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PRACTICAL PC SKILLS OF NEWLY QUALIFIED CHARTERED ACCOUNTANTS: A STUDY OF THE TRAINING PROGRAMME OF THE INSTITUTE OF CHARTERED ACCOUNTANTS IN IRELAND

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ABSTRACT

This paper discusses statistically significant differences which were found in the PC skills of newly qualified members of the Institute of Chartered Accountants in Ireland (ICAI) before and after undertaking the ICAI's PC skills programme. Their PC skills appear to have improved significantly as a result of the programme. However, notwithstanding this improvement, concern was expressed among newly qualified members that the ICAI was not taking advantage of students' existing PC knowledge to develop more advanced and integrated programmes which reflect the reality of the workplace.

INTRODUCTION

Information Technology (IT) continues to have a major impact on business in general and on the role of the accountant in particular. Accountants, if they are to be effective in carrying out their role as preparers, assimilators and communicators of information, must be relatively computer literate. As a consequence, professional accountancy bodies around the world have included practical PC skills, to varying degrees, as part of their educational programmes for training

accountants. This study investigates the PC skills programme of one such body, the Institute of Chartered Accountants in Ireland (ICAI), by analysing the extent to which newly qualified members of the ICAI believe they have acquired or improved their practical PC skills as a result of attending the ICAI's PC skills training programme. It also focuses on the adequacy of the programme in terms of providing PC skills which are relevant to chartered accountants in the workplace. The overall objective of this study is to provide information which will assist the ICAI in planning and developing future PC skills programmes. To this end, descriptive results of this study have been made available to the ICAI (McCourt Larres, 1998).

A survey approach has been employed with questionnaires distributed to newly qualified members of the ICAI. Their responses were analysed in line with the objective of the study. Statistically significant differences were found in the self-perceived PC skills of newly qualified accountants *before* and *after* undertaking the ICAI's PC skills course and examination. This suggests that perceived PC knowledge was acquired or improved as a result of the programme. However, despite the perceived knowledge gained, comments provided in respect of the programme revealed that many respondents felt that the skills were relatively basic. They felt that the programme could be improved by introducing a more advanced element and adopting a more integrated approach to including PC skills in professional accounting curricula.

This paper presents and discusses the findings of the survey in some detail and examines their implication for the development of future professional PC skills courses. As with the Waller and Gallun study (1985), normative issues relating to curriculum development are not addressed. By way of background to the study, a description of the PC skills programme of the ICAI is provided. The importance of integrating computers into accounting curricula is then discussed. The paper continues by developing a statement of hypothesis and considers the survey design and methodology. Finally, the significance of the findings is analysed and the conclusion presented.

THE *PERSONAL COMPUTING FOR ACCOUNTANTS* COURSE AND EXAMINATION

Membership of the ICAI, irrespective of the trainee's degree, depends on passing a PC skills examination entitled *Personal Computing for Accountants (PCA)*. The course and examination programme is devised and administered by the National Distance Education Centre at Dublin City University in co-operation with the ICAI and is held at various centres throughout Ireland.[1] Originally entitled *Microcomputers and Accounting*, the programme was introduced by the ICAI in 1988 (Hurley, 1997). The title was changed to *Personal Computing for Accountants (PCA)* in 1994 when all of the software, with the exception of the integrated accounting software, moved over to a windows-based environment (McCourt and Lynch, 1994). Independent learning material, covering all of the examinable areas, is provided to each student who enrols on the course. Course attendance is not compulsory and students who consider they have already attained adequate practical computing skills may opt to sit the examination without having attended the course. The proportion of students opting for the examination only route is currently about 33 per cent (McCourt Larres, 1998, p.10). Furthermore, the examination can be sat at any stage during a student's training.

It should be noted that the ICAI does not recommend the use of a particular software package in the programme. Indeed, since the course's inception the actual software packages have changed a number of times, although the categories have always stayed the same. This policy corresponds with the view that recommending a specific software package in accounting curricula is not advisable 'because industry standards can change and because the knowledge of one package is generally transferable to another' (Heagy and Gallun, 1994a, p.27).

THE IMPORTANCE OF COMPUTER SKILLS IN THE ACCOUNTING CURRICULUM

For the ICAI's *PCA* course to be responsive to the needs of today's newly qualified chartered accountants, their views on its usefulness and relevance must be sought and carefully considered. The programme developers must be reassured that they are delivering the requisite basic PC skills before they can concentrate on integrating these skills into the

mainstream accountancy subjects as recommended by International Education Guideline IEG 11 (IFAC, 1995a). Indeed the integration of PC skills into core accountancy subjects is an issue which has been discussed by the IT Task Force of the ICAI, set up recently to review the future of IT within professional training (ICAI, 1998). IEG 11, to which the ICAI Task Force refers at length, emphasises the importance of integrating practical IT skills into courses which are not specifically identified as IT courses such as management accounting, financial accounting, auditing and taxation courses. It represents a view with respect to the incorporation of practical IT skills into accounting curricula which many involved in accounting education, at both tertiary and professional levels, have held for some time.

The issue of how best to integrate computers into accounting curricula has been debated for a number of years spanning many developments and improvements in technology. Early studies carried out in the US into the use of mainframe computers in management accounting (Anderson, 1976) and financial accounting (Throckmorton and Talbot, 1978) revealed a generally favourable reaction. In the UK the importance of integrating mainframe skills into accounting curricula was also addressed at an early stage (Bhaskar, 1982 and 1983). Subsequent developments in microcomputers, which ensured their widespread availability, accelerated the integration of computers into accounting curricula (Helmi, 1986). In the US, Armitage and Boritz (1986) emphasised integrating computers across a range of accounting courses and provided an analysis of specific computer skills which should be included in financial accounting, management accounting/information systems, auditing and taxation courses. Studies have also been carried out in the UK on the incorporation of spreadsheets into management accounting courses (Chandler and Marriott, 1994) and financial accounting courses (Marriott and Mellett, 1994). The Certified General Accountants' Association of Canada (CGA) offered a professional accounting programme which fully integrated the use of computers as early as 1984, the first professional body to do so (IFAC, 1995b, p. 1). In Scotland, the Institute of Chartered Accountants of Scotland (ICAS) is including more PC skills in core accounting subjects, i.e. financial accounting, management accounting, auditing and taxation. The development of this programme by ICAS was significantly influenced by responses to a survey recently carried out among newly qualified Scottish Chartered Accountants (ICAS, 1997), thus underlining the

importance of gauging the views of those who actually make use of the course.

The success of the ICAS PC programme depends on trainee accountants possessing basic PC skills before commencing professional studies. To this end, ICAS accredits basic PC skills courses provided at undergraduate level and provides its own basic PC skills course, early in professional training, for those trainees who do not hold an accredited degree. Relegating the teaching of basic PC skills to tertiary programmes and concentrating on developing these skills at a professional level by integrating them into the core accounting subjects would appear to be the most rational approach to teaching PC skills to professional accountancy students since their work experience gives them an advantage over most undergraduate accountancy students. Acquiring an integrated PC skills set 'may be difficult to achieve . . . in a traditional classroom setting. Learning about integration requires a sufficiently complex environment so that students can observe how disparate parts are brought together' (Trauth, Farwell and Lee, 1993, p. 299).

The *PCA* programme has been developed to assume no prior knowledge of any aspect of computing and no exemption from the examination is given to students who enter professional training with a tertiary qualification of which computing forms a part. The only concession offered is that the *PCA* course is not compulsory. These regulations remain despite the increased computer literacy among entrants to professional training. As the CGA points out, 'It is no longer a safe assumption that the majority of (professional) students know little about computers. The converse is probably true.' (IFAC, 1995b, p.19). Indeed the current survey confirms this insofar as 62 per cent of respondents to the questionnaire held undergraduate or postgraduate accountancy degrees, which included some element of computing skills, when they joined the ICAI as trainees.

Such entrants into the profession who already hold accounting degrees or diplomas will undoubtedly possess some knowledge of basic PC skills given the importance which has been placed on including IT in undergraduate and postgraduate accountancy syllabi. Studies into the PC skills taught at undergraduate level and their relevance to the work environment (Waller and Gallun, 1985; Bean and Medewitz, 1987;

Heagy and McMickle, 1988; Heagy and Gallun, 1994b) all identify a knowledge of spreadsheets, integrated accounting software, database systems, word processing and, to a lesser extent, operating systems, as the skills most valued by employers although the weighting, in terms of desirability, attached to each skill varies among the studies. These are also the PC skills which are included in the *PCA* course, as well as being the minimum PC skills set outlined in IEG 11 as those demanded of professional accountants upon qualification (IFAC, 1995a, Sc. 58). If these skills are being provided at tertiary level and, as the study shows, a large percentage of professional entrants already possess an accounting degree or diploma, the ICAI may be wasting resources teaching skills which students already possess.

The PC skills outlined above are currently taught at a basic level by the ICAI. To go beyond the basics and fully integrate PC skills into the professional accounting curricula may make certain demands upon educators and accountancy students alike, if the right entry-level computing requirements are not set. Research shows that the move towards including PC skills in tertiary accounting curricula has had a significant impact on resources in terms of developing course materials and training staff. In a survey of Australian universities and colleges, Kent and Linnegar (1988) found that most PC training with respect to worksheets and special purpose journals takes place at an introductory level on account of the resource commitment involved. Rivett (1986), referring to the American Accounting Association's report into integrating microcomputers into accounting curricula, pointed out that their inclusion in financial accounting courses was time consuming and represented a potential drain on teaching resources. Furthermore, not only is considerable time spent developing and teaching computer skills in tertiary accounting courses but students must also devote a great deal of their study time to acquiring computer skills (Er and Ng, 1989). After all, it is generally accepted that the 'mastery of information technology concepts and skills demands considerable time and effort' (Bromson, Kaidonis and Poh, 1994, p. 104). Consequently, if such constraints exist with respect to undergraduate students, then the problem for professional accountancy students must be greater given the extensive syllabus which they must cover. Furthermore, they have to acquire these skills, for the most part, on a part-time basis. The problem increases when important new computing subjects such as the Internet (Sangster, 1995; Sangster and Mulligan, 1997; Soriano, 1997) compete

with the more traditional accounting subjects for curriculum space and students' learning time. Consequently, it is imperative that students' attitudes to the adequacy of PC skills currently taught and examined as part of the ICAI professional syllabus are investigated before further resources are committed to designing new, more advanced courses, a step which the ICAI is currently considering (ICAI, 1998).

HYPOTHESIS STATEMENT

To determine whether newly qualified members of the ICAI believe that they have acquired new or improved existing PC skills as a result of their involvement in the *PCA* programme, their self-perceived PC knowledge *before* and *after* studying for and sitting the *PCA* examination was compared. To analyse this attitudinal data, a null hypothesis of non-differential in PC skills was formulated as follows:

$\mathbf{H_0}$: There is no significant difference between the self-perceived practical PC skills of newly qualified members of the ICAI *before* commencing the *PCA* training programme and the self-perceived practical PC skills of newly qualified members of the ICAI *after* completing the *PCA* training programme.

SURVEY DESIGN AND METHODOLOGY

A postal questionnaire was used for data collection. It was distributed to all newly qualified members admitted to the ICAI in 1997. Recipients were asked to evaluate their level of PC skills knowledge *before* and *after* the *PCA* programme. The retrospective, self-assessment approach adopted in this study reflects an approach used in earlier studies to assess the adequacy of undergraduate IT training as preparation for a career in accountancy (Bean and Medewitz, 1987; Heagy and McMickle, 1988). Respondents whose returns are analysed in this paper completed the *PCA* programme within the last four years, thereby ensuring that they 'have had enough experience to be knowledgeable about computer applications in professional accounting, but near enough to their own...education to be somewhat familiar with the current content' (Bean and Medewitz, 1987, p.244). Questions were designed to reflect a series of PC skills important to an Irish chartered accountant as outlined in Book 1 of the *Personal Computing for Ac-*

countants Course (NDEC, 1997, p.1). These are also the fundamental skills identified in IEG 11 (IFAC, 1995a, Sc. 58).

Once these software categories had been identified, those involved in *PCA* course development specified the level of expertise which they expected from students who had completed the programme. An average of the course developers' knowledge expectations was then calculated for each of the software categories. The results of this exercise are set out in **Table 1**. The four levels of knowledge identified by the developers were incorporated into a Likert Scale with (1) reflecting no knowledge of the software through to (4) reflecting an expert knowledge. Respondents applied this scale to identify their perceived level of knowledge in each of the software areas *before* and *after* the *PCA* programme.

Recipients were also asked to assess the usefulness of the PC skills in their working environments. The importance of assessing the relevance of PC skills, included in accounting curricula, to an accountant's working environment has been addressed in a number of articles (Bean and Medewitz, 1987; Heagy and Gallun, 1994b; Goldsworthy, 1996). Open questions were also posed to provide respondents with an opportunity of commenting on the course generally. An extract from the questionnaire has been set out in the **Appendix** to this paper. The questionnaire was piloted on a sample of 30 recently qualified members selected at random from the Members' Directory (ICAI, 1996). Difficult or ambiguous questions revealed as a result of the pilot survey were amended in the final draft of the questionnaire.

Table 1: Level of Knowledge Expected by the ICAI Educators from Students as a Result of Attending the *Personal Computing for Accountants* Course and Sitting the Examination.

Area	No Knowledge	Basic Knowledge	Relatively Proficient	Expert
Components of a basic computer system	0%	2%	96%	2%
Basic operations carried out in an operating system	0%	2%	96%	2%
Use of spreadsheets	0%	2%	96%	2%
Operation of IAS[f]	0%	21%	77%	2%
Report generating facilities of IAS[f]	0%	21%	77%	2%
Database creation	0%	21%	77%	2%
Database manipulation	0%	50%	48%	2%
Basic word processing skills	0%	2%	96%	2%

[f] Integrated Accounting Software

MAIN SURVEY

Data Collection

A four-page questionnaire, together with a covering letter explaining the purpose of the survey, was mailed to all (557) newly qualified members of the ICAI admitted in 1997. Details of names and addresses for the survey were supplied by the ICAI. Since all of the population was surveyed no sampling bias was envisaged. Respondents were alerted to the fact that the questionnaire had been pre-numbered to facilitate a follow-up mailing. At the cut-off date, four weeks after the questionnaires were mailed, a total of 237 responses had been received. Three spoiled responses were rejected upon receipt. The effective response rate of 42 per cent was considered satisfactory and a follow-up mailing was deemed unnecessary.[2]

During the first two weeks following the mailing 161 responses were received. The remaining responses were returned in the last two weeks.

A chi-square test of homogeneity revealed no statistically significant differences between the early and late responses.[3]

Of the 234 valid responses, 158 attended the course, the remaining 76 sat the examination only. Consequently, to evaluate the PC skills which students acquired as a result of taking part in the *PCA* programme, only the 158 responses from course attendees were analysed for the purposes of this study.

DATA ANALYSIS

Since most of the data collected to test $\mathbf{H_0}$ are either on a nominal or ordinal scale of measurement, non-parametric statistical tests were considered to be the most appropriate analytical tools (Siegel and Castellan, 1988, pp. 33-35). Information to test the hypothesis was gathered by asking the newly qualified chartered accountants to evaluate their level of skill with respect to eight areas of PC knowledge. They were asked to rank their skills using an ordinal Likert scale of 1 (no knowledge) through to 4 (expert) in each of the eight areas, set out in **Table 2**, at the following two stages: prior to commencing the ICAI's *PCA* training programme and after completing the ICAI's *PCA* training programme.

The hypothesis was tested using the Wilcoxon matched-pairs signed-ranks test. This is a non-parametric version of the paired-difference t-test (Siegal and Castellan, 1988, p. 87). The responses to the two sets of questions were paired and the differences between these pairs analysed. Unlike ordinary signed-ranks tests, the Wilcoxon test also considers the magnitude of differences within the pairs. The results of the test are presented in **Table 2.**

Table 2: Wilcoxon Matched-pairs Signed-ranks Test of PC Skills of Newly Qualified Accountants Before and After the *Personal Computing for Accountants* Course and Examination

Experience of:[1]	Mean Ranks		PrePCA[2] > PostPCA[3]	PrePCA[2] < PostPCA[3]	Ties	Z	p (2-tailed)
	PrePCA[2]	PostPCA[3]					
Components of a basic computer system[#]	12.00	13.04	1	24	132	-4.0495	.0001[a]
Basic operations of an operating system	26.00	32.60	1	63	94	-6.7811	.0000[a]
Use of spreadsheet packages	00.00	37.00	0	73	85	-7.4244	.0000[a]
Operation of IAS[f]	00.00	54.50	0	108	50	-9.0207	.0000[a]
Reporting facilities of IAS[f]	00.00	52.00	0	103	55	-8.8104	.0000[a]
Databases creation	00.00	59.50	0	118	40	-9.4273	.0000[a]
Databases manipulation	00.00	56.50	0	112	46	-9.1855	.0000[a]
Basic word processing skills	00.00	22.50	0	44	114	-5.7767	.0000[a]

[f] Integrated Accounting Software.
[1] Unless otherwise stated, n = 158.
[2] PC knowledge before *PCA* course and examination.
[3] PC knowledge after *PCA* course and examination.
[#] n = 157.
[a] indicates that differences are significant at one per cent level.

DISCUSSION OF RESULTS

The null hypothesis of no difference in self-perceived *pre-* and *post-PCA* PC skills among newly qualified members is rejected in all areas of PC knowledge under consideration. There are statistically significant increases in the self-perceived knowledge of newly qualified accountants in relation to components of a basic computer system, basic operations of an operating system, use of spreadsheet packages, operation of integrated accounting software, reporting facilities of integrated accounting software, database creation and manipulation and basic word processing (all significant at the 1 per cent level). The *PCA* programme appears to be providing or improving basic PC skills in the categories of software which have been identified as those most commonly used by accountants in practice and in industry (Heagy and Gallun, 1994a).

The survey also addressed the usefulness of these self-perceived PC skills in the context of the respondents' work environment. It revealed that 64 per cent of those who had attended the course believed that these basic skills were useful in the work environment. In the final question posed in the questionnaire, the respondents were asked to suggest developments or changes which might be made to the course (see **Appendix**). Their comments and recommendations have been summarised in **Table 3**.

Table 3: Responses to Question 20 of the Questionnaire

	Comments and Recommendations	Percentage
1	Integrating PC skills into core accounting subjects*	35%
2	Inclusion of more advanced features*	29%
3	Expressed satisfaction with the programme and suggested no changes	8%
4	Other miscellaneous comments provided	12%
5	No comment provided	16%

* 17 per cent of respondents recommended integrating PC skills into core accounting subjects as well as the inclusion of more advanced features.

Eight per cent of the respondents who attended the course expressed satisfaction with the programme and did not believe that any developments were necessary. A further 16 per cent did not comment at all. Silence may or may not be construed as contentment. The majority of respondents were of the opinion that course developers could go further. Thirty-five per cent suggested that the ICAI should adopt a case study approach so that PC skills would be fully integrated with other core accounting subjects, thereby applying 'the technology to the professional problem it is designed to solve' (IFAC, 1995b, p.5). Indeed, newly qualified ICAI members would already be familiar with the benefits of a multi-disciplinary approach since it forms the basis of the Final Admitting Examination into the ICAI.

Twenty-nine per cent of respondents who attended the course felt that the ICAI should acknowledge the level of PC skills which accounting trainees have already acquired prior to commencing the *PCA* programme, either through tertiary education or in the workplace, and direct its resources to incorporating more advanced features, such as macros in spreadsheet software, into the course. Seventeen per cent recommended an incorporation of more advanced techniques as well as an inter-disciplinary approach. The remaining 12 per cent provided a variety of comments which fell into two broad categories, those which suggested the inclusion of skills specific to a fairly narrow area of specialism in which they worked such as banking and those which criticised some aspect of the programme's administration.

The results of the statistical analysis and the views expressed by the majority of the respondents on future developments for the course are not inconsistent. The perceived increase in computer literacy as a result of attending the course is understandable because, at the very least, the programme would have provided revision for some and taught new features of the software to most. Furthermore these new, improved or even revised skills could not fail to be useful since the software covered in the programme corresponds to that used by accountants in practice and industry (Heagy and Gallun, 1994a). This acknowledgement of the course's benefits does not preclude discussion of its shortcomings or suggestions for improvement. Indeed, it was encouraging to see respondents providing such informed views on the further direction of the programme. In particular, their recommendations on the integration of PC skills into core accounting subjects, which correspond with those of

the International Federation of Accountants IEG 11 (IFAC, 1995a), displays an insight into the importance of IT in accounting.

CONCLUSION

The study has revealed that newly qualified Irish chartered accountants perceive themselves as having gained new or improved existing PC skills as a result of having attended the ICAI's *PCA* programme. However, despite the increase in self-perceived PC skills and the acknowledged usefulness of the skills in the workplace, the majority of the respondents who attended the course believed the skills are still too basic. Whilst their knowledge of these basic skills may have increased, they felt that more advanced elements could be included and that an integrated approach would be even more useful. The ICAI should, on the one hand, be encouraged that its *PCA* programme is having the desired effect by providing certain basic PC skills to new members and on the other, be conscious that it must embrace technology and incorporate PC skills more fully into its professional curriculum to reflect the realities of the business world. The increased level of computer literacy which appears to exist among those commencing the *PCA* programme would make such a development possible.

Whilst the findings of the survey are interesting and potentially helpful from the point of view of planning future programmes within professional accounting curricula, it should be pointed out that the study did not test newly qualified members' actual PC skills. Newly qualified members' level of expertise *before* and *after* the *PCA* course was self-assessed and consequently may reflect over or under estimation of abilities among the respondents. In view of this, an interesting area for future study would be to compare the actual results of the *PCA* examination, if such data were made available, with the self-perceived post *PCA* levels of expertise identified in this study to discover whether any significant difference exists.

NOTES

[1] From October 1998 the *PCA* course has been devised and administrated directly by the Institute of Chartered Accountants in Ireland.

[2] Bean and Medewitz (1987), for example, considered a 35 per cent rate to be satisfactory, and returns below 30 per cent have been justified and reported in accounting literature over the last three decades (see Drury, Braund, Osborne and Tayles, 1993; Scapens, Sale and Tikkas, 1982; Tomkins, 1973; Mautz, 1968, for examples).

[3] Late respondents were used as surrogates for non-respondents (Wallace and Mellor, 1988; Oppenheim, 1992; Babbie, 1994).

APPENDIX

Survey Questionnaire (relevant extract only)

Section II

9. How many times did you sit the *Personal Computing for Accountants (PCA)* examination?

_____

Please refer to your SUCCESSFUL attempt at the PCA examination when answering questions 10, 11, 12 & 13

10. When did you sit your successful attempt at the *PCA* examination?

Month _____ Year 19 _____

11. Please indicate (✓) which version of the *PCA* examination you passed.

Windows _____ DOS _____

12. Please indicate (✓) at which stage during your training you sat the *PCA* examination you passed.

Prior to passing Professional II ___
Prior to passing Professional III ___
Prior to passing FAE ___
After passing FAE ___

13. Why did you sit the *PCA* examination at the stage indicated in 12 above?

_____
_____
_____
_____

14. Please indicate (✓) whether you attended any part of the *PCA* course.

Yes___ No (examination only) ___

If your answer to question 14 was 'YES', answer questions 15-20, otherwise proceed to question 21

Section III

15. Did you acquire or improve the following skills as a result of your attending the *PCA* course, and studying for and sitting the examination? Using the scale below, please write in the number from 1 (no knowledge) through to 4 (expert) which best describes your knowledge level at each of the two points in time indicated below.

1	2	3	4
No Knowledge	Basic Knowledge	Relatively Proficient	Expert

	Level of knowledge	
	Before studying for *PCA* course and sitting the exam	**After *PCA* course and exam**
(i) The components of a basic computer system i.e. CPU, hard disk, keyboard, mouse etc.		
(ii) The basic operations carried out in an operating systems: i.e. copying, backing up, deleting files etc.		
(iii) The use of spreadsheet packages in accounting		
(iv) The operation of integrated accounting software, e.g. Pegasus, Sage etc.		
(v) The report generating facilities of integrated accounting software		
(vi) Database creation		
(vii) Database manipulation		
(viii) Basic word-processing skills		

16. Did you acquire or improve practical IT skills OTHER THAN those outlined in question 15 as a result of your attending the *PCA* course and studying for and sitting the *PCA* examination?

Yes___ No ___

If your answer to 16 was 'YES', proceed to question 17, otherwise proceed to question 18

17. Please identify and rate the additional practical IT skill(s) referred to in question 16 using the following scale.

1	2	3	4
No Knowledge	Basic Knowledge	Relatively Proficient	Expert

	Level of skill	
Additional Acquired and/or Improved Practical Skill(s)	**Before studying for PCA course and sitting the exam**	**After PCA course and exam**
(a)		
(b)		
(c)		
(d)		
(e)		

18. Overall, have the skills that you acquired and/or improved as a result of your attending the *PCA* course and studying for and sitting the *PCA* examination been useful in your job?

Yes ___ No ___ No skills acquired ___

If your answer to 18 was 'NO', proceed to question 19, otherwise proceed to question 20

19. Please explain briefly why you believe that the skills that you acquired and/or improved as a result of your attending the *PCA* course and studying for and sitting the *PCA* examination have NOT been useful for your job.

_____

_____

_____

_____

20. Do you have any suggestions as to how the Institute's *PCA* course and examination should be changed or developed, and why?

_____

_____

_____

_____

Thank you for your time and effort in completing this questionnaire.

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