The Educational Needs of the Timber Industries

Report of an Online Survey
by the Centre for Timber Engineering

April 2006

Centre for Timber Engineering
Napier University

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1 EXECUTIVE SUMMARY

This survey was conducted by the Centre for Timber Engineering (CTE) in summer 2005 to investigate the educational needs and preferences of the timber industries. Both employers and employees were asked to define and articulate curriculum and skills needs. The results of the survey will be used to improve the coverage and responsiveness of education and training to the timber industries by the CTE. This initial survey focussed particularly on timber engineering and academic programmes, but the range and number of responses allowed more general statements to be made about needs and preferences.

Additional education and training in timber engineering of employees was of interest to almost half of all employer respondents, but only about a third of employee respondents. This apparent low motivation indicates that the education and training needs to be seen to be more attractive and worthwhile for both employers and employees, and that more must be done to demonstrate the benefits of workforce development. This appears to be especially true for women and education and training providers must take steps to ensure that courses are attractive and accessible to both genders. The figures must be treated with some caution as many of the respondents were from other disciplines in the wood chain. However, it is evident that the value employers place on training and skills development must also be communicated to employees themselves.

Overall, respondents expressed interest in a wide range of subjects covering not just timber engineering but also forestry related subjects, sustainability, management, marketing and IT skills. Notably, the need for education in management related topics appears to be just as high as the demand for engineering and design topics and for processing and manufacturing topics. Courses offered to the industry should not just concentrate on providing subject knowledge, but should also incorporate transferable IT, communication and management skills relevant to the industry.

Training was seen to be needed on all educational levels, with employers stressing a particular requirement for practical training for technicians and machine operators. Somewhat surprisingly, although several employees expressed interest in learning about how to be more innovative, this was hardly mentioned at all by the employers.

Although many potential learners in the timber industries will have a strong education background it is possible that many will have not practiced their study skills for some time and this must be accommodated for in course design and provision. This appears to be particularly important for courses aimed at managers.

The main motivation for undertaking additional education and training for employees was seen to be better career opportunities and possible promotion, but personal interest also plays an important role. Since courses should be designed with the motivations of potential learners in mind, learners should be able to see a direct connection between their study and their work so they can immediately appreciate how it will benefit their own career. Materials should be made engaging, and courses should contribute to a rounded education in recognition of the high proportion of learners whose main motivation is personal interest.

A very high interest was expressed in obtaining academic credit for training and the highest interest was in short courses that carry academic credit. Education and training providers should therefore consider how time spent studying can be recognised formally. Interest in full academic programmes at first degree and postgraduate level was moderate. The preferred amount of study time per week was no more than 10 hours per week. Educational and training courses should be designed to accommodate these needs and providers should also investigate ways of opening up parts of their programmes to students who wish only to study particular topics.

Although there does appear to be a demand for traditional academic programmes, education providers should be aware that potential learners might not be able to commit sufficient time to their study to be able to complete them. Promotional materials should be clear about expectations to prevent retention problems. Short courses were seen to be the most preferred form of additional education and training; where possible, short courses should carry academic credit or equivalent recognition. The courses should be between 10 and 50 hours in length and, where appropriate, form modular components of larger learning packages.

The preferred modes of delivery for academic programmes were a blend of distance learning with campus based learning and distance learning only (paper based and online). The preferred mode of delivery for short courses was online. There was also interest in traditional face-to-face short course provision, and training materials should be designed so that they can be used effectively for both forms of delivery.

The results of the survey indicate that there clearly is a computer literate audience within the industry that is able to make use of online education and training, and that most employees would be fairly well equipped with the necessary technology. A large proportion of potential online learners have access to a high speed internet connection, but while learning materials should be designed to exploit this capability, the users with access only to dial up connections should also be considered. In this survey, at least a fifth of potential learners had access only to dial up connections and, as the survey was conducted online, the proportion across the timber industry as a whole is likely to be larger.

It is clear that a high proportion of the employers who took part in the survey are prepared to make a significant investment into the education of their workforce, especially those who said they would contribute financially, through fees or by providing release from work.

2 INTRODUCTION

The Centre for Timber Engineering (CTE) at Napier University in Edinburgh was established in 2002 to provide strategic and applied research, knowledge transfer, and education and training in timber engineering. The CTE is part of the Scottish Forest Industries Cluster's workforce development strategy alongside several other organisations currently involved in training needs analysis and training provision (Lantra, UK Wood Chain Group, Forestry Contracting Organisation, Barony College, UK Timber Frame Association, Institute of Wood Science etc).

In order to remain internationally competitive, Scotland's forest industry needs to improve in the areas of productivity and innovation (Scottish Forest Industries Cluster 2006). Both of these are closely linked to workforce skills and motivation and consequently there is a definite need for targeted provision of education and training at different educational levels as well as increased employer uptake.

Between May and September 2005 the CTE conducted an online survey into the educational needs of the timber industries. The survey was undertaken in connection with the Timber Engineering Online (TEO) project and the aim of the survey was to get information about the curriculum and skills requirements of the industry, and also about the preferred modes of delivery. This initial survey focussed particularly on timber engineering and academic programmes, but the range and number of responses allows more general statements to be made about needs and preferences.

The survey was advertised via e-mail to 1521 addresses supplied by the Scottish Forest Industries Cluster and the CTE. It was also linked from the CTE and the Scottish Forest Industries Cluster web sites. An advert was published in the Scottish Forest Industries Cluster newsletter, which was sent out to 190 overseas and 3480 UK addresses. People were encouraged to pass the invitation on to other colleagues.

The survey was published online using the "QuestionPro – Online Research Made Easy™" software, available from www.questionpro.com. The survey was also obtainable in paper format, but no-one requested a paper copy.

The survey was not a comprehensive survey of the Scottish forest industries, and the results only reveal the opinion of the participants. The statistics reflect the distribution of respondents, which is not necessarily representative of the forest industry at large. The majority of the addresses listed in the Scottish Forest Industries Cluster database are involved in areas of work that are not associated directly with timber engineering, so the answers reflect a wide range of interests.

Almost half of all the addresses on the Scottish Forest Industries Cluster list fall into the business categories 'Forest Manager / Owners', 'Forest Contractors', 'Research Institute', 'Government Agency' and 'Housing Association'. Only 3 timber frame manufacturers filled in the survey. Many of the smaller companies still do not have internet access and e-mail and this could be one reason why they did not participate in the survey.

3 GENERAL STATISTICS

In total, the survey was completed by 402 respondents. More participants started the survey but many did not answer enough questions to be logged as having completed the survey. 350 started the survey as employees, and 192 started the survey as employers.

3.1 EMPLOYEES

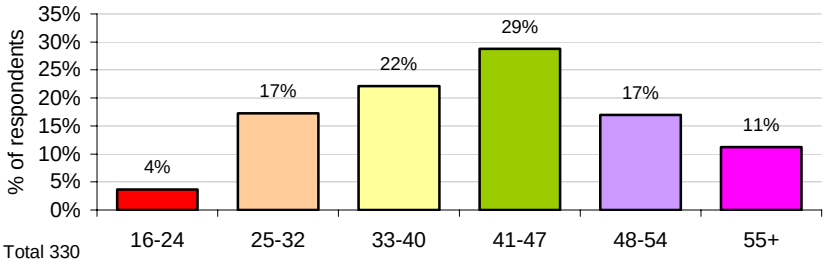
The modal age group of the employees who took part in the survey was 41-47 years. About three quarters of the participants were male, but relative to the reported gender balance in the industry the response rate was higher for women than men. In 2002 women represented 12% of the UK workforce for Forestry and 10% for Construction (Sector Skills Development Agency 2004). The wood, paper, printing and publishing industries are less gendered (36% women). Female respondents were, on average, younger than male respondents.

This survey was mainly targeted at the Scottish timber industries, and correspondingly about 57% of all replies came from Scotland. Valuable contributions were also made from England and Wales, and a smaller number from further afield including Northern Ireland, Nigeria and Belgium.

The majority of the employees who participated in the survey are employed in the “forestry” sector (57%). Only 5% of all participants came from “engineering and construction” sectors, and only 7% from the “processing and manufacturing” sectors of the industry (principally sawmilling). Of the remaining groups, the largest were related to “education and research” (10%) and “government, local authority and other policy making” (12%).

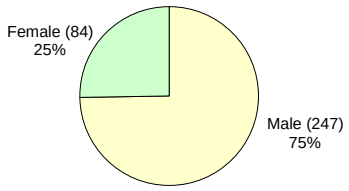
Over half of the employees described themselves as professionals (62%), with 26% describing themselves as managers. Only 6% were skilled tradesmen or technicians. A large part of those who chose the “others” option are rangers or working in conservation.

Age of employee respondents



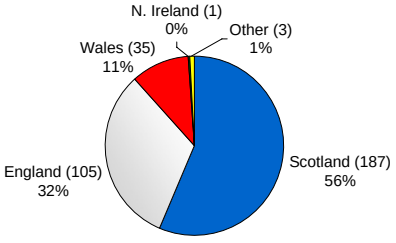
Total 330

Gender of employee respondents



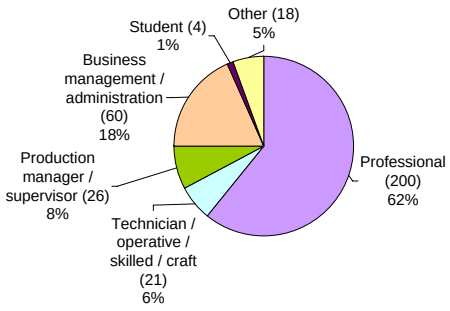
Total 331

Employee respondent residence



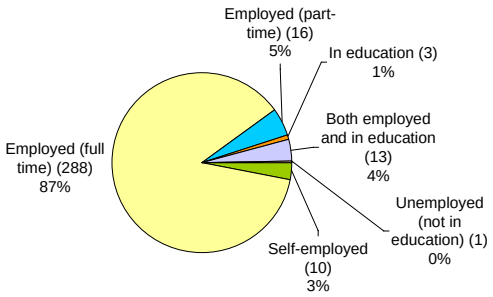
Total 331

Employee respondent role type



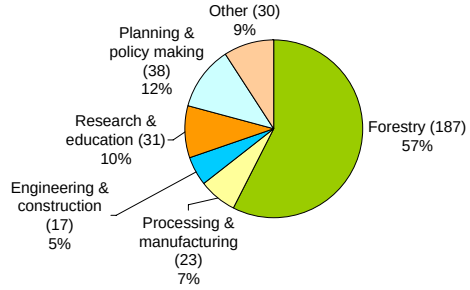
Total 329

Current employment status



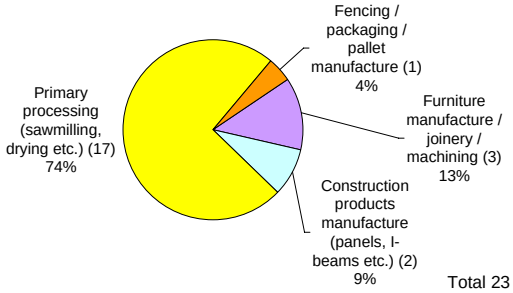
Total 331

Employee respondent by industry sector



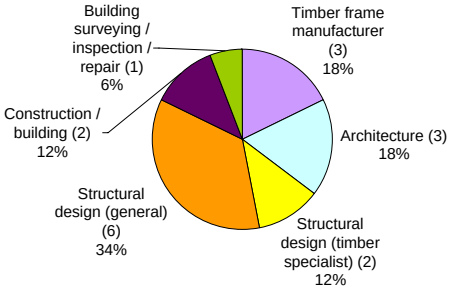
Total 326

Employee respondent by industry sector Processing & manufacturing



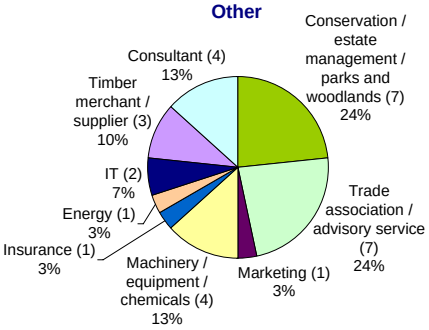
Total 23

Employee respondent by industry sector Engineering & construction



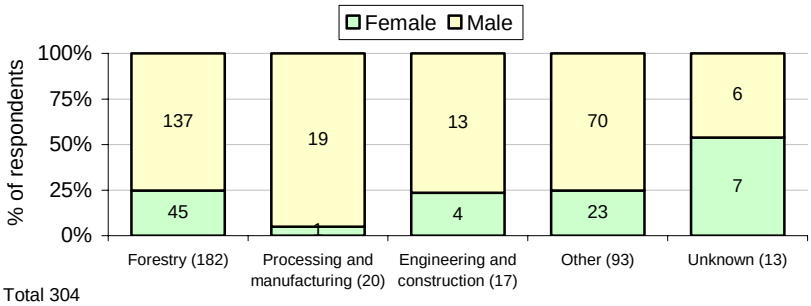
Total 17

Employee respondent by industry sector Other



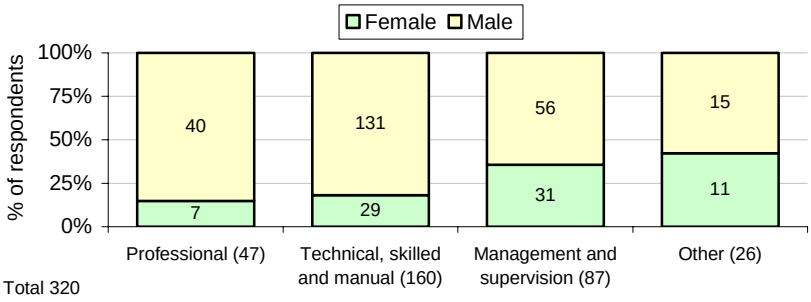
Total 30

Gender of employee respondents by industry sector



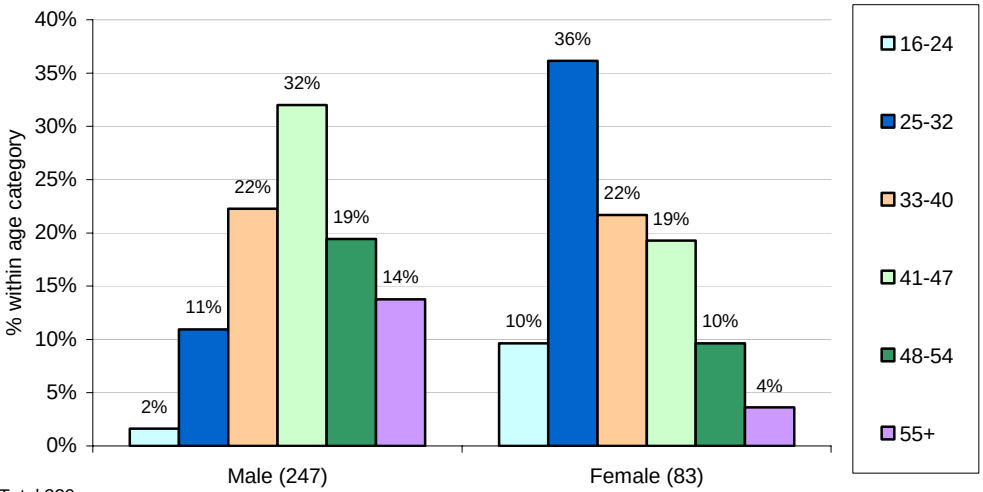
Total 304

Gender of employee respondents by role type



Total 320

Age and gender



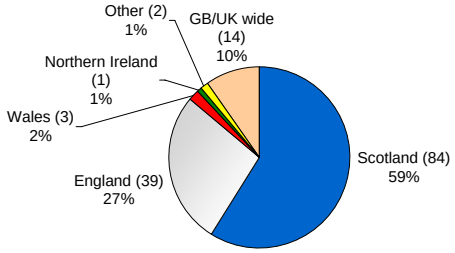
Total 330

3.2 EMPLOYERS

A little over half of the companies that replied to the survey were based in Scotland (59%), and a little over a quarter were based in England (27%). About 10% replied that their company can be classified as 'UK wide' and a small number of companies were based in Wales, Northern Ireland, Sweden and Australia.

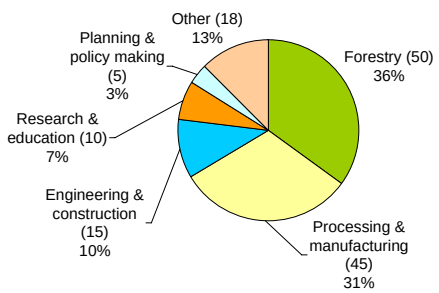
The largest group of companies taking part in the survey were from the 'forestry' sector (36%), which is perhaps a reflection of the fact that dissemination to was better in this sector than it was in the 'engineering and construction' sector (10%). The responses were more balanced than for employees with the 'processing and manufacturing' sector being better represented (31%).

Employer organisation base



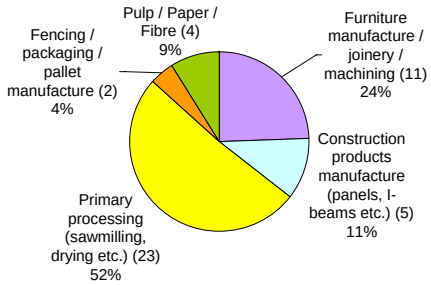
Total 143

Employer respondent by industry sector



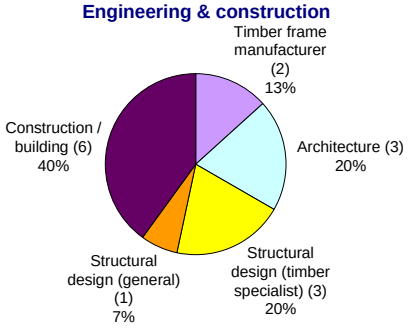
Total 143

Employer respondent by industry sector
Processing & manufacturing



Total 45

Employer respondent by industry sector
Engineering & construction

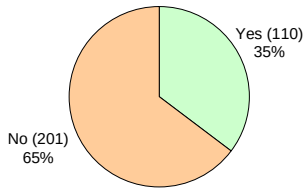


Total 15

4 INTEREST IN EDUCATION AND TRAINING

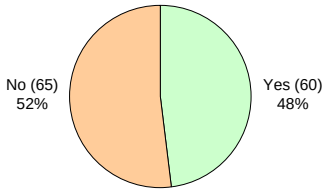
Only 35% of the employees were interested in additional education and training in timber engineering, while 48% of the employers would like their employees to gain further education and training in timber engineering. This result would appear to indicate that there is a need to encourage employees to participate in workforce development activity. These figures must be treated with some caution, as many of the respondents were from other disciplines in the wood chain. Those interested in training named a range of subjects, many of which are not directly related to engineering.

Would you be interested in additional education and training in timber engineering?



Total 311

Would you like your employees to gain additional qualifications in timber engineering?



Total 125

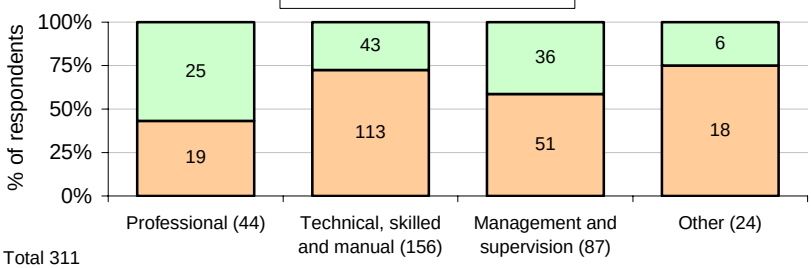
4.1 EMPLOYEES

Female employees appeared to be less interested in further training than male employees. Forty percent of male respondents indicated an interest in education and training in timber engineering compared to 22% of female respondents. The UK forest industries are very male dominated with the higher proportion of women in lower grades. These results suggest that gender imbalance must be considered in relation to education and training provision to ensure that courses are attractive to both men and women, and that barriers to participation are overcome.

Education and training in timber engineering was seen to be of highest interest to those respondents who described themselves as professionals.

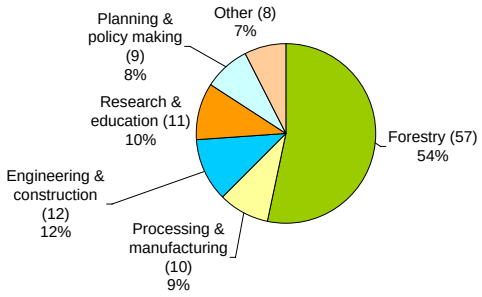
Education and training providers should assess their courses to ensure they are attractive to both genders, and should take steps to ensure that barriers to participation, such as male-biased pedagogy, are avoided.

Role type and interested in additional education and training in timber engineering



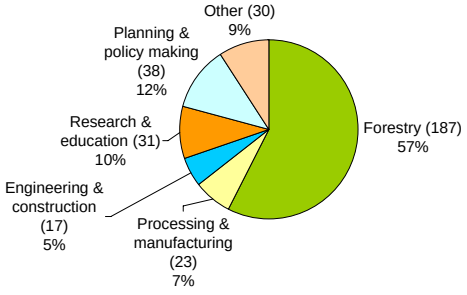
Total 311

Employee respondents interested in education and training in timber engineering by industry sector



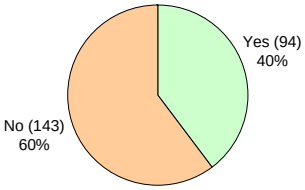
Total 107

Employee respondent by industry sector



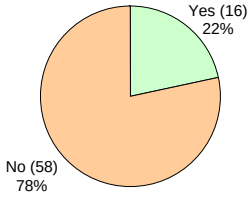
Total 326

Would you be interested in additional education and training in timber engineering? (Male respondents)



Total 237

Would you be interested in additional education and training in timber engineering? (Female respondents)



Total 74

4.2 EMPLOYERS

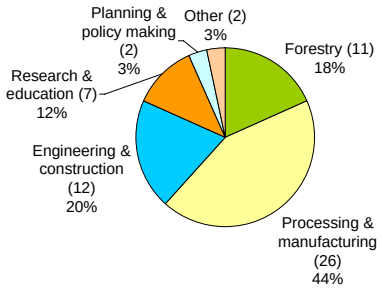
The level of interest on the part of the employers for their employees to gain additional qualifications in timber engineering was moderate (48%) but higher than the apparent interest of the employees themselves (35%).

The moderate interest of the employers could indicate that the opportunities and benefits of workforce development are not obvious to many employers, and that there is a deficit in the management skills needed to be able to plan and implement workforce development strategies, and to be able to measure impact on productivity and innovation.

However, the survey was disseminated across several sectors and not everyone who responded to the survey was necessarily interested in the engineering part of the industry. Certainly, the interest within “engineering and construction” category was proportionally much higher (80%). It is possible that interest in workforce development in other areas, such as forestry, management or IT skills, is higher than the figure of 48% for timber engineering across all employer respondents.

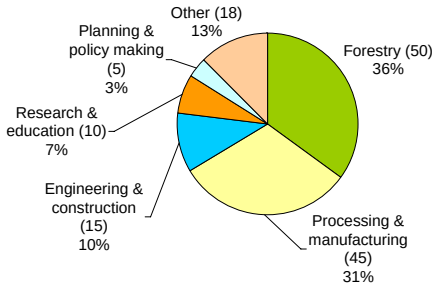
Employers must be provided with the skills and information they need to be better able to see quantifiable benefits of workforce development to productivity and innovation. This will then lead to greater skills demand within the industry. The value employers place on training and skills development must also be communicated to employees themselves as this survey shows that employer demand for workforce development appears to be greater than employee interest.

Employer respondents interested in education and training in timber engineering by industry sector



Total 60

Employer respondent by industry sector



Total 143

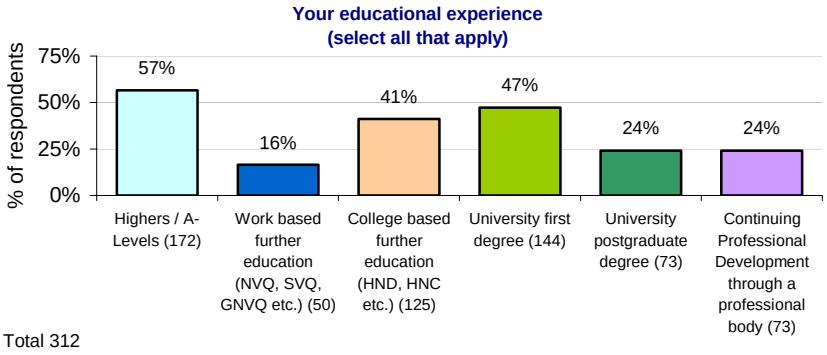
5 PREVIOUS LEARNING EXPERIENCE

5.1 EMPLOYEES

Forty one percent of respondents have a college based further education, and a slightly higher number (47%) had a university first degree. Twenty four percent had a postgraduate qualification. The analysis of data showed that the respondents classified as managers were mainly educated at further education level (work and college based). Professionals were mainly educated at university degree level and, along with technicians and skilled workers, had the highest percentage of postgraduate degrees. Managers had the lowest percentage of postgraduate degrees and CPD experience.

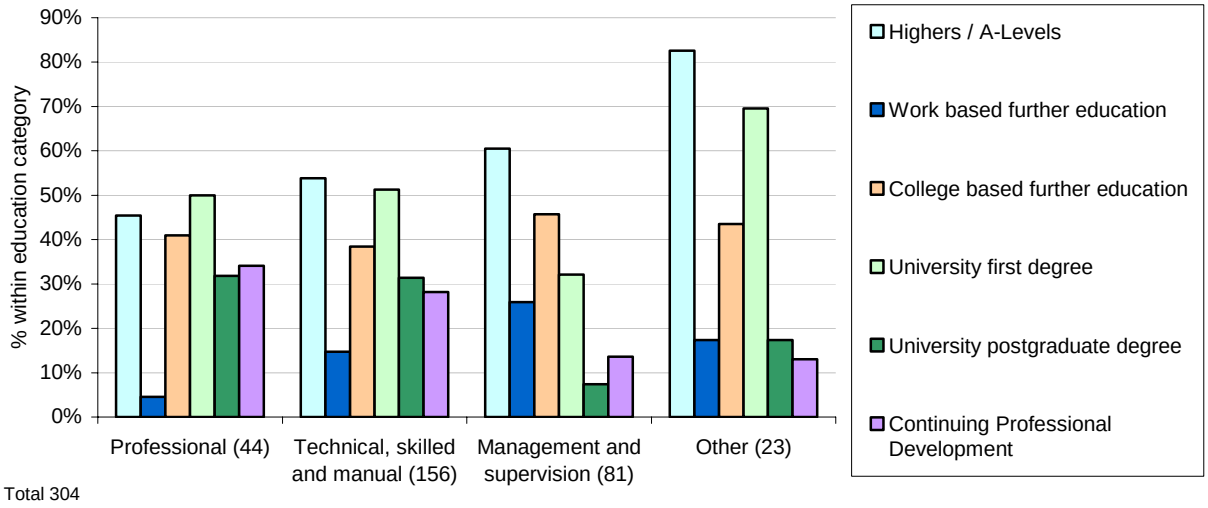
Educational experience was not seen to vary by respondent age, although those in the 23-35 age group where most likely to have university degrees. Similarly, educational experience was not seen to differ by gender, although the female respondents were more likely to have received higher rather than further education compared to the male respondents.

Overall, relatively few respondents have received CPD training through a professional body, although, as would be expected, it was most common among the professionals group.



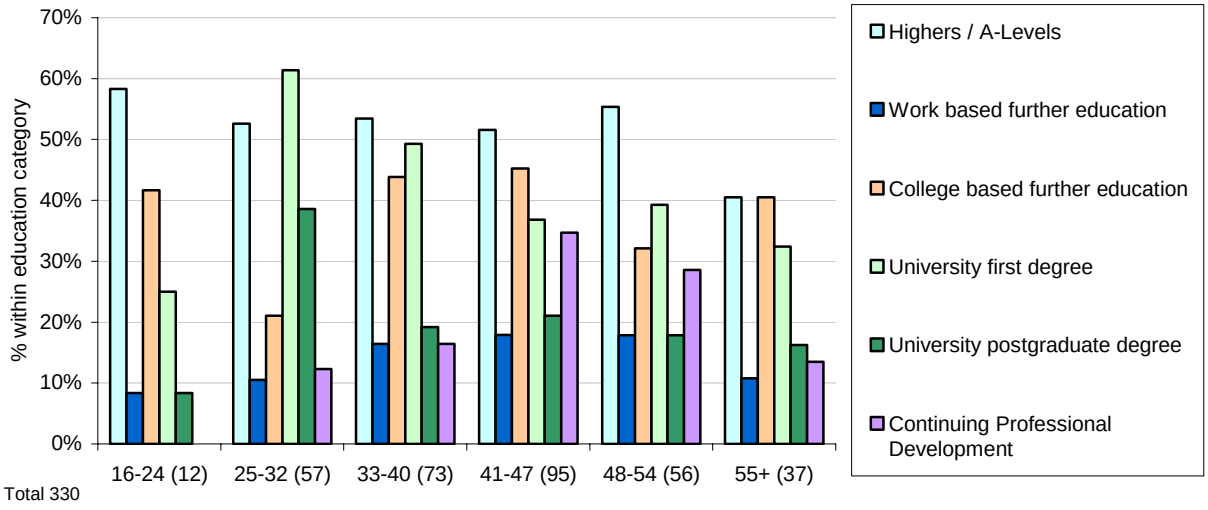
Total 312

Educational experience and role type



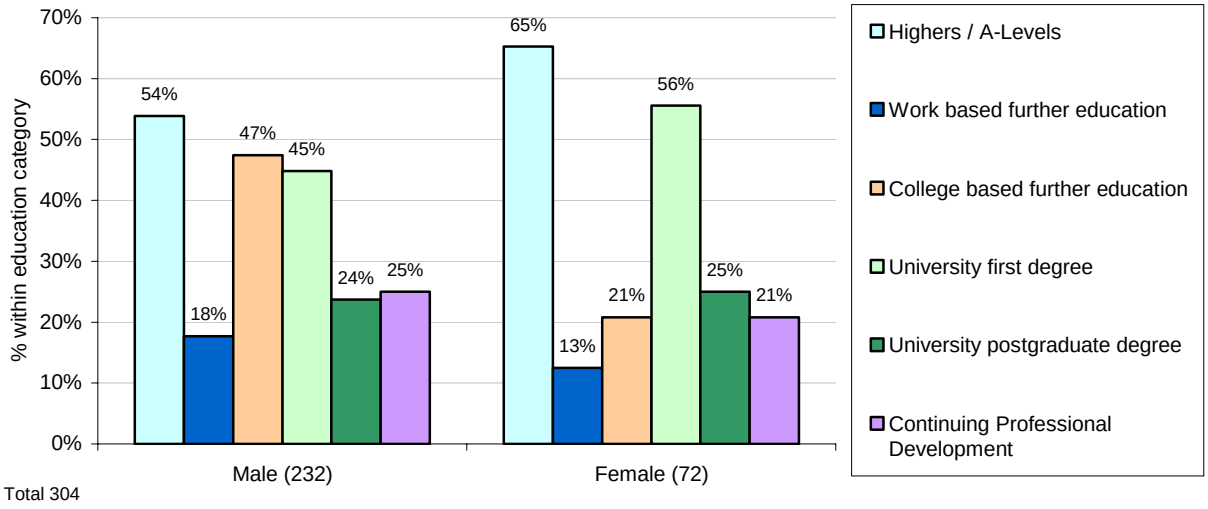
Total 304

Educational experience and age



Total 330

Educational experience and gender

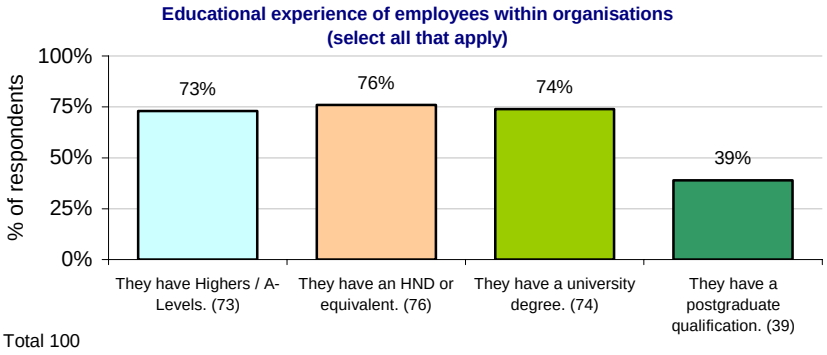


Total 304

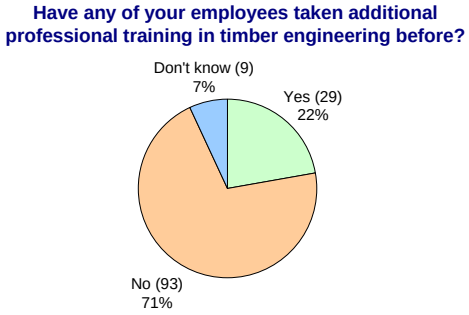
5.2 EMPLOYERS

A similar picture of educational experience within the timber industries was evident in the responses of employers.

Although many potential learners in the timber industries have a strong education background it is possible that many will have not practiced their study skills for some time. It is recommended that education and training providers communicate clearly to potential learners what the requirements and expectations of courses are prior to joining, and provide support in the study skills such as time management, self-study and exam technique. This appears to be particularly important for courses aimed at managers.



Total 100



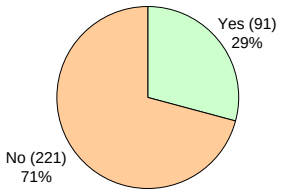
Total 131

6 PREVIOUS DISTANCE LEARNING EXPERIENCE

6.1 EMPLOYEES

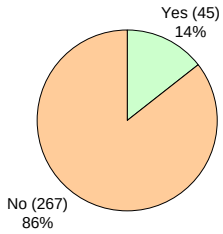
Flexible distance learning is increasingly becoming the learning mode of choice, as the learner is able to fit the study time into the daily work and private life much more easily than is possible when tied to a fixed event schedule, and travel is required to attend in person. However, the current experience of employees with distance learning is not very extensive. More than 70% answered that they have never taken any distance learning course before, and only 14% have ever taken an online course before. (Note: Since 26 respondents (8%) said that they have never taken a distance learning course, but have taken an online course, the figure for those who have never taken a distance learning course should be corrected down to 64%.)

Have you taken any distance learning courses before?



Total 312

Have you taken any online courses before?



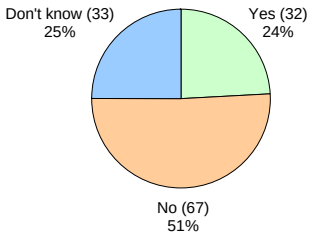
Total 312

6.2 EMPLOYERS

A similar picture of distance learning experience within the timber industries was evident in the responses of employers.

As most potential learners have no experience of distance learning it is recommended that education and training providers communicate clearly to potential learners what the requirements of distance learning are prior to joining, and provide support in the study skills that are particular to distance learning.

Have any of your employees taken any online course before?

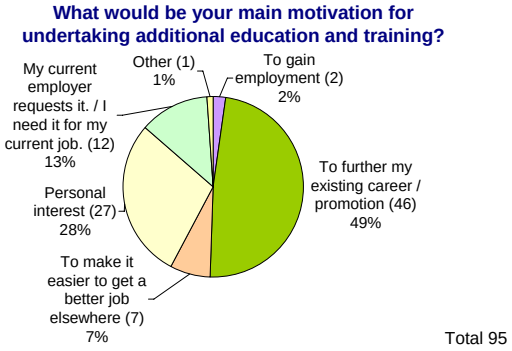


Total 132

7 MOTIVATION

The main motivation for undertaking education and training was to gain better career opportunities with the current employer (49%). The results show that relatively few respondents (7%) would be planning on using education and training as a way of making it easier to switch employer and this strengthens the argument that workforce development improves retention. Over a quarter of respondents indicated personal interest as the primary motivation, which also shows that workforce development can also be a way of directly improving job satisfaction.

Courses should be designed with the motivations of potential learners in mind. Learners should be able to see a connection between their study and their work so they can understand how it will benefit their own career. Materials should be made engaging, and courses should contribute to a rounded education in recognition of the high proportion of learners whose main motivation is personal interest.



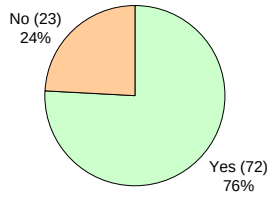
8 INTEREST IN AN ACADEMIC QUALIFICATION

An academic qualification was of interest to 76% of the employees who were interested in additional education and training. While 24% respondents were not interested in academic qualification, 91% of these were still interested in taking CPD courses without academic credits.

The most popular choice of qualification was a CPD course with an academic credit, but there was also some level of interest for full first degree, postgraduate certificate, and full Masters' degree.

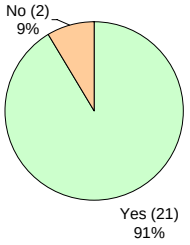
Academic credit is seen as valuable to potential learners and training providers should therefore consider how time spent studying can be recognised formally. Although there appears to be a market for traditional qualifications, demand appears to be stronger for a more flexible provision based on short courses and training providers should also investigate ways of opening up parts of their programmes to students who wish only to study particular topics.

Would you be interested in gaining an academic qualification from your education / training?



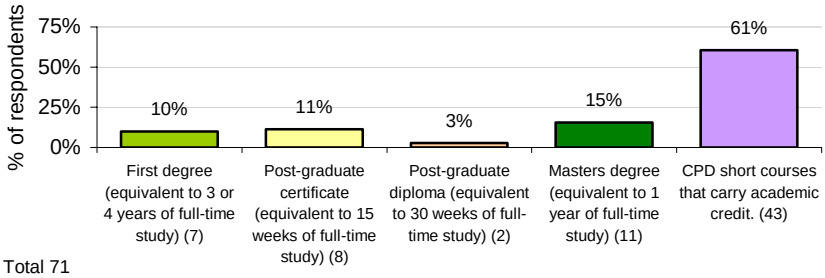
Total 95

Would you be interested in taking Continuing Professional Development (CPD) short courses without academic credit?



Total 23

Which type of qualification would you be most interested in studying? (select one)



Total 71

9 DEGREE: AMOUNT OF STUDY TIME

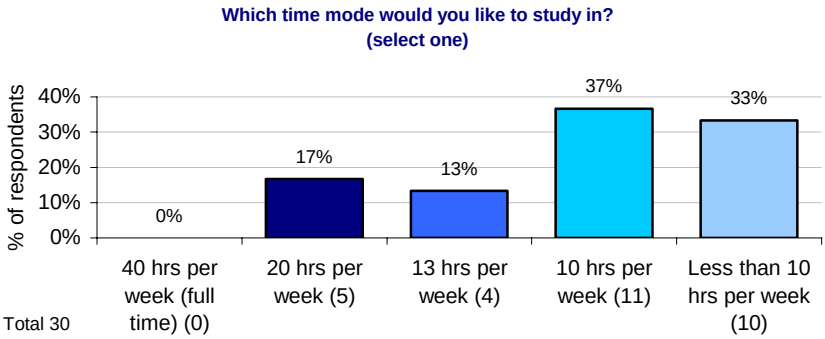
It is a challenge to commit enough time to complete a weekly study programme in addition to a full workload in the office. Most respondents felt that they would not be able to commit more than 10 hours per week to further studies.

Within a degree programme, 10 hours per week is commonly the required amount of work for one module and commonly part-time students would study at half the full-time rate completing two modules per term. At a quarter of the full time rate (10 hours per week), a postgraduate Masters degree would take 4 years and an undergraduate degree would take 12-16 years.

The preferred rate of study for first degree and full Masters' degree was quarter of full-time rate. Those who desired to study a postgraduate diploma or certificate preferred less than a quarter full-time rate.

Since it is more difficult to make commitments over a long period of time, and because learnt material may start to become out of date before it is examined for thin part-time courses, the option of credit bearing short courses is an attractive one. Indeed more than 60% of the employees stated a preference for this option.

Although there may appear to be a demand for traditional academic programmes, education providers should be aware that potential learners might not be able to commit sufficient time to their study to be able to complete them. Promotional materials should be clear about expectations to prevent retention problems. The preferred amount of time stated by respondents to this survey would make modular short courses the most suitable mode of learning.



10 DEGREE: DELIVERY MODE

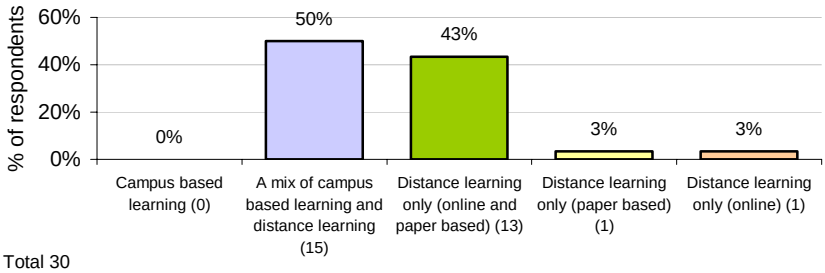
Since the target audience for the survey was those already in employment, it is not surprising that campus only delivery was not a preferred option for the delivery of degree courses. More flexible modes of delivery are clearly preferred, with the vote split between a mixture of campus based and distance learning, and the option of distance learning only. For distance learning, a blend of online and hard copy was, by far, the preferred option.

Of those, who preferred a mixture of campus based and distance learning, campus sessions with an interval of 2 to 5 weeks were preferred.

While paper based distance learning was popular in the past, most potential students have realised that online learning can provide additional value and therefore a mixture of delivery, both online and on paper, is called for.

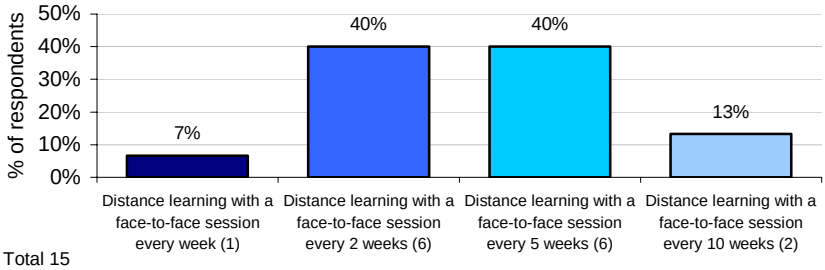
Degree delivery mode preferences can be accommodated be preparing courses that are suitable for fully distance learning and supplementing this with regular optional on campus sessions for those who prefer mixed delivery.

Which mode of learning would be most appealing? (select one)



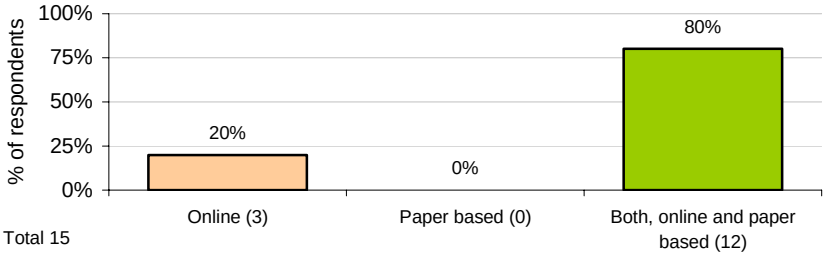
Total 30

Which of the following would you prefer? (select one)



Total 15

Which mode of learning would be most appealing for the distance learning part? (select one)



Total 15

11 CPD: Interest in Short Courses

Of those employees interested in receiving some form of additional education and training in timber engineering, 75% were interested in gaining some form of academic qualification. Of these, 61% were not interested in an academic degree, but rather in short courses that carry academic credit.

Of the 25% of employees interested in receiving some form of additional education and training in timber engineering, but not interested in an academic qualification, all but two (91%) were still interested in taking CPD short courses without academic credit.

So overall, of those interested in receiving some form of additional education and training in timber engineering, 67% were interested in CPD short courses. When considering the total number of employees that responded to the survey, 21% were interested in CPD short courses (related to timber engineering), with or without academic credit. It is possible that the interest in CPD short courses in topics other than those related particularly to timber engineering is substantially higher than these statistics can indicate.

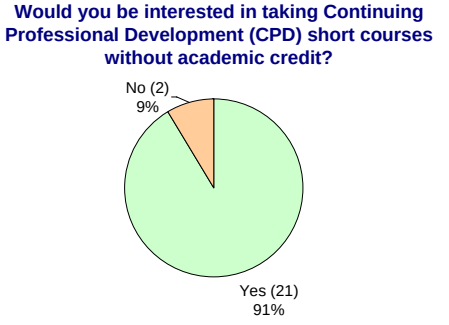
The majority of respondents asked about the scale of CPD short courses preferred that they be of 10 to 50 hours of learner effort in length. A typical module in a higher education institution would require 100 or 150 hours of learner effort.

Small units of learning are more manageable and clearly preferred, but pose problems when adequate coverage of a topic requires more time. However, short courses can be designed to be linked together to form larger blocks of related CPD and delivered over time in an appropriate sequence. This way, learners can progressively take all the short courses in a block, without having to commit to a single long course that covers all the necessary content. This modular approach, now common in formal education, allows learners to take more control over their education and training and to customise the curriculum based on their individual needs. This form of flexible delivery would, hopefully, improve the uptake of workforce development, but needs careful instructional design to be robust and choices must be clearly explained to the learners.

While online only learning was not seen as the most attractive option for academic degrees, it was the favoured mode of delivery for CPD short courses. Sixty one percent of the respondents selected online delivery as their preferred mode of learning for CPD and only 27% preferred attendance based delivery.

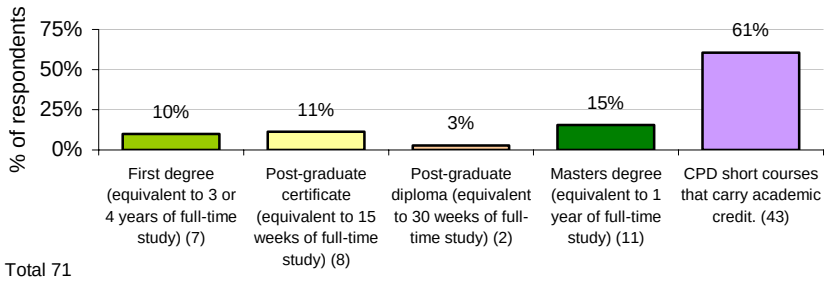
CPD short courses are the most preferred form of additional education and training. The apparent demand for short course based workforce development should be further investigated and, if appropriate, be met with an adequate course provision and easy access to course materials. Where possible, short courses should carry academic credit or equivalent recognition.

CPD short courses should be between 10 and 50 hours in length and, where appropriate, form modular components of larger learning packages. Courses should be provided online when appropriate and economic.



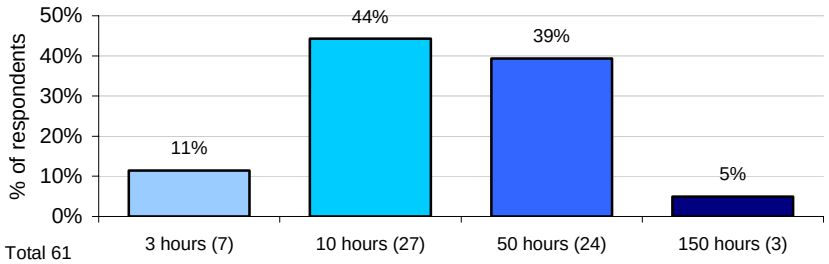
Total 23

Which type of qualification would you be most interested in studying? (select one)



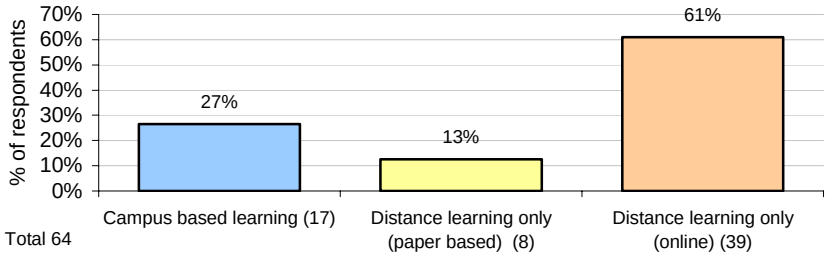
Total 71

How many hours of learner effort would you prefer a CPD short course to take? (select one)



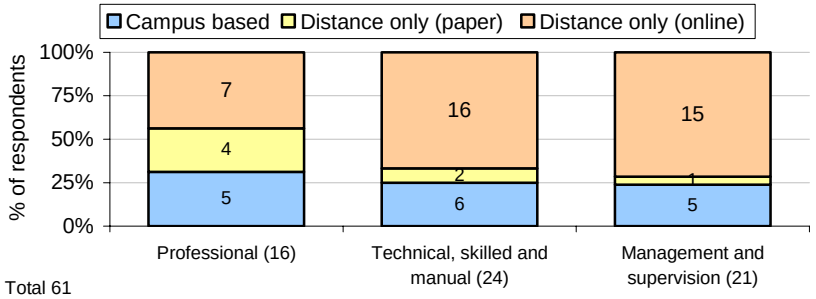
Total 61

Which mode of learning would be most appealing? (select one)



Total 64

Role type and preferred delivery mode for short courses



Total 61

12 TOPICS OF INTEREST

12.1 EMPLOYEES

Respondents were asked to name subjects about which they would like to receive education and training. The list was compiled and assigned to overall categories. The percentages in this section relate to proportions within the list, which differs from the proportion of respondents, as they were free to name as many subjects as they liked. In total, 55 respondents named 127 subjects. This question was not asked to those who said they would not like to receive further education and training in timber engineering and so there may be other topics of interest to the timber industries as a whole.

A little over half of the subjects named related to sector categories of growing and harvesting (13%), processing and manufacture (17%), and timber engineering and construction (22%). Respondents named more topics relating to management and marketing (17%) than topics relating to wood science and timber technology (13%), which may reflect recent work by the Scottish Forestry Cluster to raise awareness of the benefits of business improvement techniques.

A comparatively small number of topics named related explicitly to environmental sustainability and the use of home grown timber (11%). This may reflect the fact that the survey respondents were mainly from the timber industry and were already aware of many of the issues. There may be a market for training courses in these subjects for those outside the industry who are interested in the use of timber as a substitution for other materials. Surprisingly, few respondents listed topics related to timber cladding or durability (4%). This is perhaps due to the current good availability of training and information in these areas or because very few architects responded to the survey.

Topics falling under the category of growing and harvesting were biased slightly towards growing. Specific subjects named included urban forestry and native woodlands as well as general silviculture and forest management. Harvesting topics related mainly to machinery and its use.

Topics under the category of processing and manufacture mainly related to the manufacture of construction products, with about a quarter of these related explicitly to innovation. A smaller number of respondents expressed an interest in sawmilling, kilning and drying.

Within the category of timber engineering and construction, most topics related to timber analysis and design in general. A number of respondents expressed specific interest in timber properties and the specification of timber and engineered wood products for construction use. About a fifth of the topics named related explicitly to innovation. A small number of respondents mentioned topics explicitly related to timber bridge design and post and beam construction. Only one respondent expressed a specific interest in design for fire safety. None of the respondents indicated an explicit interest in the Eurocodes or other standards linked construction products directive.

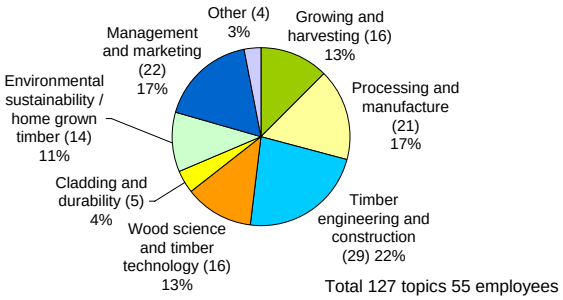
The interest in general wood science and timber properties was seen to be more or less equal to the interest in general timber technology. The response to the survey seems to indicate a desire for a more rounded knowledge of timber rather than specific needs in particular topics. Non-destructive testing was mentioned by one respondent.

The category of management and marketing showed interest in a broad range of subjects. About a quarter of the topics named related to general management and business skills, including project management, people management and networking. A similar number of topics related to industry and market intelligence both in the UK and globally. Other topics related to marketing, economics, legislation and the use of ICT for the supply chain.

The category of environmental sustainability and the use of home grown timber was more or less equally split between these two topics. Interest in sustainability was seen to be general, with a small number of respondents expressing specific interest in low energy/impact housing, recycling and renewable energy. Interest in the use of home grown timber was similarly general in nature.

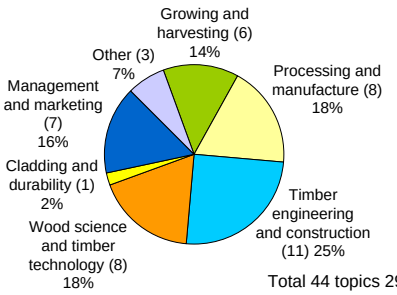
There is evidence of demand for education and training in a wide range of subjects, covering not just timber engineering but also forestry related subjects, sustainability, management and IT skills. Notably, the need for education in management related topics is just as high as it is for engineering and design topics and for processing and manufacturing topics.

Topics of interest to employee respondents



Total 127 topics 55 employees

Topics of interest to employer respondents for employee education and training



Total 44 topics 29 employers

12.2 EMPLOYERS

The employers were asked to name subjects for which they would like their employees to receive education and training. The results were generated in the same way as for the employees (see above) and a total of 32 respondents named 44 subjects.

"Timber engineering and construction" was the category with the highest number of subjects mentioned by employers. The demand appears to be for general timber engineering, but specific needs were mentioned relating to conceptual design, joints and post and beam structures.

"Wood science and timber technology", "processing and manufacture" and "growing and harvesting" were the other three areas with the highest interest. Topics most frequently mentioned were knowledge in wood properties, all aspects of timber processing and grading, and topics relating to forestry.

There was not much interest in either "environmental sustainability / home grown timber" and "cladding and durability". Employees showed a much higher interest in sustainability, but the low interest for cladding was similarly for both groups.

The employers indicated a similar need for training of their employees in "management and marketing" as the employees themselves. Specific topics mentioned by employers were business management, supply chain management and general market awareness.

While a number of the employees specifically mentioned innovation, this did not seem to be of similar interest to the employers, and was only explicitly mentioned once.

Topics mentioned in the category "other" related to health and safety, bio energy and IT.

The results appear to indicate a slight mismatch between education and training needs as described by employers and by employees themselves in the areas of sustainability and innovation.

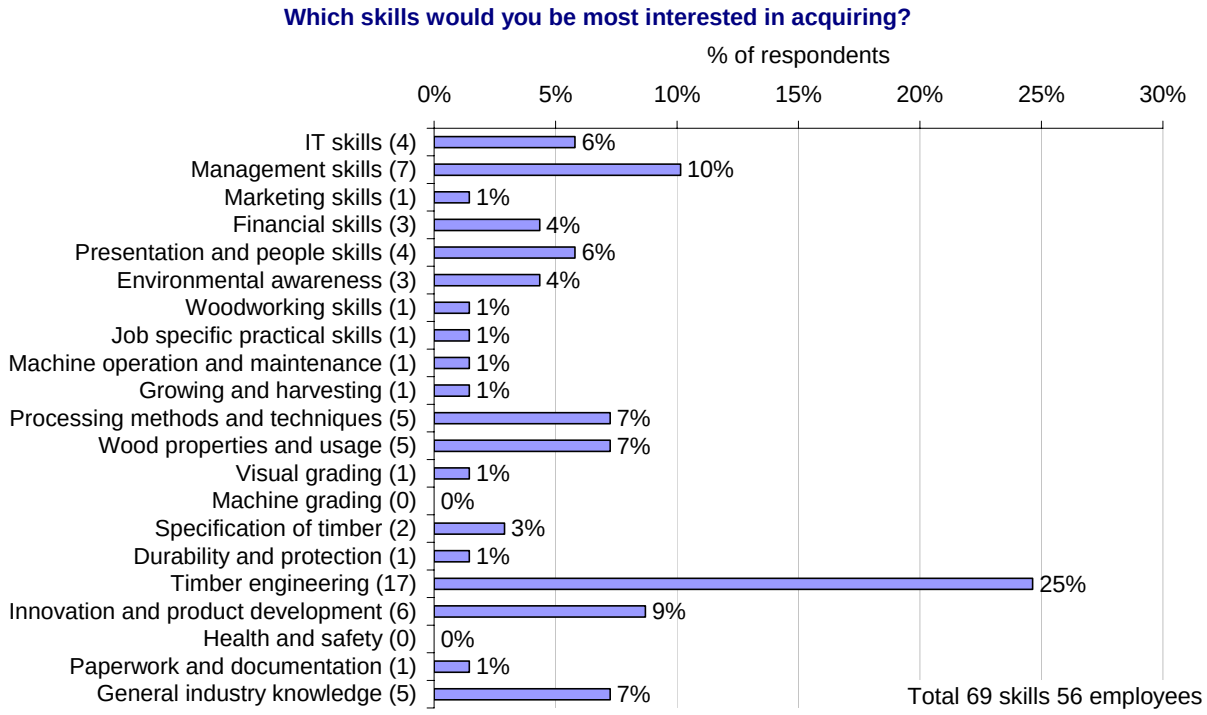
13 SKILLS OF INTEREST

13.1 EMPLOYEES

The survey attempted to gauge the skills demand of the timber industry as distinct from the knowledge requirements. However, the question was not well phrased and as a result this distinction was not evident to the respondents, who listed similar items as for the question about topics of interest.

The range of answers to the question regarding the skills people feel they would like to acquire or improve shows a very wide field which needs to be covered. Again, the management aspect of working in the industry was mentioned several times, showing a perceived skills gap in this area by the employees themselves.

Many employees emphasised that they would like to be more innovative and learn new techniques, but they lack the skills to make the best use of timber.

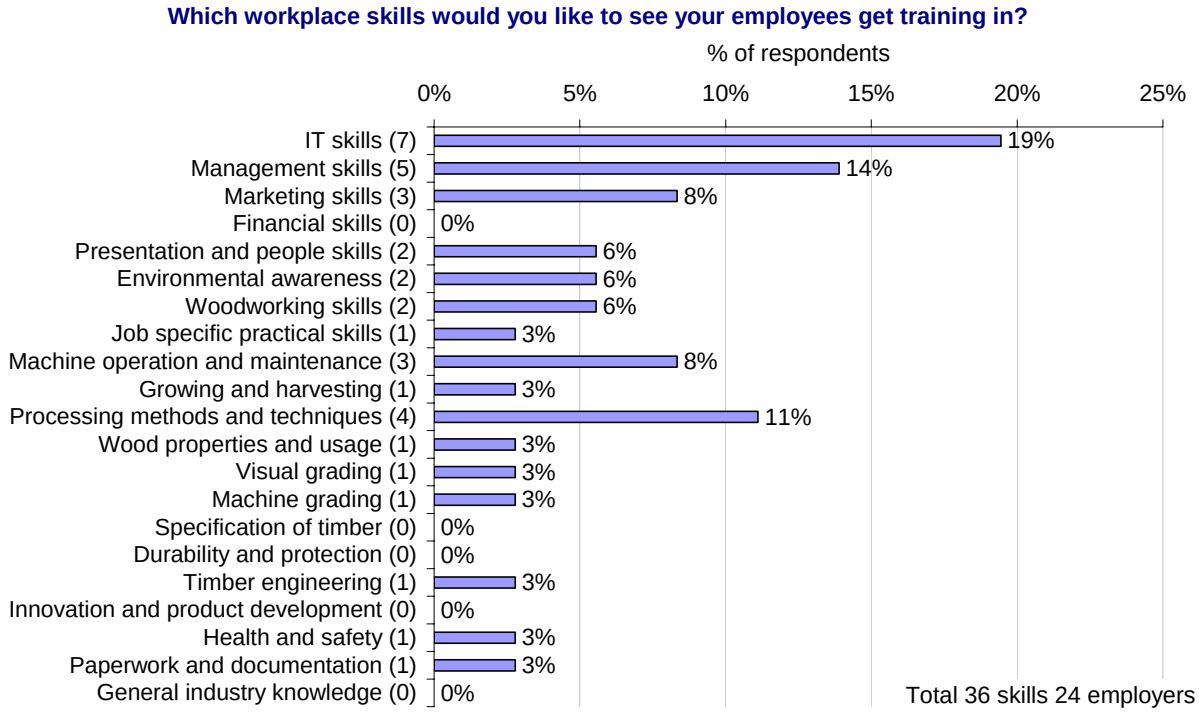


13.2 EMPLOYERS

The need for hands on practical experience was very much emphasised by many employers, in addition to other general work skills.

The main difference between the skills needs articulated by the employers and the employees was in respect of IT skills (higher for employers) and timber engineering (higher for employees). In more specific terms, the employees voiced a stronger need for design and specification skills, applied knowledge of wood properties and the use of wood. Both, employers and employees stated a need for training in practical skills, e.g. in the operation, maintenance and servicing of equipment or in the performing of specific tasks. Both also addressed the need for training in management. This needs to be taken into account in the provision of courses.

Courses offered to the industry should not just concentrate on providing subject knowledge, but should also incorporate transferable IT, communication and management skills relevant to the industry.



14 COMPUTER SKILLS AND INTERNET ACCESS

The results of this survey are distorted, since it was promoted and conducted online. When the results are compared to those of the Scottish e-Business Survey 2005, it is obvious that the sub-sample of this educational survey has access to better IT equipment than the average for the industry.

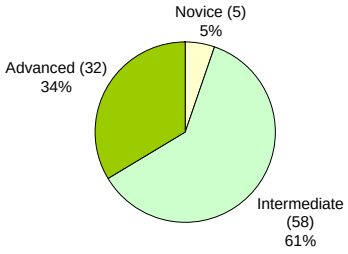
In this survey, the skills of those who have access to the internet, and also the type of internet connection, is of interest, since these are vital considerations when devising education and training that involves online technologies. Most employees considered themselves to have intermediate computer skills (61%), and only very few were novices.

More than 90% of the employees have intermediate or advanced internet skills, but if novices are to be included in the online provision support must be available to assist new users. Access to the internet for studying does not seem to be a large problem for most participants, although some (those with dial up connections) may still find it inconvenient due to costs involved or slow connection speeds.

Electronic communication is now common and the large majority of employees are comfortable with its use. However, it is important in online learning that there is always an option for a personal conversation with the online instructor, for example, by phone.

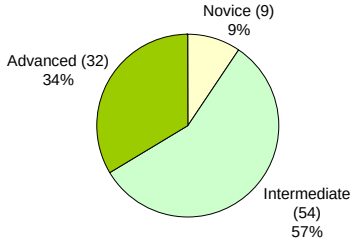
The results of the survey indicate that there clearly is a computer literate audience within the industry that is able to make use of online education and training.

How would you describe your computer skills?



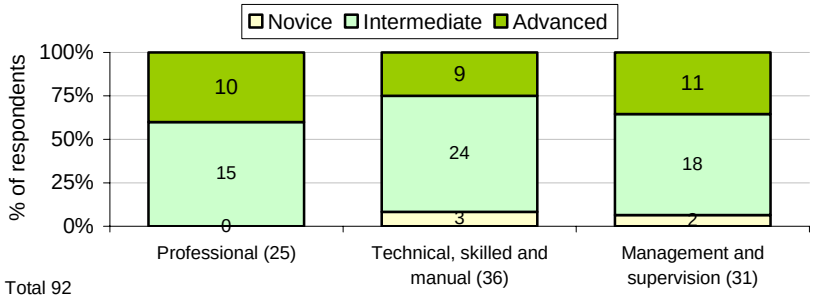
Total 95

How would you describe your Internet skills?



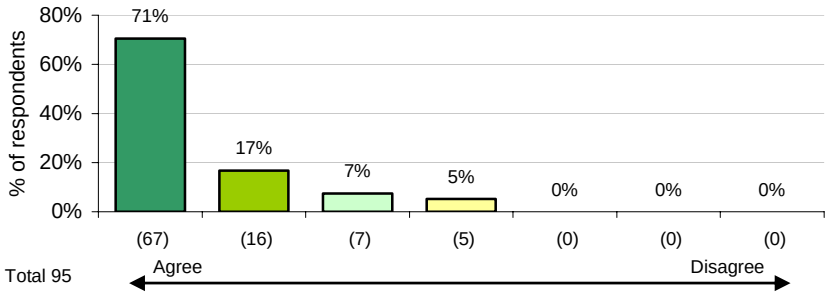
Total 95

Role type and computer skills



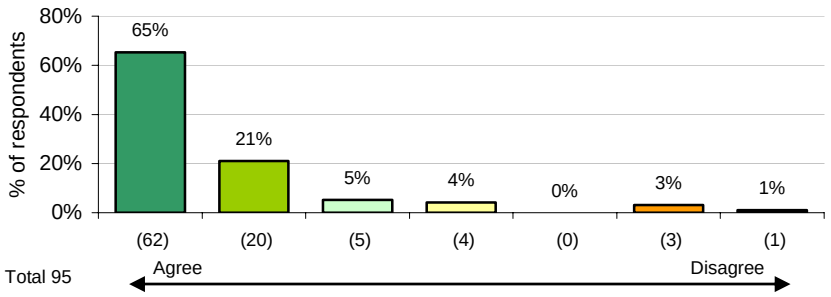
Total 92

As a learner I would be able to access the Internet easily as needed for my studies



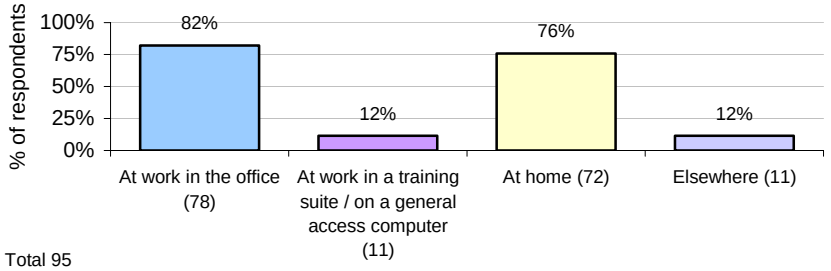
Total 95

As a learner I would be comfortable communicating electronically



Total 95

Where would you expect to be able to access the internet if needed for your studies? (select all that apply)



Total 95

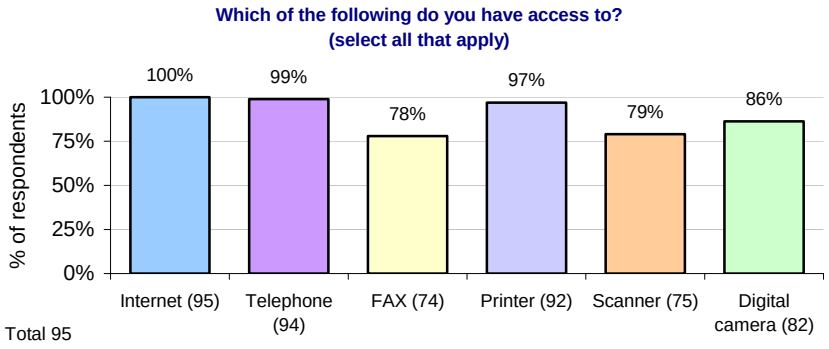
15 ACCESS TO HARDWARE

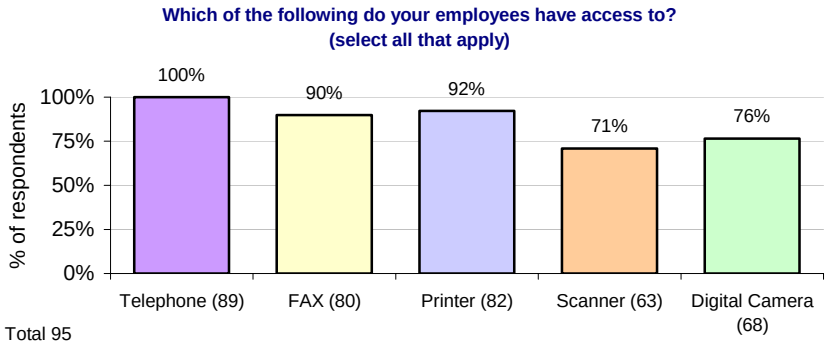
Nearly all of the employees have access to a telephone and a printer, and three quarters have also access to a FAX and a scanner. A large proportion (86%) has access to a digital camera.

Most would use a computer in the office and at home to access online learning materials, but a number of respondents would also use general access computers or computers elsewhere.

The response of employers shows a similar picture for hardware availability for potential learners.

The results indicate that most employees would be fairly well equipped with the technology used to support modern online training provision.





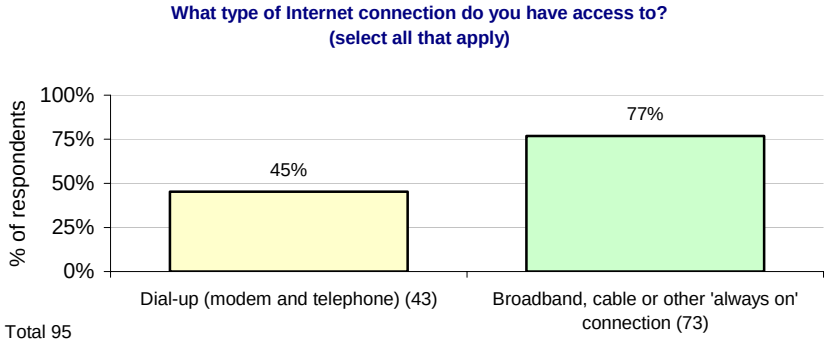
16 INTERNET ACCESS

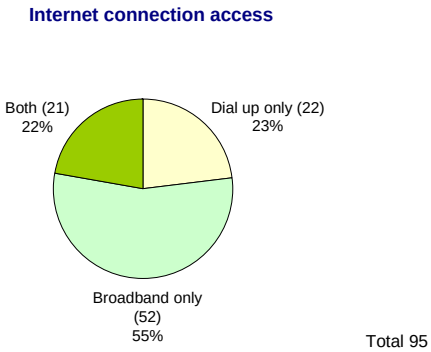
16.1 EMPLOYEES

Employees were asked about their access to internet connections, whether at work, home or elsewhere. In this survey, which was conducted online, 77% of the employee respondents said they had access to an 'always on' internet connection (like broadband) and only 23% had access only to a dial up connection. These findings are consistent with national data, which shows that, in October 2005, 59% of all internet connections in the UK were broadband connections. Dial-up connections, which are continuing to decline, accounted for 41% per cent of all Internet connections (National Statistics 2005).

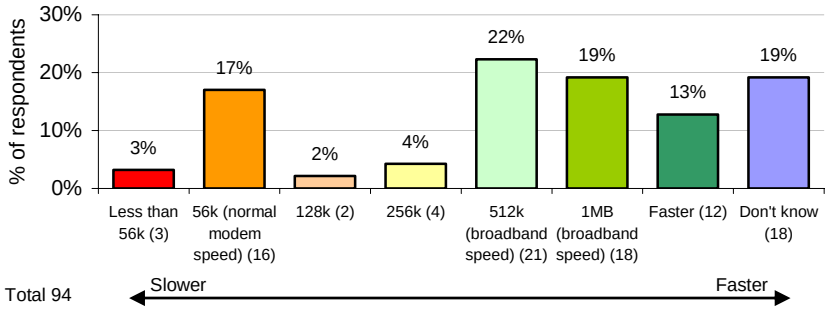
There is, however, still a wide variety in internet connection speed and the users with access only to 56kbps or slower connections (20%) must be considered when preparing online learning materials, either by ensuring low bandwidth demand or by providing alternative material that is easy to download.

The results show that a large proportion of potential online learners have access to a high speed internet connection. While learning materials should be designed to exploit this capability, the users with access only to dial up connections should also be considered by providing alternative low bandwidth versions of materials or by linking online content to material distributed by post on disk. In this survey, at least a fifth of potential learners had access to only to dial up connections and, as the survey was conducted online, the proportion across the timber industry as a whole is likely to be larger.



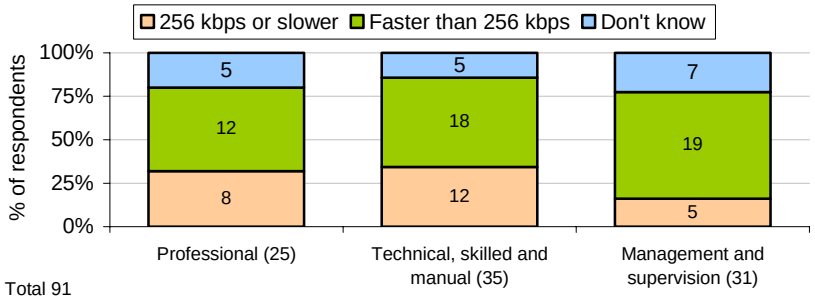


Speed of fastest internet connection



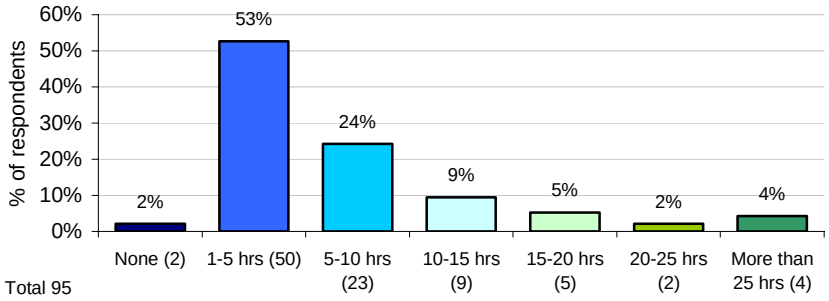
Total 94

Role type and speed of fastest connection accessible



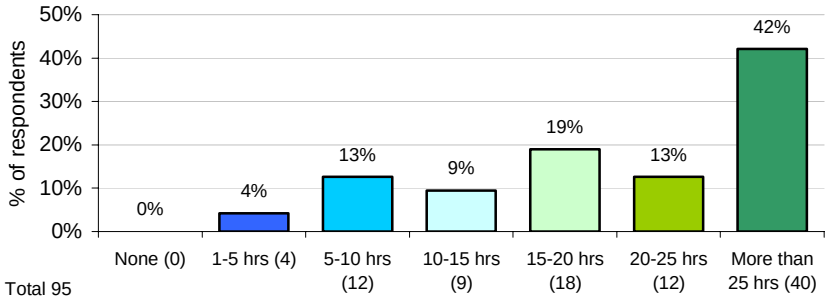
Total 91

On average, how many hours a week do you spend online?



Total 95

On average, how many hours a week do you use a computer?

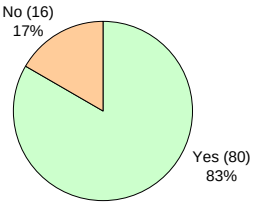


Total 95

16.2 EMPLOYERS

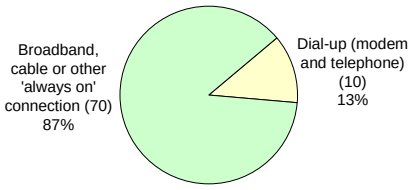
The majority of employers (83%) indicated that they provide regular internet access for their employees, which corresponds well to the number of the employees (82%) who felt that they would be able to access the internet at work if needed for their studies. Most of the employers with an internet connection had an 'always on' connection (87%) and although reported speeds varied, almost half said they would provide access to a speed of at least 512kbps. These figures differ from those reported in the Scottish e-business survey 2005 (Scottish Enterprise 2005), which said only 66% of businesses in the forest industries had an internet connection, of which 55% were broadband. The e-business survey also indicated that 84% of the current ISDN and dial-up users were likely to upgrade to broadband within the next 18 months. This trend in uptake of technology indicates that the industry is ready to adopt e-learning as a part of its workforce development strategy, and that many companies will be able to support employees if they chose to engage in any form of training that requires internet access.

Do your employees have regular access to the internet in your company / institution?



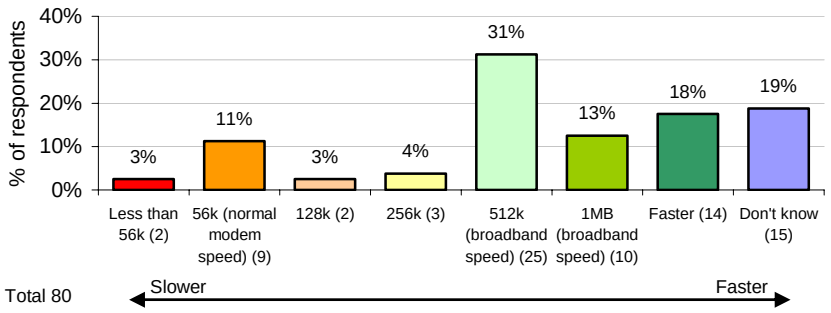
Total 96

What type of Internet connection do you provide?



Total 80

What is the speed of your Internet connection?



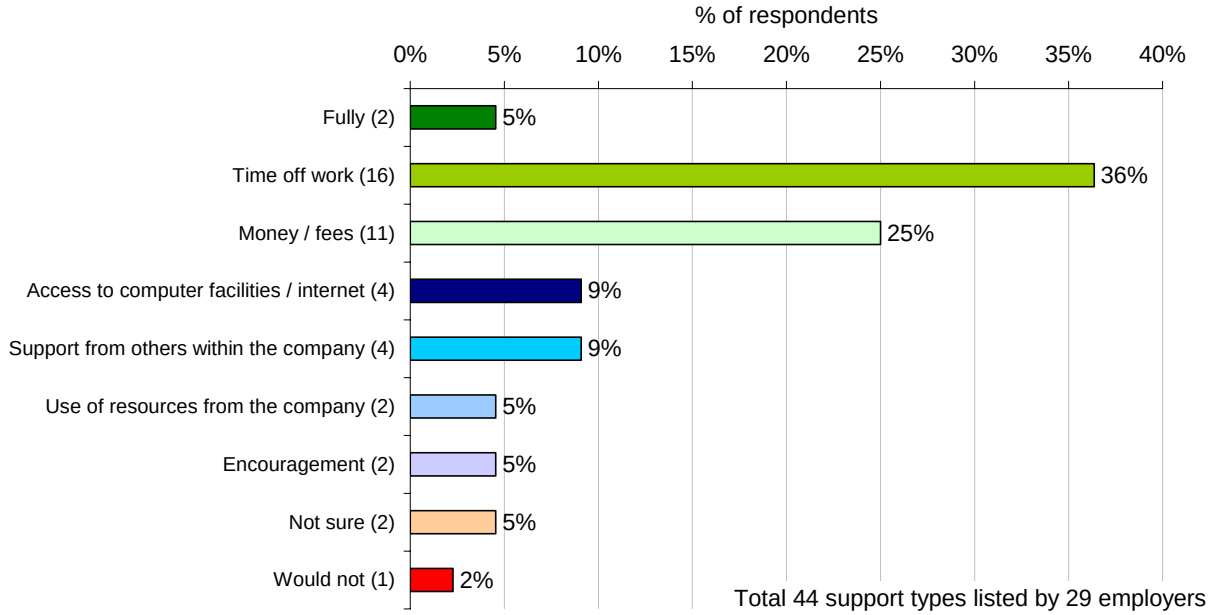
Total 80

17 SUPPORT FOR EMPLOYEES

Most employers realise that they need to support their employees in their education and training, and generally the responses regarding the question of support were generous. This was an open answer question, and no categories were given to choose from. The responses were grouped into general categories, and many employers stated that they would support their employees in more than one way. The indications of support range from "would not" and "not sure" to "pay all costs" and "in any way possible". The most frequent answer was a combination of time off work together with a financial contribution to fees.

It is clear that a high proportion of the employers who took part in the survey are prepared to make a significant investment into the education of their workforce, especially those who said they would contribute financially, through fees or by providing release from work.

If your employees could gain additional qualifications in timber engineering by completing online courses, how would you support them?



18 EDUCATION NEED IN THE TIMBER INDUSTRIES

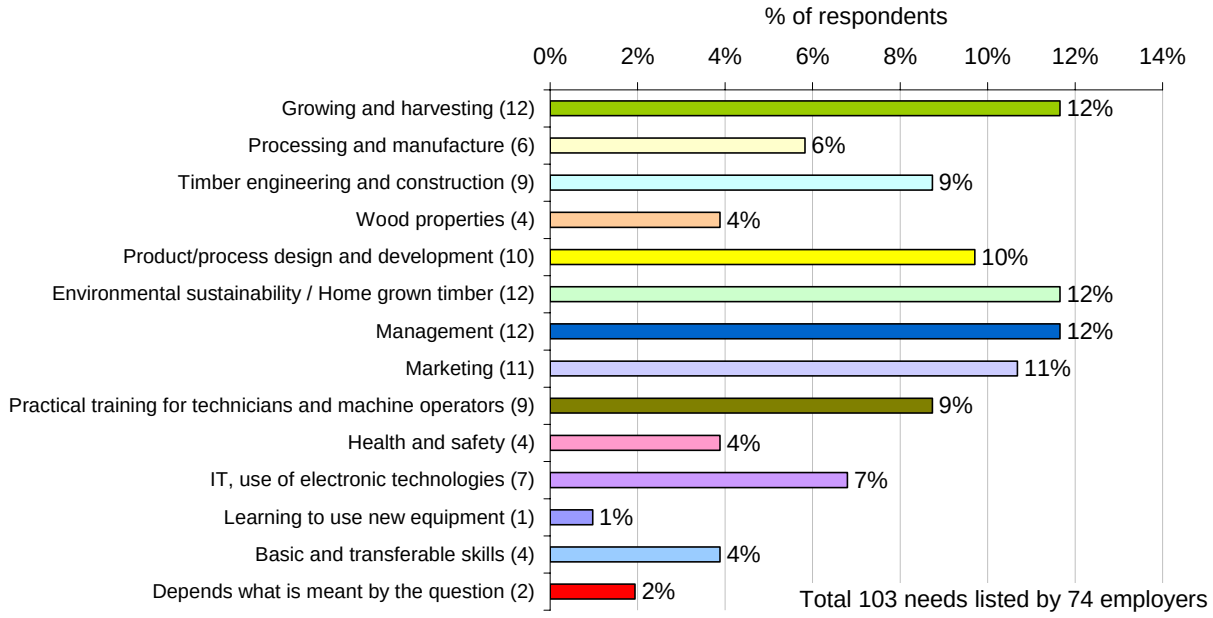
One of the most important questions for this survey was where employers saw the greatest workforce development need in the timber industries as a whole. The answers from the employers indicate that training is needed on multiple educational levels. Some addressed the need for training on technician level, while others stated the need for specialist training in particular areas.

The 74 employers who answered this question suggested a total of 103 topics for future training, which have been grouped into topic areas. The topic areas named most frequently were “growing and harvesting”, “environmental sustainability / home grown timber” and also “management” and “marketing”. Many companies feel that they need to improve their marketing in order to remain competitive, but that there is currently a lack of marketing skills and marketing advice within the industry. When this is compared to the topics more closely related to timber engineering, it is apparent that the need for managerial training is just as great.

This question prompted a wide range of responses, which indicates that improvements are desired across the whole wood chain. Although there were no clearly identified gaps in particular areas, the need to attract more people into the industry, the need to learn from industry outside the UK and the need market more effectively and to correct the poor image of timber among end users were evident as cross-industry themes. Selected responses to the question are reproduced in section 20.

The workforce development needs of the timber industries would appear to be broad, both in terms of topic and discipline and in terms of level. The survey does not show a uniform view of need in any particular area, but the need for management and marketing education would appear to be just as important as the need for technical education.

In general, in which areas do you see the greatest educational need in the timber industries?



19 CONCLUDING REMARKS

This survey attempted to research where employees and employers saw the greatest educational needs in the timber industries. The fact that there are skills and knowledge deficits has been identified at sector policy level, but it is necessary for education and training providers to identify what, exactly, is needed in terms of coverage, level and delivery mode.

The results show that there is a need to make both employees and employers aware of existing training opportunities and to create an integrated scheme of new training courses linked to academic programmes, but available as short courses online.

As well as the scale and range of provision of training opportunities, the solution to the sector's current skills shortage also lies in raising employer commitment more widely and by enhancing management skills generally. The lack of employer demand for skills training certainly contributes to the lack of interest in training by the employees and poor prospect of career progression leads into retention and recruitment problems and poor motivation. This weak skills demand is a result of senior managers within many companies not having the right business skills to be able to recognise the benefit of employee development for their companies. Training of senior management in the skills they need to align investment in skills to business needs will enable and encourage senior managers to look at the link between people management, their training and development, and productivity and therefore see its true value. The survey shows that there is, indeed, a demand for education and training in management topics, at least as strong as in timber engineering topics.

The CTE is currently offering two MSc programmes in "Timber Engineering" and in "Timber Industry Management", which address these two topic areas, but there clearly needs to be a provision of timber engineering and managerial training on other educational levels and in other forms of delivery, e.g. as online short courses.

20 EDUCATIONAL NEEDS FOR THE TIMBER INDUSTRIES (*SELECTED QUOTATIONS*)

To address the skills shortage we need more people at technical level in the industry (e.g. machine operators). But for those already in the industry, we need a whole range of business skills:
Entrepreneurship, Contracting/tendering/costing, Negotiation & customer relations, Marketing, Health & safety, Supervision/leadership.

How to get the best added value from low grade Sitka spruce.

Spreading awareness of the needs, processes and constraints of the different links in the supply chain - from forester, through processor to retailer.

A sound, practical based understanding of ALL forestry related subjects, e.g. to emulate Scandinavian approach and standards.

Accessible basic training on the whole timber sector to allow people's skills to be more transferable.

Environmental impacts/benefits and marketing.

Business management, collaborative working, marketing.

Timber Engineering.
Process engineering and management.

Overcoming traditional views of timber as a building material; promoting it & bringing it to the attention of architects, specifiers, planners as a versatile, attractive and sustainable raw material capable of being used much more widely than it is currently. Also, to on-site builders to treat timber with respect! There are surely lessons to be learned and examples to be used from continental Europe and other countries where timber is used much more extensively. The spin off for foresters is improved knowledge about user's end-product requirements and how to influence the development and growth of timber with appropriate characteristics.

Training of apprentices at the forestry worker level. Higher level quite well catered for. Regarding timber engineering, building designers (not always architects), building control officers, builders could do with courses that would give them a better appreciation of wood as an alternative and possibly cheaper alternative to their existing formulas.

Practical training for field operatives and supply of good quality managers with suitable forestry qualifications.

Basic IT instruction / access - allowing them to engage with increasing amounts of web-enabled training - anywhere / anytime.

(1) Practical training for the development of a skilled contract workforce.
(2) Training in Forest Management with an emphasis on practical basic knowledge as opposed to generalised environmental training.

General product knowledge to ensure employees understand what is and isn't fit for purpose; understanding the massive changes in legislation, particularly standards, so that modern, up to date standards are applied, particularly regarding Eurocodes. It is the usual long tail of getting across these changes (i.e. fire certification on doors and joinery) that causes great concern.

Environmentally, we need to massively improve perception and understanding of timber's place in this issue - many within the industry still believe timber has a poor image!

I see the major restriction to the advancement of the timber industry as its inability to sell its end-product. We need to learn promotional and marketing skills.

Management skills
Use of technology for efficiency gains.

(1) For architects etc., to understand the uses, limitations and advantages of timber.
(2) For hardwood processors to learn more about the properties of different species.

A standard education qualification for sawmilling industries.

Forestry. We have concerns regarding the number of colleges and universities offering courses which will lead to employment in the forest industry. Many courses offer much wider choice in terms of career opportunity and we note that it is becoming increasingly difficult to source students who have a particular interest in woodland management and commercial forestry.

In moving toward more sustainable use of timber - use of local / non-imported timber, use of untreated timber, good quality detailing, joined up thinking in relation to forestry and timber procurement.

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