sitting your exam after you’ve had a reasonable amount of time to study for it, but you don’t want too big a gap between when you have studies and when you sit your exam and that can be a problem. So not having access to a testing centre has been a problem in the past.

- **Recertification is associated with enhanced credibility or status** (3 participants)

In addition to external factors, several participants noted that recertification was important from a personal perspective. It gave them a sense of achievement and pride; this is consistent with the findings of Anderson, Barrett and Schwager (2005) and Sosbe, Hollis, Summerfield and McLean (2005) and is illustrated by the following quotes:

> Well, status to be honest.
> So I think it is just important from a sort of pride perspective as well.

- **Time required** (2 participants)

Regardless of whether employers provide time release for exams and training sessions, undertaking recertification requires a large investment of study time, and participants were very conscious of it. One participant highlighted that this affects not only those seeking recertification but also their families:

> But to justify the amount of money that I spend on it and the amount of time I spend studying is difficult. It is very very hard and can become painful and your spouse does not understand why you are doing this because you already have a job. And all that time is going, time you are supposed to spend with your family.
CONCLUSION

Recertification is integral to the professional life of many of those working in the ICT industry as indicated by the following participant:

So you become a perpetual student. But you are in a field that demands a kind of faith. You have to be always studying. Once you get tired of studying in this industry then you have to walk away from it and find something else to do.

In order to better understand the recertification choices that ICT employees make, this study explored the factors that influence these decisions. The perceptions of ICT students who are about to embark on their careers and who face a professional lifetime of commitment to maintaining their ICT professional status were considered, as well as those of ICT professionals in the work place who have previously obtained certification. The issues that were considered included: the cost of recertification, employer support, and the requirement for it to keep an existing job. Whilst all participants were from Australia, the issues highlighted are likely to be universal: future research in other countries is needed to confirm this.

Both students and ICT professionals were very positive about the benefits of certification and the vast majority of students who were taking courses that could lead to Cisco certification intended to obtain it. Both students and ICT professionals highlighted that intrinsic desire for improved knowledge and skill, as well as job related benefits, motivated them. The ICT professionals also emphasized the importance of certification to their employers.

With certification often comes the need for ongoing recertification. The ICT professionals interviewed for the study all had strong knowledge of the recertification requirements for the certifications they held. This was not, however, the case for the students who were surveyed; many students had little knowledge of what recertification might entail. Recertification might be seen as too far in the future to be of concern, but given that recertification is so central to
ongoing employment in the ICT industry, those teaching courses that can lead to certifications should ensure that their students have an understanding of the long term implications of certification.

A key factor in motivating participants to recertify was flexibility to seek higher paying jobs. This was rated highest by the ICT professionals and second highest by the student participants. It appears that although they are either about to start their ICT career, or in its early stages, they are already very mindful of maximizing their career opportunities. The cost of recertification was not found to be a major issue for either group of participants so although the cost of initial certification can be prohibitive for students (Hunsinger and Smith 2008; McGill and Dixon 2005), students recognize that once they are employed this will be less of an issue, either because employer support is provided or because of their income. Support from employers in providing time for obtaining recertification was considered important by both groups.

Given the huge range of different certifications available, and the varying value of these to the holder at different points in their career, the ICT professionals that were interviewed appeared to take a strategic approach to the decision to recertify. They appeared to have considered, and selectively chosen, those which are worth recertifying given their current position and career aspirations. As Tate, Lichtenstein and Warren (2008) noted, ICT professionals take risks when choosing certifications because it is difficult to know in advance whether a certain certification has longevity, and this is particularly the case in new areas. ICT professionals make judgment calls when the time comes to recertify. They consider both the intrinsic value of the certification and the obstacles to obtaining it. Organizations that rely on, and gain from, the certifications of their employees need to be mindful of this decision process and provide appropriate support.
REFERENCES


