

**Review of Literature on the Use of  
Information and Communication  
Technology in the context of Careers  
Education and Guidance**

by

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The Centre for Guidance Studies (CeGS) is a research and development unit based at the University of Derby. The Centre aims to bridge the gap between guidance theory and practice. It supports and connects guidance practitioners, policy-makers and researchers through research activities and learning opportunities; and by providing access to resources related to guidance and lifelong learning.

CeGS aims to:

- Conduct and encourage research into guidance policies and practices;
- Develop innovative strategies for guidance in support of lifelong learning;
- Provide resources to support guidance practice across all education, community and employment sectors.

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# 1. Introduction

- 1.1 This report presents the results of two literature reviews undertaken by the Centre for Guidance Studies (CeGS), University of Derby, on behalf of the British Educational Communications and Technology Agency (Becta).

## Aims and Objectives

- 1.2 The first literature review was undertaken in February 2003. The amount of specific literature relating to the use of Information and Communication Technology (ICT) in careers education in schools and colleges was limited. The initial review, therefore, drew on the findings from studies that focused on the use of ICT in the broader context of learning. Although not exhaustive, it aimed to provide an analysis of key historical and contemporary data concerning the barriers to the uptake and use of ICT by teachers. In particular, the review was designed to inform an external evaluation of the 'Connecting Careers and ICT' publication and the associated Careers Education and Guidance (CEG) website. This work was further developed in two subsequent publications<sup>1,2</sup>.

- 1.3 The objectives of the 2003 literature review were to:

- summarise the key messages from existing research;
- identify the factors that facilitate the use of ICT by practitioners and any perceived barriers to engagement; and
- identify examples of good and interesting practice to inform policy developments, where appropriate.

- 1.4 The second literature review was conducted in February 2005 and was designed to update the existing review. The objectives of this subsequent review were to:

- review existing literature on the use of ICT, specifically in relation to CEG;
- focus on literature that is concerned with the use of ICT for CEG with young people aged 14-19;
- consider literature on e-guidance for 14-19 year olds; and
- demonstrate the progress made in relation to the development of ICT for CEG.

- 1.5 The review did not take account of the use of ICT for CEG within a higher education context and did not consider the use of ICT for the provision of information, advice and guidance for adults aged 20+. However, in order to ensure the findings are appropriately contextualised, the review does take into consideration recent policy developments.

- 1.6 The 2005 literature review was, therefore, designed to add to, rather than duplicate, previous work and provides an overview of reports published later than 2003 along with those that were published after 1999 but not included in the initial review. In order to provide a comprehensive overview of the literature on this subject, Appendix 1 includes summaries of the studies included in both the 2003 and 2005 reviews.

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<sup>1</sup> Becta, (2004), *A Review of the Research Literature on Barriers to the Uptake of ICT by Teachers*. Coventry: Becta.

<sup>2</sup> Scrimshaw, P., (2004), *Enabling Teachers to Make Successful use of ICT*. Coventry: Becta.

- 1.7 The primary audiences for this literature review are policy-makers and researchers.

### **Methodology**

- 1.8 In order to identify relevant publications for inclusion in the literature reviews, the research teams interrogated bibliographic databases, library catalogues and other web-based resources. In addition, relevant summary reports were used to identify key sources of earlier research on ICT and, in particular, references to the impact on the practice of CEG practitioners. Finally, relevant websites including government departments, research centres and organisations working in the fields ICT and CEG were searched<sup>3</sup>.
- 1.9 The reviews drew on statistical information contained within published reports relating to careers work. Reference is also made to relevant international findings.
- 1.10 Each of the relevant studies was reviewed in-depth and details of the focus of the study, methodology and key findings were captured. This information provides the basis for the summaries included in Appendix 1.

### **Report Structure**

- 1.11 Following this introduction, the report is presented in 5 chapters:
- Chapter 2: Recent Developments Related to CEG
  - Chapter 3: Current 14-19 Reform and the Implications for CEG
  - Chapter 4: The use of ICT within an Educational Context
  - Chapter 5: The use of ICT in for CEG in Schools and Colleges
  - Chapter 6: Conclusions and Suggestions for Further Research

### **Feedback**

- 1.12 CeGS would be happy to receive feedback on this report and hope the findings prove helpful to respective parties in planning the way forward.

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<sup>3</sup> Websites included: Department for Education and Skills; National Institute for Careers Education and Counselling (NICEC); National Foundation for Educational Research (NFER); National Association of Careers and Guidance Teachers (NACGT); Organisation for Economic Co-operation and Development (OECD).

## 2. Recent Developments Related to CEG

- 2.1 Schools in partnership with the Connexions service currently provide careers education and guidance for the 14-19 age group in England. Those 14-19 year olds who are in education will have access to a Personal Adviser within the Connexions service and their institution will provide additional support through a careers education-related curriculum.
- 2.2 Careers education is now part of the statutory curriculum for all pupils from Years 7 to 11. In July 2004, the Department for Education and Skills (DfES) issued a National Framework for Careers Education<sup>4</sup>, with recommended learning outcomes for each stage.
- 2.3 A report by the Comptroller and Auditor General on the Connexions Service in March 2004<sup>5</sup> found that the majority of schools felt they did not have the capacity to provide appropriate levels of careers education and guidance for young people. At around two-thirds of schools, careers education and guidance was delivered by staff without any formal qualifications in the field. Over a third of schools reported that staff are unable to identify and refer young people in need of specialist support. Two-thirds of schools considered that at present staff do not understand fully the role of Connexions Personal Advisers and that there was a lack of clarity around the respective roles of Connexions and schools in providing careers education, advice and guidance.
- 2.4 The Department for Education and Skills carried out an end-to-end review of careers education and guidance between March and June 2004. It focused on the support provided to 11-19 year olds, to help them make learning and career choices for the 14-19 phase of education. The outcomes were to be fed into the Youth Green Paper scheduled for publication in Autumn 2004. However the findings were delayed and were consequently not available at the time of writing.
- 2.5 The DfES Five Year Strategy for Children and Learners<sup>6</sup> included a commitment to provide easy access to the personal advice and support needed by young people to fulfil and raise their aspirations, including high quality and personalised careers education, advice and guidance. The document also made reference to improving direct access to advice via the internet.

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<sup>4</sup> DfES, (2003), *National Framework for Careers Education*. Nottingham: DfES  
<http://www.dfes.gov.uk/14-19/documents/ceg-framework.pdf>

<sup>5</sup> Comptroller and Auditor General, (2004), *Connexions Service. Advice and guidance for all young people*. Nottingham: DfES  
[http://www.nao.org.uk/publications/nao\\_reports/03-04/0304484.pdf](http://www.nao.org.uk/publications/nao_reports/03-04/0304484.pdf)

<sup>6</sup> DfES, (2004), *Five Year Strategy for Children and Learners*. Nottingham: DfES  
<http://www.dfes.gov.uk/publications/5yearstrategy/>





### **3. Current 14-19 Reform and the Implications for CEG**

- 3.1 The recent review of 14-19 education has included a focus on the need for accurate, impartial and timely guidance. Changes planned for the 14-19 curriculum will result in young people making choices from a broader range of options and making many choices earlier. At 14 pupils will be encouraged to focus on outcomes at age 19, rather than 16.
- 3.2 All schools will be encouraged to hold a review with each young person at the end of Key Stage 3, involving the young person's parent or carer. This will lead to the development of an individual learning plan for the 14-19 phase.<sup>7</sup>
- 3.3 The Final Report of the Working Group on 14-19 Reform published in October 2004<sup>8</sup> stated: "learning for all 14-19 programmes - if it is to be successfully delivered, resources will need to be made available to ensure significant development of and improvement in the information, advice and guidance provided by schools, colleges and training providers and by Connexions." (Section 296, page 111)
- 3.4 The ensuing White Paper<sup>9</sup> states: "we also need to ensure that our population is not making choices based on stereotypes, but on the basis of clear advice and guidance...good quality and impartial information, advice and guidance are crucial" (Section 2.8, page 18). There is little detail on how this will be delivered in the future, although the white paper does say "we intend to introduce a professional development programme for teachers which boosts their ability to advise and which gives them good information about choices in their area. And we need to secure objectivity and impartiality in the advice young people receive, through providing other sources of advice." (Section 5.28, page 52)

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<sup>7</sup> Individual Learning Plans page.  
<http://www.dfes.gov.uk/14-19>

<sup>8</sup> 14-19 Curriculum and Qualifications Reform, 18 October 2004.  
<http://www.dfes.gov.uk/14-19/documents/FinalReport.pdf>

<sup>9</sup> DfES, (2005), *14-19 Education and Skills*. White Paper. February 2005. Nottingham: DfES  
<http://www.dfes.gov.uk/publications/14-19educationandskills>



## 4. The Use of ICT within an Educational Context

- 4.1 The use of ICT within an educational setting is a relatively new yet burgeoning area of study and, as a result, the number of relevant studies is relatively small. This section will draw on the findings from the 2003 literature review only and consider the evidence relating to the use of ICT in educational settings in general. The following chapter will focus on research directly relating to ICT for CEG.
- 4.2 The Annual Survey of Trends in Education<sup>10</sup> shows an increase in the provision and availability of ICT in schools. The Head Teachers' survey identified a variety of funding sources for ICT including: school budget; government grants; supermarket voucher schemes and Parent/Teacher Associations. The majority of respondents recognised the potential of ICT, and the Internet in particular, for teaching.
- 4.3 Despite the growth in provision, a number of difficulties remain, including:
- availability and reliability of ICT in primary schools;
  - teachers are not always able to take-up training opportunities;
  - lack of technical support; and
  - unreliable Internet access.
- 4.4 Technical support is perceived to be the responsibility of the teacher by half of the respondents to the Annual Survey of Trends in Education. However, no time is allocated to the task. Only 12 per cent of schools employed a specialist technician.
- 4.5 A survey of schools undertaken in 23 countries by the Organisation for Economic Co-operation and Development (OECD) and the Cognitive Enhancement Research Institute (CERI) revealed barriers that inhibit the use of ICT in teaching generally<sup>11</sup>. Lack of opportunities for staff development during working hours, teacher resistance resulting from personal teaching styles and/or negative attitudes towards ICT, and limited infrastructure (especially technical support) are identified as inhibiting progress towards transformation in schools.
- 4.6 Venezky (2002) cites cases where teachers are reluctant to integrate ICT into their practice. The reasons given include, fear of technical problems and a preference for traditional teaching methods. There are cases in evidence where the integration of ICT has been successful in spite of technical problems. For example, in Germany, ICT competence amongst staff and a 'critical level' of ICT infrastructure are perceived to be the key critical success factors for the implementation of ICT in teaching and learning. However, staff training is not necessarily a prerequisite for implementation. The research also reveals inconsistencies between ICT training and its application in the classroom, suggesting that some staff do not have the confidence to put their learning into practice. In the case of Sweden, staff turnover is perceived as a barrier to sustainability.

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<sup>10</sup> NFER, (2001), *Annual Survey of Trends in Education (Digest No. 11)*. Slough: NFER.

<sup>11</sup> Venezky, R.L., (2002) *Quo Vademus? The Transformation of Schooling in a Networked World*. Paris: OECD/CERI. <http://www.oecd.org/dataoecd/48/20/2073054.pdf>

- 4.7 A recent evaluation of the Computers for Teachers Initiative<sup>12</sup> reports that in instances where teachers have their own computer, a positive impact on practice can be observed. Teachers reported increased confidence in the use of ICT as a result of having their own machine. An overwhelming majority of survey respondents perceived that the use of ICT in school impacts *substantially* on pupils' own use of ICT and motivation to learn.
- 4.8 Case study research in the UK that explored innovative classroom practices<sup>13</sup> demonstrated that the additional effort required by teachers to implement ICT is justified by the learning outcomes for young people. The research identified a number of factors that appear to be crucial in enabling teachers to successfully engage in innovative practice:
- Previous involvement in innovations (ICT and non-ICT based).
  - Support at senior management level for implementing new practices and addressing financial implications where appropriate.
  - Involvement of several members of staff.
  - A prevailing culture within schools of collaboration and mutual support.
  - Willingness to take risks, accepting that some ventures will succeed while others may not.
- 4.9 In schools where such conditions are satisfied there is some evidence to suggest positive outcomes for pupils. Young people demonstrated increased levels of independence while working, worked towards targets and deadlines effectively, and were more reflective about their work.
- 4.10 Research into the relationship between ICT resources and pupil attainment in primary and secondary schools<sup>14</sup> reveals that ICT helps to raise standards in English, Mathematics and Science at Key Stage 2. The research indicates that teachers with a positive attitude towards ICT tend to be those with well-developed ICT skills and who value collaborative, self-directed learning. Teachers who have reservations about using ICT tend to be directive in their methods and prefer their pupils to work on an individual basis. The research highlights the importance of matching pedagogy with a clearly defined purpose and learning outcomes.
- 4.11 However, a number of other barriers were identified:
- adequate access to ICT;
  - provision of equipment; and
  - technical support.
- 4.12 Evidence from the literature shows an increase in the provision of ICT in the classroom. The potential benefits of ICT for teaching and learning outcomes are recognised by teachers.
- 4.13 ICT tends to work well when teachers:

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<sup>12</sup> Becta, (2001), *Computers for Teachers: Evaluation of Phase 1: Survey of Recipients*. HMSO: Norwich.

<sup>13</sup> Harris, S., (2002), 'Innovative Pedagogical Practices using ICT in schools in England'. **Journal of Assisted Learning**, Vol 18 pp449-458.

<sup>14</sup> Becta, (2003), *ICT Resources and Primary School Standards*. Coventry: Becta. <http://becta.org.uk/news/reports/summary.html>. accessed on 26/02/03.

- have adequate access to ICT;
- have a positive attitude towards ICT;
- possess well-developed ICT skills and are confident in their abilities;
- value collaborative, self-directed learning;
- are supported by senior management and resources are made available, where appropriate;
- work within a school culture of collaboration and mutual support;
- have opportunities for staff development during working hours; and
- have adequate infrastructure to support ICT (especially technical support).



## 5. The Use of ICT for CEG in Schools and Colleges

- 5.1 This section draws on the findings from both the 2003 and 2005 literature reviews. It considers some of the barriers to the use of ICT for CEG in schools and colleges and considers the implications of recent increases in the volume and scope of web-based resources.

### Use of ICT for CEG

- 5.2 A Europe-wide survey and review of existing software was undertaken in 1997 in order to provide an understanding of the potential use of ICT in the field of CEG<sup>15</sup>. In its time, this study was ambitious and forward thinking. However, few studies exist that attempt to measure the subsequent take-up among practitioners and the impact on practice.
- 5.3 One study, commissioned the Department for Education and Employment in Scotland<sup>16</sup>, aimed to evaluate the influence of computer technology on the career 'preparedness' of students in schools, the careers education and guidance process in schools, and the integration of schools and careers services. A simple relationship between 'preparedness' and ICT was not identified. Indeed, computer support had little or no impact on the guidance interview itself. Pupils who were 'better prepared' had been engaged in a structured, careers education programme that was supported by staff and senior management. In addition, their schools had established a good relationship with the careers service.

### Barriers

- 5.4 The Scottish study by Hall *et al* (1998) revealed a number of barriers to the use of ICT in CEG work:
- Limited time available for the guidance interview.
  - Limited access to computers.
  - Lack of advice and guidance on appropriate hardware and software.
  - Lack of training.
  - Lack of evaluation of the software used in schools.
- 5.5 Researchers concluded that ICT works well when there is:
- co-operation between schools and careers services in the design and delivery of CEG;
  - co-operation between schools and careers services to implement and support ICT developments;
  - training and staff development; and
  - monitoring and evaluation.

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<sup>15</sup> Offer, M. (1997) *Supporting Careers Guidance in the Information Society: A Review of Computer Assisted Guidance and the Internet in Europe*. Ireland: National Centre for Guidance in Education.

<sup>16</sup> Hall, J., Brown, C., Edwards, L., and MacLean, P., (1998), *Effective Use of Computers in Careers Guidance*. Glasgow: Scottish Council for Research in Education, University of Glasgow.



5.6 Practitioners perceive that ICT support can make a significant contribution to young people's level of career 'preparedness'. However, to be effective, it must be integrated into a structured careers education and guidance programme. These findings are also reflected in the National Association of Careers and Guidance Teachers' (NACGT) survey undertaken in 1999<sup>17</sup>.

5.7 Research commissioned by the Department for Education and Skills (DfES) and carried out by the Northern Economic Research Unit at the University of Northumbria<sup>18</sup> identified a range of key factors affecting ICT usage for CEG. Engagement with ICT is perceived as standard practice and beneficial in terms of providing effective ways of managing large quantities of information. ICT can enable young people to self-help by providing answers to questions relating to jobs, careers, education and training. However, ICT is not considered to have a role in career planning. Again, a number of barriers are revealed:

- Pupils without access to PCs at home are at a disadvantage.
- Technical/access problems such as, slow Internet connections, unstable network and unreliable printers.
- Lack of technical support.
- Software design that does not take into account young people's perspectives and is not sensitive to their aspirations can disengage them from the CEG process.
- Establishing relationships with software manufacturers to access information on purchasing and report problems.
- Cost of software licences.
- Lack of training in Internet search techniques.
- Young people have doubts about the credibility of information obtained via the Internet.
- Lack of time to explore products and participate in training.
- Inadequate time allocated to CEG.

5.8 Further barriers were revealed in a follow-up survey:

- Shortages of equipment and lack of funding.
- Unsatisfactory information about the content and existence of relevant websites.
- Fears among teaching staff that Connexions would divert funds towards disadvantaged/disaffected young people and away from other groups.

5.9 A number of improvements to help enhance engagement with ICT in the CEG process were identified:

- Monitoring and evaluation of individuals' engagement in the CEG process.
- Practical advice to improve use of existing software.
- Opportunities for young people to communicate with others on a similar chosen career path.
- Greater use of computer/video conferencing.

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<sup>17</sup> Barnes, A (2000) '*The 1999 NAGCT Survey of Careers Education and Guidance: the final question*', **Careers Education and Guidance**, February 2000.

<sup>18</sup> Houston, M., Quinn, P., and Stone, I., (2001), *Evaluation of the use of ICT to support Careers' Education and Guidance*, Brief No: 286, August 2001. Sheffield: DfES

- 5.10 Survey research of CEG in schools undertaken by the Education and Training Inspectorate (ETI) in 1999-2000 in Northern Ireland<sup>19</sup> found that ICT was used effectively to support careers education in half of the schools surveyed. Good in-service training (INSET) in ICT was provided and useful information disseminated within some schools. Pupils are felt to benefit where ICT is integrated into a taught careers programme. In particular, pupils develop the skills to research and evaluate information related to career paths from a range of sources including careers software and websites. Specialist careers software is believed to have improved and at least one member of staff in each school has undertaken training.
- 5.11 However, there is also evidence to suggest that in some schools staff involved in CEG had not attended sufficient recent INSET courses to maintain their expertise in developments in careers education.
- 5.12 Qualitative research commissioned by DfES<sup>20</sup> identified a range of issues concerning careers services' engagement with ICT. Although the value of ICT in developing CEG in schools is generally recognised by careers practitioners, its potential is not recognised by a minority. Again, this study reveals a number of barriers to progression.
- 5.13 ICT has generally been established as another subject area rather than a learning medium that cuts across all subject areas. Although most schools have a networked PC suite, and software is usually available, pupils often have to share PCs with others in small groups. Pupils are not allowed to use floppy disks and the use of printers is limited because of the costs involved. There is also some evidence that parents are concerned about children's unsupervised access to the Internet.
- 5.14 An evaluation of networking *PROSPECT* <sub>(HE)</sub>, undertaken by NICEC<sup>21</sup> concludes that although the system presents possibilities for more widespread usage and flexibility in careers work, it may be under-utilised and is still seen as information focused rather than fulfilling its potential as a learning resource. The report recommends that institutions should consider a range of possibilities for integrating *PROSPECT* <sub>(HE)</sub> with other career activities.
- 5.15 More recently, research commissioned by the CSU<sup>22</sup> attempted to address the issue of ICT in realising the potential of a highly flexible and accessible resource for a wide range of stakeholders, clients and target groups. The research found that innovative work is taking place in a number of UK universities and nationally to develop technically mediated services. However, the use of ICT has generally been limited to web sites promoting

<sup>19</sup> Education and Training Inspectorate, (2000), *Report of a Survey of Careers Education in Post-primary Schools*. Co Down: Department for Employment.  
[http://www.deni.gov.uk/inspection\\_services/publications/SurveyCareersEd.pdf](http://www.deni.gov.uk/inspection_services/publications/SurveyCareersEd.pdf)

<sup>20</sup> Quality and Improvement Performance Dissemination (QPID), (2001), *A Review of Careers Service Focusing in Schools*. QPID Study Report No.93. Nottingham: DfES  
[http://quality.wwt.co.uk/quality/qual\\_map/study93.pdf](http://quality.wwt.co.uk/quality/qual_map/study93.pdf)

<sup>21</sup> Watts, A.G., and Jackson, C., (1999), *Networking PROSPECT (HE): Practice and Potential*. Manchester: Higher Education Career Services Unit.

<sup>22</sup> Offer, M., Sampson, J.P. Jr., and Watts, A.G. (2001) *Careers Services: Technology and the Future*. Cambridge: NICEC/CSU.

off-line services and providing information. The authors identify some key challenges for the future:

- setting up co-operation or competition on regional, national and global dimensions;
- managing the flow of users through a service's resources;
- detailed level of web-site design;
- new one-to-one relationships between adviser and client, via email and at a distance; and
- the role of careers services in the curriculum and with other parts of the institution - including other staff in the university.

5.16 Overall the evidence relating specifically to the use of ICT in CEG shows that there is potential for progression towards greater utilisation of ICT in careers education, a point which has been consistently argued by Offer and Sampson (1999)<sup>23</sup>. However, ICT should not be seen as a 'quick fix' or a 'bolt-on' extra; rather, ICT and careers education should be seen as integral across all subject areas. Integration within structured programmes of careers education for young people is important if the application of ICT is to be successful.

### **Growth in ICT**

5.17 There has been little further research into the use of ICT for CEG in the period since the 2003 literature review was conducted. The only major study related to practitioner use of ICT in CEG was Hawthorn (2004)<sup>24</sup>. Overall the findings were positive showing that despite some problems, largely related to lack of time and adequate training, ICT was being used in guidance, and guidance was being offered through ICT in a number of interesting and imaginative ways.

5.18 A significant development for the careers community generally over the last five years has been the growth in the number of web-based resources to support a range of CEG activities. It is now the norm for Connexions Partnerships to have their own websites through which a range of information and advice is available. Nationally Connexions Direct provides a comprehensive database of careers information.

5.19 Many schools' careers departments have their own web pages. Free-standing computer programs will usually be available for individual use in a careers room or library and there is a growing trend for such programs to be available through password protected websites for use at home.

5.20 A significant proportion of households now own a computer and have internet access.

5.21 In the second quarter of 2004, 52% of households in the UK (12.8 million) could access the internet from home, compared with just 9% (2.2 million) in

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<sup>23</sup> Offer, M. and Sampson, J. P. Jr. (1999) *Quality in the content and use of information and communications technology in guidance*, **British Journal of Guidance and Counselling** Vol. 27. No. 4 pp 501-516.

<sup>24</sup> Hawthorn, R., (2004), *Skills and Training to Develop the use of ICT in Vocational Guidance: Expert Advice*. WPA3 Final Report. ICT skills for guidance counsellors Leonardo da Vinci project <http://www.ictskills.org>

the same quarter of 1998. In autumn 2002, 98% of young people aged 5 to 18 used computers at home, at school or elsewhere.<sup>25</sup>

- 5.22 The Government has invested heavily in ICT in education – and met challenging targets. All colleges and universities now have broadband. Over 99 percent of schools are connected to the internet (60 percent at broadband speeds, with a target of 100 percent by 2006). There is a computer for almost every five pupils in secondary<sup>26</sup>.

### **Uses of ICT**

- 5.23 There is some evidence that ICT is mainly used as a resource to provide information rather than as a medium for providing guidance. Commonly used websites and programs deliver occupational and course information rather than developing career management skills and aiding decision-making.
- 5.24 Connecting Careers and ICT was published in February 2001<sup>27</sup>. Around 6,500 free copies were distributed. To support and update this, a website was established shortly after publication, which provided additional resources and support materials for practitioners. The site is no longer updated but is still available to view at [www.becta.org.uk/careersict](http://www.becta.org.uk/careersict).
- 5.25 A subsequent evaluation of the above website and publication found users rated it highly, with the sections on practical aspects of delivering careers education through ICT being the most valued. The main barriers to uptake were identified as lack of staff time to develop ICT knowledge, plan projects and implement change.
- 5.26 The CEGNet website ([www.cegnet.co.uk](http://www.cegnet.co.uk)) provides support for teachers and others delivering careers education in English schools and colleges but is not about ICT-based resources alone. The National Association of Careers and Guidance Teachers (NACGT) and VT Careers Management (VTM) provide the website and its remit is to develop information and services to promote, support and improve careers education in schools and colleges within a policy framework of Connexions.

### **Staff training and development**

- 5.27 At the time of the creation of the new Connexions service creative use of ICT was seen as central and regarded as having great potential to enhance the quality, user-friendliness and interconnectedness of the proposed new service.<sup>28</sup>

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<sup>25</sup> Office for National Statistics, (2004), *The National Statistics Omnibus Survey*. June 2004. London: HMSO

<sup>26</sup> DfES, (2004), *Five Year Strategy for Children and Learners*. Nottingham: DfES  
<http://www.dfes.gov.uk/publications/5yearstrategy/>

<sup>27</sup> Becta, (2001), *Connecting Careers and ICT*. Nottingham: DfEE  
<http://www.becta.org.uk/careersict/careersict.pdf>

<sup>28</sup> Offer, M., (2000), *Use of Information and Communication Technologies in the Connexions Service*. Report on a NICEC/CRAC/Guidance Council Invitational Policy Consultation.

- 5.28 One of the recommendations from the policy consultation on The Use of Information and Communication Technologies in the Connexions Service was that training in the potential of ICT skills should be a priority. Indeed, inadequate training has previously been identified as a key barrier to the take up of ICT in schools and colleges (see previous chapter). However, a recent study<sup>29</sup> has shown that developing and using ICT skills has not had a high priority in Connexions services where the emphasis has been on training related to the change from careers work to the holistic approach of Connexions.
- 5.29 The above study emphasised that training in basic ICT skills, although important, was not enough. Practitioners also need training on how to incorporate ICT resources into guidance education and delivery.
- 5.30 Evidence that advances made in the use of ICT across the curriculum in schools have spread to use in the delivery of CEG is not easy to come by. The Leonardo da Vinci project which investigated the ICT skills of guidance practitioners across a range of European countries states that careers teachers in the UK have generally not applied the ICT skills learned for their subject teaching to guidance work<sup>30</sup>.
- 5.31 It goes on to say that national policy-makers, senior managers of schools, colleges and guidance providers believe that basic ICT skills have been or are being acquired by guidance practitioners through training provision already in place. The experts interviewed for this section of the report felt that the reality was that the level of ICT competence in the guidance community is poor and skills have not been maintained through use.
- 5.32 However, the same report states that teachers regularly use word processing and multimedia presentations to prepare careers education materials and that careers teachers and education-based guidance practitioners use software packages to help students engage in course- and job-matching activity in careers lessons.
- 5.33 Where the use of ICT by guidance practitioners is extensive it is because individuals are keen to adopt technology and are innovative in their work, rather than that policy and practice requires it.

### **e-guidance in schools and colleges**

- 5.34 The growth in the use of e-learning to provide 'anywhere, anytime' access to school-based resources for learning has been paralleled by the growth of web-based resources including e-mail, web chat, and SMS to support a range of CEG activities.
- 5.35 The most significant of these is Connexions Direct that provides 18 hour a day, 365 days a year web, telephone e-mail and text access for 13-19 year olds. It provides information and advice on a range of issues, including careers. The service was cited as an example of innovative delivery in the DfES consultation on a unified e-learning strategy. The DfES Five Year Strategy includes a commitment to improving direct access to advice via the

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<sup>29</sup> Thomson, S., and Hawthorn, R., (2004), *UK Country Report. Interviews with experts*. ICT skills for guidance counsellors Leonardo da Vinci project.

<sup>30</sup> Thomson, S., and Hawthorn, R., (2004), *UK Country Report. Interviews with experts*. ICT skills for guidance counsellors Leonardo da Vinci project.

internet and mobile phones. However, evaluation of this service has concentrated on user perceptions and interactions with the technology rather than examining the practitioner's point of view.

- 5.36 There is an emerging concern about how the growth in web-based services could affect the role of the practitioner. The experts consulted during the Leonardo da Vinci research<sup>31</sup> report cautions that national policy, whilst needing to show commitment to the potential of ICT to enhance guidance services, should not reflect a belief that ICT could replace intervention by professionals.
- 5.37 The report highlights the fact that in the UK policy-makers for Connexions have not seen the use of ICT as a high priority for training provision. "The use of ICT can be seen as a substitute for practitioners' guidance skills with a belief that if a guidance website is good enough it does not need mediation."
- 5.38 Evaluations of the effectiveness of e-guidance have concentrated on user rather than practitioner engagement.
- 5.39 The evaluation of the Pilot of Connexions Direct showed that nine out of ten young people said they preferred face-to-face information and advice rather than remote provision<sup>32</sup>. They did not wish to see Connexions Direct as a substitute for face-to-face services but as a complementary and alternative means of accessing information, advice and guidance.
- 5.40 Other barriers to use of such services identified by the young people using them include cost, lack of depth when using services such as SMS, concerns over quality and affinity of Advisers.
- 5.41 Later studies found higher levels of satisfaction with Connexions Direct. Where there was dissatisfaction it was with the quality of communication when using electronic means of contact.
- 5.42 Email and telephone contact were identified as preferable to webchat and SMS.

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<sup>31</sup> Thomson, S., and Hawthorn, R., (2004), *UK Country Report - Interviews with experts*. ICT skills for guidance counsellors Leonardo da Vinci project: <http://www.ictskills.org>

<sup>32</sup> Prior, G., and Carter, K., (2004), *Connexions Direct: Obtaining Users' Views Pilot Evaluation Study*. Research Report RR509. Nottingham: DfES  
<http://www.dfes.gov.uk/research/data/uploadfiles/RR509.pdf>



## 6. Conclusions and Suggestions for Further Research

- 6.1 There is potential for progression towards greater utilisation of ICT in careers education but it is essential ICT should not be seen as a 'quick fix'. The emphasis should be placed on the integration of ICT within structured programmes of careers education.
- 6.2 The research evidence suggests that the following factors can help to facilitate the up-take of ICT for CEG in schools and colleges:
- commitment from senior management and staff in schools and good relationships between schools and careers services;
  - adequate training and staff development;
  - monitoring and evaluation;
  - adequate time available for the guidance interview;
  - access to computers;
  - adequate advice and guidance about hardware and software, and training; and
  - adequate technical support.
- 6.3 The research suggests that a number of factors can also inhibit the use ICT for CEG in schools and colleges. The barriers to up-take were identified as follows:
- software that is not sensitive to students' aspirations can deter young people from the CEG process;
  - relationships between schools and software manufacturers;
  - cost of software licences; and
  - lack of time to explore products and participate in training.
- 6.4 Although there has been a significant increase in teacher confidence related to the use of ICT over the last five years there is some evidence that teachers do not use the ICT skills they have gained in the context of other subjects in delivering CEG.
- 6.5 However, there is also evidence to suggest that some teachers and guidance practitioners still lack confidence in using ICT generally and that they need specific training on how ICT can be used in a guidance context. The extent to which specific training on using ICT to deliver CEG could enable teachers to feel more confident about identifying suitable resources and support needs further exploration.
- 6.6 There is little evidence on the effect that increased access to the internet in homes and schools alongside an increase in the number of web-based careers-related resources has had. It would be useful to investigate if greater ease of access to information, and the ability it provides for convenient, direct communication with education and training providers, professional and trade bodies and employers, has had an impact on how young people, their parents and teachers research educational and career opportunities. Do they feel empowered or overwhelmed?
- 6.7 Increasingly, more careers information and material on progression routes is made available online rather than on paper. The implications for the future of paper-based careers libraries and those who do not have ready access to online resources needs further examination.



- 6.8 Alongside a recognition of the benefits of ICT used for the delivery of CEG and of the potential of e-guidance to deliver a more personalised advice and guidance service, there appears to be a growing concern about the implications this could have for the roles of teachers and practitioners. There is a need for clarity on how e-guidance can complement face-to-face guidance and reassurance that by engaging in it, practitioners are not doing themselves out of a job. There is much that can be learned from the experiences of the HE sector in this field. There is a need to showcase and share best practice from within and across sectors, including details of the benefits innovative use of ICT in CEG brings.
- 6.9 The research into Connexions Direct shows there is substantial use of and approval for e-guidance amongst young people. It would be useful to investigate the impact this has had on local services and to map and evaluate similar services provided at a local level.
- 6.10 There is little evidence on teacher and guidance practitioner perceptions of Connexions Direct. Further research is required to establish where such a service could have a role in supporting them in their delivery of CEG.

### Research Report Summaries

This annex provides detailed summaries of the studies upon which the literature reviews are based.

**Andrews, D., and Barnes, A., (2002), Career(s) Education in Schools in the United Kingdom and the Republic of Ireland. NICEC Briefing, April 2002.**

#### Focus

Following devolution, policy and practice in each part of the UK and Ireland is developing in different ways. A comparative study of approaches to careers education in schools in the four 'home' countries and the Republic of Ireland is presented in the briefing.

#### Methodology

Findings are based on a 24-hour consultation conference, held in January 2002.

#### Key Findings

- The briefing paper presents an analysis of a range of practices in the five countries. A comprehensive range of aspects of CEG practice are compared including: statutory position; curriculum guidance; curriculum organisation; resources including ICT; main specialist; staffing organisation; professional development; professional associations; guidance services; quality assurance; and inspection.
- In all five countries the use of ICT in CEG is developing but no evidence of the impact on practice is presented. However, it is recommended in England, Northern Ireland and Wales that ICT training related to CEG should be included in the New Opportunities Fund. In the Republic of Ireland one of the recommendations is that interactive ICT packages for CEG should be developed.

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**Barnes, A., (2000), 'The 1999 NACGT Survey of Careers Education and Guidance: The final question'. *Careers Education and Guidance*, February 2000, pp2-10**

#### Focus

Research undertaken by the National Association of Careers and Guidance Teachers (NACGT) covered a number of topics relating to careers guidance work in British schools, including: management of careers education; careers co-ordinator or equivalent post; resources and support; and the curriculum.

#### Methodology

A questionnaire survey was utilised to collect data from different types of schools and centres in England, Wales and Scotland. In all, the survey yielded 1460 responses.

#### Key Findings

- In terms of usage of ICT facilities, the majority of respondents report that students use careers software on hard or floppy disk or CD-ROM for careers work. Just over half of respondents report that students use careers software on the school's ICT facilities and two-fifths use the internet. About one in five use email.

- The findings reveal a number of persistent resources and support issues among careers workers in schools, including, lack of access to ICT facilities and high cost of software licences.

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**Becta, (2003), ICT Resources and Primary School Standards**  
<http://becta.org.uk/news/reports/summary.html> accessed on 26/02/03

### **Focus**

As part of a broader DfEE research programme, this study was undertaken by Becta and explored the relationship between ICT resources and pupil attainment in primary and secondary schools.

### **Methodology**

Becta carried out an analysis of data relating to ICT resources, pupil attainment, and a number of other characteristics for primary schools. The data were compiled from Ofsted inspectors' reports and records of pupil success in national tests. The data covered a large sample of approximately 2,500 primary schools in England.

### **Key Findings**

Improvements made on tests indicate that teachers can raise levels of pupil attainment when they use ICT to support their teaching in numeracy and literacy. The research identifies a range of issues:

- the ways in which ICT can be used to meet specific objectives;
- the need to ensure that pupils have adequate skills to achieve objectives;
- the importance of matching pedagogy with the identified purpose of ICT and learning outcomes;
- the need to take account of different teaching styles and approaches;
- adequacy of access to equipment; and
- effectiveness of technical support.

*Teachers who favour ICT are likely to:*

- have well-developed ICT skills;
- perceive ICT as an important tool for learning and instruction; and
- value collaboration, enquiry and decision-making by pupils.

*Teachers who have reservations about using ICT are likely to:*

- exercise a high degree of direction; and
- prefer pupils to work individually.

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**Becta, (2001), Computers for Teachers: evaluation of Phase 1: Survey of recipients, Norwich: HMSO**

### **Focus**

A recent evaluation of the Computers for Teachers Initiative reports that where teachers have their own computer, this has a positive impact on teaching practice. An overwhelming majority of survey respondents perceive that ICT impacts 'substantially' on pupils' use of ICT and motivation. Similarly, the majority of respondents feel that their confidence in using ICT has increased.

### **Methodology**

A questionnaire survey of teachers who benefited from the scheme yielded a 43% response rate (2558 returns).

### **Key Findings**

- The evaluation found significant increases in teachers using ICT in their teaching. ICT within the teaching context is more highly valued as a result of the scheme and there is evidence of a positive impact on pupils in the classroom. In addition, teachers are reported to be feeling more confident about using ICT in their teaching.
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**Cox, M., Preston, C., and Cox, K., (1999), *What Motivates Teachers to Use ICT?* A paper presented at the British Educational Association Annual Conference, University of Sussex at Brighton. September 2-5 1999.**

### **Focus**

Part of the larger MirandaNet project, funded by the Teacher Training Agency and Oracle, set up to investigate the factors that have contributed to the continued use of ICT in teaching.

### **Methodology**

Literature search, feedback from relatively long-term users of ICT in teaching gathered through questionnaires, teachers' reports and interviews.

### **Key Findings**

The research identified a number of factors that might be perceived as motivational factors and/or barriers that affect usage:

- Teachers' perceived ability to use ICT.
  - Level of resources available in schools.
  - The extent to which ICT can be used to increase interest in lessons for teachers and pupils.
  - The extent to which ICT can enhance and/or improve lesson content.
  - The extent to which ICT can be used to improve the presentation of materials.
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**Education and Training Inspectorate, (2000), *Report of a Survey of Careers Education in Post-primary Schools*. Co Down: Department for Employment.**

### **Focus**

Survey of CEG in schools undertaken by the Education and Training Inspectorate (ETI) in 1999-2000 to complement a range of inspection activities.

### **Methodology**

Findings are based on details about CEG provision in 14 schools, including:

- timetable for a taught programme of careers education;
- details of qualifications of staff and their involvement in careers education-related INSET.

During the survey, schools inspectors visited 74 lessons and interviewed 242 pupils. Discussions took place with careers teachers, teachers in charge of careers departments, heads of a sample of other subject departments and representatives of the senior management team in each school.

### **Key Findings**

- ICT is reported as being used well to support careers education in half of the schools. In about half of the schools, staff involved in CEG had not attended sufficient recent INSET courses to maintain expertise in developments in careers education. Good INSET has been provided in ICT and information has been well disseminated within schools. However, in some cases, there may be differences in understanding and levels of expertise in important aspects of careers education (e.g. ICT).
- Personal Career Planning (PCP) is developing more in some schools than others and is reported to be working well where it is integrated into taught careers programmes. Pupils develop valuable skills of researching and evaluating information from a range of sources, including information through careers software and internet websites.
- Over the last five years, access to specialist careers software has improved and at least one member of staff in each school has undertaken training, but expertise gained from INSET programmes in the use of ICT has not been disseminated well within schools. One of the key areas for action is that the resources for using ICT in careers education need to be further enhanced.

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**Fondazione Idis – Città Della Scienza Italy with the support of Universidad de Santiago de Compostela and Forem for the SPSS Analysis Spain, (2004), *Skills and training to develop the use of ICT in vocational guidance: Guidance practitioners advice*. WPA2 Final Report. ICT skills for guidance counsellors Leonardo da Vinci project.**

### **Focus**

This survey of guidance practitioners' perceptions of their own ICT skills covered the five countries taking part in the project - Spain, Romania, Germany, the UK and Italy. UK representation was through NICEC.

The findings summarised here are those related to the UK only. It should be noted that several UK respondents found the questionnaire too long and gave up before finishing all sections. Responses to questions about 'chat' had to be treated with extreme caution as most respondents understood the question 'Do you use chat?' to mean 'Do you talk to your clients?' This itself provides some insight into the acceptance and understanding of certain of the newer forms of web-based communication.

### **Methodology**

Questionnaires were sent to guidance counsellors working in schools, higher education, labour market placement organisations and vocational training providers. 30 were sent to practitioners in each of these fields providing a sample of 120 per country – in theory. Germany and Spain returned 65 and 140 questionnaires respectively.

In the UK questionnaires were sent to schools, Connexions services, universities IAG partnerships and further education colleges. Of those returned, 101 were from England, eight from Wales, seven from Scotland and four from Northern Ireland.

### **Key Findings**

- Practitioners have high levels of competence in general ICT skills such as word processing, e-mail and internet/Intranet skills. This decreases for spreadsheet and presentation skills, is even lower for database and graphic skills, and is practically nonexistent for net-communities and e-learning skills.
  - The tool most used as a medium for guidance is the telephone, followed by e-mail, especially in the delivery of information, advice, short-term individual guidance, referral and follow up.
  - The use of all other ICT tools such as chat, web-based forums and video conferencing is still very limited within the guidance context.
  - Lack of time for professional development was identified as a major barrier to increased use of ICT in guidance.
  - Two-fifths of respondents (39.5%) had never had specific ICT training and had acquired ICT skills through self-training.
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**Hall, J., Brown, C., Edwards, L., and MacLean, P., (1998), *Effective Use of Computers in Careers Guidance*. Glasgow: Scottish Council for Research in Education, University of Glasgow.**

### **Focus**

Commissioned in 1995 by the Department for Education and Employment in Scotland, the study aimed to evaluate the influence of computer technology on the career preparedness of students in schools, careers education and guidance process in schools, and the integration between schools and careers services.

### **Methodology**

Researchers undertook an exploration of the guidance process in 22 schools in Scotland. Feedback from students about career intentions and expectations and sources of guidance they had used was gathered using a questionnaire. In addition, 85 interviews with careers advisers, careers teachers and groups of students were carried out.

### **Key Findings**

The researchers' hypothesis was that different levels of ICT support would correlate with different levels of career preparedness amongst students. However, researchers found there was no simple relationship between types and levels of computer support and the level of preparedness. In the main, students who were 'better prepared' had also benefited from structured careers education, commitment by senior management and staff in schools, and good relationships between schools and careers services. Careers practitioners agreed that computer support can make a significant contribution to the overall level of career preparedness when integrated into structured careers education and guidance programmes.

### **Barriers:**

- Computer support had little or no impact on the guidance interview. There is limited time available for the guidance interview and access to computers.
- Lack of advice and guidance about hardware and software, and training.
- Little evidence of evaluation of the software used in schools.

*Enablers:*

- Co-operation between schools and careers services in design and delivery of CEG.
  - Co-operation between schools and careers services in implementing computer support.
  - Training and staff development.
  - Monitoring and evaluation.
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**Harris, S., (2002), 'Innovative Pedagogical Practices using ICT in Schools in England'. *Journal of Assisted Learning*, No. 18, pp449-458.**

**Focus**

As part of the Second Information Technology in Education Study (SITES), this study focuses on innovative pedagogical practices involving ICT and presents the UK perspective.

**Methodology**

A case study approach was used involving three primary schools and three secondary schools during the 2000-2001 school year. The cases were selected using the following criteria:

- evidence of improving standards;
- levels of resources which could be achieved by other schools; and
- favourable Ofsted report.

Data were collected using interviews with head teachers, administrators, teachers, students and parents and ICT co-ordinators. In addition, documentary analysis was undertaken.

**Key Findings**

Although the implementation of innovative practice placed additional demands on teachers, there is a consensus that the results generally justified the effort. It is reported that teachers benefit in a number of ways:

- personal skill development;
- increased willingness to change existing teaching practices; and
- perceived change in students' attitudes and their approach to learning.

The research identified a range of important factors that affect success:

- previous involvement in innovations (ICT and non-ICT related);
  - support at senior management level for implementing new practices and addressing financial implications where appropriate;
  - involvement of several members of staff;
  - a prevailing culture within schools of collaboration and mutual support; and
  - willingness to take risks, accepting that some ventures would succeed while others may not.
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**Hawthorn, R., (2004), *Skills and Training to Develop the use of ICT in Vocational Guidance: Expert Advice*. WPA3 Final Report. ICT skills for guidance counsellors Leonardo da Vinci project**

**Focus**

Examines the application of ICT skills to guidance delivery and how ICT can be used to enhance guidance. It is based on the views of national guidance experts rather than individual practitioners.

**Methodology**

Between October 2003 and February 2004, 36 experts in five countries were interviewed in person or by telephone, following a semi-structured interview schedule. Responses were compiled at country level. This report provides an overview of all national reports.

**Key findings**

- Training in basic ICT skills, although important, is not enough. Practitioners also need training in how it relates to guidance. All partners wanted training on how to incorporate ICT resources into guidance education and delivery.
- Time pressure on practitioners prevented practice of skills after training. Staff need time to practise new skills, otherwise the training can be wasted.
- Getting practitioners to make use of technology depends on making time available and enhancing understanding of the potential of ICT.
- A key skill for practitioners is helping clients to see the potential of ICT for their own career development.
- National guidance policy needs to show commitment to the potential of ICT to enhance guidance. However, this should not reflect a belief that ICT will replace intervention by professionals. "We found examples where public policy advocated investing in hardware and software because that would replace staff, so there was no training budget."
- Lack of resources, training and equipment was a problem for some organisations.
- In spite of these problems, ICT was being used in guidance, and guidance was being offered through ICT in a number of interesting and imaginative ways.

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**Houston, M., Quinn, P., and Stone, I., (2001), *Evaluation of the use of ICT to support Careers' Education and Guidance*. Northern Economic Research Unit, University of Northumbria, DfES Brief No: 286, August 2001.**

**Focus**

Commissioned by the Department for Education and Skills, this evaluation provides evidence of ICT usage in CEG in schools and colleges and identifies key factors that may optimise engagement.

**Methodology**

A case study approach was used in a range of 21 schools and 5 colleges. A mix of methods was used for data collection: semi-structured interviews were carried out with careers practitioners; focus groups were used with school pupils and college students; and a follow-up survey involving 146 schools and colleges.

**Key Findings**

ICT is generally perceived as standard practice and seen as beneficial, offering time-efficient ways of managing vast quantities of information. ICT enables young people to answer questions about jobs, careers, education and training. However, ICT is not



considered to have a specific role in career planning. The study highlights a number of barriers to engagement as well.

*Barriers:*

- Lack of pupil access to PC at home.
- Technical/access problems such as slow internet connections, network crashes, and unreliable printers.
- Lack of technical support.
- Software design that lacks sensitivity to students' aspirations.
- Poor relationships between schools and software manufacturers.
- Cost of software licences.
- Lack of training in internet search techniques.
- The credibility of information obtained via the internet.
- Lack of time to explore products and participate in training.
- Overall time allocated to CEG in schools.

A follow up survey revealed further barriers:

- Shortages of equipment.
- Lack of funding.
- Lack of additional ICT training for staff.
- Lack of information about the content and existence of relevant websites.
- Fears about resource allocation.

*Enablers:*

- Monitoring and evaluation of individuals' engagement in the CEG process.
- Practical advice to improve use of existing software.
- Provides opportunities for young people to communicate with others on a similar chosen career path.
- Greater use of computer/video conferencing.

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**Krechowiecka, I., (2001), *Supported Self Help Project*. Northumberland: Northumberland Guidance Company Limited.**

**Focus**

This report focuses on a project that was initiated out of concern to develop new approaches to help Sixth Formers with career choices. Training was provided for schools and careers staff to enable them to deliver sessions on effective use of the internet for researching HE courses and graduate careers. Sessions were also delivered to students. Stakeholder feedback is used to develop a model for supported self-help that could be adapted to any aspect of career education and guidance.

**Methodology**

This small-scale action research project utilises feedback from staff and students to evaluate the initiative.

**Key Findings**

- Access to computers at home is important so that students can continue with their research after the lessons.
- Access to email is very important so that students can communicate easily with information providers.
- Trainers need to develop confidence in the delivery of the sessions.

**McCarthy, J., (2001), *The Skills, Training and Qualifications of Guidance Workers*. OECD/National Centre for Guidance, Ireland.**

**Focus**

A mapping exercise exploring the nature of guidance activities and the role of the guidance worker in OECD countries raised questions regarding the training of guidance workers.

**Methodology**

Researchers matched occupational profiles and a classification of tasks for guidance workers.

**Key Findings**

The qualifications required for guidance work vary from country to country – from a few weeks to a few years. The author cites cases in which guidance workers have had no training at all. In particular, the integration of ICT into the guidance worker role is an issue that needs addressing.

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**Morris, M., Rickinson, M., and Davies, D., (2001), *The Delivery of Careers Education and Guidance in Schools*. Research Report 296. London: DfES.**

**Focus**

This study, commissioned by DfES, focuses on delivery of careers education and guidance in schools.

**Methodology**

A mixture of methods was used to gather data:

- A postal survey of 528 schools.
- An email survey of 37 careers service chief executives.
- In-depth case studies of 28 schools, covering nine Government Office regions. Case studies included interviews with 102 teaching and careers service staff and group discussions with 164 Year 11 students.
- In-depth interviews with 20 operations managers from the schools' local careers services.

**Key Findings**

The research found that provision of CEG in schools varies. In some cases CEG is integrated into the curriculum and linked to students' performance reviews. However, there are cases where a number of problems exist that hamper effective delivery of CEG:

- insufficient time allocation;
- untrained co-ordinators; and
- low levels of senior management commitment.

The evidence suggests that respondents are satisfied with the provision of physical resources including ICT. However, it seems that teachers are less satisfied with ICT provision than they are with paper-based resources.

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**NFER, (2001), 'Annual Survey of Trends in Education'. Digest No. 11, September 2001.**

### **Focus**

This annual survey, carried out in the autumn of 2000, provides feedback from head teachers relating to ICT usage in primary schools. Time series data allows researchers to identify trends.

### **Methodology**

Survey data was collected from 370 primary head teachers.

### **Key Findings**

There have been significant increases in ICT in primary schools over the last three years. Funding sources for ICT include: school budget; government grants; supermarket voucher schemes; and PTAs.

- 45% of respondents have computers in dedicated areas with internet access.
- 26% of respondents have computers in the school library.
- 20% have computers located in the staff room.
- 43% have computers located in administrative area such as head teacher's office.

However, availability and reliability of ICT in primary schools is still a problem:

- teachers are not always able to take up training;
- there is a lack of technical support; and
- internet access is perceived as unreliable for use in lessons.

In terms of usage of ICT in teaching:

- 85% of respondents recognise the potential of the internet for improving learning and teaching.
- 87% of respondents have technology available to them.
- 84% of respondents have email at school but only two thirds of respondents see this as having learning potential.
- 60% of respondents identify interactive whiteboards as having potential but only 9% have them available.

Half of respondents said that technical support is the responsibility of the teacher but no time is allocated to the task. Only 12% employed a specialist technician.

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**Offer, M., (2000), *The Use of Information and Communication Technologies in the Connexions Service*. Report on a NICEC/CRAC/Guidance Council Invitational Policy Consultation, September 2000**

### **Focus**

This consultation took place as the new Connexions Service was being formed. This was regarded as providing a major opportunity to rethink the delivery of information, advice, guidance and opportunities to young people. The creative use of ICT was seen as central to such rethinking and regarded as having great potential to enhance the quality, user-friendliness and interconnectedness of the Connexions service.

The aims of the consultation were to:

- examine current use of ICT in the delivery of personal information, advice and guidance for young people aged 13-19;
- explore the issues and creative possibilities in developing the role of ICT as a 'tier' within the Connexions service, including its relationship with face-to-face services for young people; and
- identify measures needed to assure the accessibility, impartiality, confidentiality and quality of technically mediated services within Connexions.

### **Methodology**

The two day consultation was attended by 28 participants including representatives from DfEE, schools, colleges, careers companies, Connexions pilot areas, the BBC, voluntary and charitable agencies in the fields of drug prevention, youth work, youth justice and work with homeless young people.

### **Key Observations and Recommendations**

- Professionals need support and training to use ICT effectively. Raising the ICT awareness and skills of all involved in Connexions is crucial and ICT training should be a nominated priority for training budgets.
- General ICT skills are important, plus knowledge of the program or website being used. Given the difficulty of controlling what users meet on the web, it is important they are able to discriminate between the good, the bad, and the misleading. This is an educational task, which needs attention within the curriculum of schools and colleges.
- ICT can enable generic Personal Advisers to access resources of knowledge and expertise outside their own specialisms, thus enhancing an individual's ability to respond to a wide range of issues.
- The roles of ICT and human interaction should be viewed not as alternatives, but as synergistic. ICT-based services should be available on a stand-alone basis, but high-quality models of delivery are likely to involve integration on either a synchronous or asynchronous basis with direct human contact.
- Particular care must be taken to avoid the notion that ICT-based services are for 'mainstream' young people, while Personal Advisers are for young people with complex or multiple problems. Connexions should provide a continuum of services, in a variety of media and methods, for all young people to access.
- DfEE and Connexions Partnerships should ensure that in the design and marketing of equality of opportunity is paramount; services offered must be differentiated, avoiding a 'one size fits all' solutions.
- Active involvement of young people is crucial in influencing and shaping the role of ICT in Connexions. Service contracts should have explicit performance indicators to show how young people's views and contributions are being engaged.

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**Offer, M., Sampson. J.P. Jr., and Watts, A.G., (2001) *Careers Services: Technology and the Future*. Cambridge: NICEC/CSU**

### **Focus**

With a starting premise that technology is an agent of change, this study attempts to address the issues relating to technically-mediated services raised in the Harris Report (2001). Authors consider the importance of ICT in realising the potential of a highly flexible and accessible resource for a wide range of stakeholders, clients and target groups.

### **Methodology**

A mixture of research methods was employed in this two-stage project. The first stage involved:

- an email survey of a large sample of careers services in higher education;
- follow-up telephone interviews with a further sample of volunteers; and
- a critical review of the web sites of a random sample of AGCAS careers services.

In the second phase, four careers services, selected from a list of volunteers, took part in action research involving visits by the project team. Additional data were collected during study tours in Finland and the USA.

### **Key Findings**

The research found that innovative work is taking place in a number of UK universities and elsewhere nationally to develop technically-mediated services. However, the use of ICT has been limited to websites promoting off-line services and providing information. The authors argue that a reactive approach overlooks the ways in which ICT changes the environment, and identify some key challenges:

- setting up co-operation or competition on regional, national and global dimensions;
- managing the flow of users through a service's resources;
- the level of detail of the website design;
- a new one-to-one relationships between the adviser and client via email and at a distance; and
- the role of careers services in the curriculum and relationships with other parts of the institution.

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**Parsons, D. J., Barry, J., Bysshe, S., and Foster, P., (2003), *Evaluation of the Connexions Direct Pilot*. Report RR464. Nottingham: DfES.**

### **Background**

The Connexions Direct Pilot, an e-guidance project providing confidential information, advice and support to 13-19 year olds on a wide range of issues, started in September 2001. In its first month of operation, it attracted calls from just over 250 young people rising to just over 600 within three months. New Partnership areas joined the pilot in the summer of 2002 and by March 2003 the service was handling 3,500 to 4,000 calls a month. At the end of the pilot period the contact centre in Newcastle was operating at full capacity covering 16 Partnership areas. During the pilot period 22,000 callers had made use of the service. This evaluation commenced in November 2001

### **Focus**

The objectives of the evaluation were to:

- assess the extent to which the pilot was successful in achieving its objectives, and review the conditions that made this possible;
- assess the contribution of the pilot to the achievement of the wider Connexions objectives; and
- identify key outcomes and learning points from the pilot, and the conditions necessary for sustainable national roll-out.

## **Methodology**

The evaluation is based on evidence from a range of sources including:

- phased reviews of the operation and development of the Contact Centre;
- stakeholder experience of the pilot in County Durham, Cheshire and Warrington, Derbyshire, Nottinghamshire, Northumberland, Tees Valley and Tyne and Wear;
- systematic mystery shopping;
- quantitative evidence from the Connexions Direct Management Information System;
- survey of expectations among young people; and
- user focus groups.

## **Key Findings**

- Difficulties in communications with Connexions Partnerships and other stakeholders caused the pilot to develop as a largely stand-alone service. The evaluation shows scope for better integration of services.
- Demand was at lower levels and more careers and learning oriented than had been anticipated, with over half of the inquiries about careers and learning issues. This led to problems in achieving the right skills mix among staff with a shortfall in those with a CEG background.
- The out-of-hours support was welcomed by young people. The results suggest the 18 hours per day service is an optimum arrangement, with little demonstrated demand from young people for a 24/7 service;
- Nine out of ten young people said they preferred face-to-face information and advice rather than remote provision. They do not wish to see Connexions Direct as a substitute for face-to-face services but as a complementary and alternative means of accessing information, advice and guidance.
- Webchat was seen as particularly innovative but initially it was not well understood by young people. Towards the end of the pilot greater use was made of e-mail and webchat, with these accounting for over a half of all contacts.
- Over the pilot period there was a rising 'surrogate' demand from parents, guardians and direct carers making enquiries on behalf of young people.
- Connexions Partnerships saw potential cost-savings in working with Connexions Direct but were not able to quantify it as demand levels were too low to realise significant cost-effectiveness.
- A commitment to skills development enhanced quality and helped motivate staff. However it was noted that formal training activity declined as call volumes increased.
- The contribution to wider Connexions goals was unproven, mainly because call volumes were too low to make a fair assessment, and young people's awareness of the service was limited.
- The recommendation from the evaluation was that a national roll-out should be a complementary and integral part of the wider Connexions offer rather than a substitute for parts of that service.

### *Barriers identified by young people in user focus groups*

- Cost of web access and mobile phones.
- SMS texting limits depth of inquiry.
- Webchat was poorly understood with many interpreting this as group discussion on the web rather than a confidential one-to-one.
- Concerns over identification and loss of anonymity.
- Concern over quality and affinity of Advisers.
- Lack of personal, private space at school or home to access the helpline.
- Concern over how Advisers were allocated to contacts. Girls in particular were sensitive about male Advisers handling health, (especially sexual health or contraception) issues.

- Concerns about faith-based issues and having access to an Adviser sensitive to specific cultural contexts.

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**Prior, G., and Carter, K., (2004) *Connexions Direct: Obtaining Users' Views Pilot Evaluation Study*. Report RR509, February 2004. Nottingham: DfES**

**Focus**

This was a pilot study to develop, test and appraise means of obtaining a representative sample of users' views about the service. Preserving confidentiality ruled out research that involved re-contacting young people. The project was initially aimed at users of the Connexions Direct web chat and telephone services. However problems with the telephone survey resulted in a low proportion of callers being transferred to research staff. As a result it was not felt appropriate to draw on telephone findings in the report.

Although the purpose of this pilot was to test ways of obtaining users' views of Connexions Direct, the results provide a valuable insight into user perceptions of the web chat element of this Service..

**Methodology**

Users' views of the web chat service were obtained using an online survey which was live for three weeks. Every visitor to the web chat area during the fieldwork period was invited to take part. Two types of invitation to the survey were trialled – a standard pop-up invitation and a full page pop-up invitation. The type of invitation offered was randomised. A 'long' (approximately 6 minutes) and a 'short' (approximately 3 minutes) version of the questionnaire were trialled. The versions were randomised within the survey.

The overall response rate was 14%, with 357 interviews completed out of 2599 invitations served. The response rate to the shorter interview was 16%, compared with 12% for the longer interview. Out of the four trial cells (pop-up/full page invitation and long/short questionnaire) the highest response rate achieved was 19% for the pop-up invitation and the shorter questionnaire.

**Key Findings**

- Respondents were most likely to be using the web chat to ask for advice about careers (46%) and learning (31%), followed by advice on personal or family relationships (25%).
- 80% of respondents were accessing the site from home. 11% were accessing it from school, college or university.
- Those aged 13-16 were more likely to be accessing from home (85%) compared with 67% of those aged 17-19.
- 85% of respondents would recommend Connexions Direct to friends, and 81% said they were 'very' or 'fairly' satisfied with the service they received.
- 71% of respondents said they were likely to act on the advice they had been given, although 14% said they did not know whether or not they would act on the advice.
- 48% said that they would be very likely to use the Connexions Direct service again in the future. Interestingly 68% of those who said they were unlikely to use the service again were satisfied with the service they had received.
- Levels of dissatisfaction were low with only 19 of the 335 users describing themselves as dissatisfied. Barriers and problems identified by these respondents included the speed of the reply and connection problems. The following are user comments related to problems experienced.

*“The web chat service is awful. It’s like chatting to a text book. Every answer sounds rehearsed, it’s not on a personal level”*

*“Quicker answering on the web chat. I got bored a couple of times and hung up*

*“I don’t know if it was my fault or a fault with the net in general, but I kept being cut off. The call kept being cancelled which made it hard because I never got the same adviser back”*

*“At first she didn’t understand what I was saying. I had to tell her again until she understood”*

*“Nobody replied on the web chat”*

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**Quality and Improvement Performance Dissemination (QPID), (2001), A Review of Careers Service Focusing in Schools. QPID Study Report No.93. Nottingham: DfES [http://quality.wwt.co.uk/quality/qual\\_map/study93.pdf](http://quality.wwt.co.uk/quality/qual_map/study93.pdf)**

#### **Focus**

The study aims to understand how careers services have worked with schools and colleges to implement a focused approach to CEG; identify issues and concerns that arise from balancing work with the disaffected and mainstream clients; identify areas of good practice; and understand the use of partnership agreements.

#### **Methodology**

Structured interviews and discussions with Government Offices, careers service companies and schools were used for data collection.

#### **Key Findings**

There is some evidence of concern among careers services and Government Office staff that the commitment to careers education in schools is in decline. The value of ICT in developing services is generally recognised among staff in careers services. There is some evidence that websites have been established and are used in face-to-face guidance work. However, the study highlights a number of issues that may inhibit usage of ICT:

- patchy access to ICT;
- restrictions on the use of floppy disks;
- cost of printing;
- parental concerns over children’s access to the internet;
- organisational culture;
- lack of cross-curricular integration of ICT;
- lack of recognition of the potential of ICT in the development of CEG.



**Starling, E., (2004), *Connexions Direct: Mystery Shopping Pilot Evaluation Study*. Report RR561. Nottingham: DfES**

**Focus**

Drawing on recommendations from the earlier TNS evaluation (RR509), this project trialled a mystery shopping approach designed to support future performance monitoring and quality assurance. Although the purpose of the pilot was largely to develop and test an effective programme of mystery shopping, the results attained provide a valuable insight into user perceptions of e-guidance.

**Methodology**

The sample was constructed to replicate the contacts the service receives in terms of day, time and contact method.

- 150 contacts were made by telephone.
- 150 contacts were made by webchat.
- 100 contacts were made by e-mail.
- 75 contacts were made by SMS text.

Mystery shoppers were given a scenario in an eight-scenario framework which had been agreed following consultation with Personal Advisers from Connexions Partnerships and young people. The opening lines were:

- Scenario 1 - I'm thinking about going into nursing after I've finished school. What do I need to get in my GCSEs?
- Scenario 2 - I'm taking my exams soon, but find it difficult to revise. Can you help me?
- Scenario 3 - I've been asked to choose my options, I just don't know what to take.
- Scenario 4 - I left school last year, but I don't know what I want to do now.
- Scenario 5 - I'm worried about my mum who is drinking a lot.
- Scenario 6 - My friend is smoking a lot of cannabis.
- Scenario 7 - My periods are heavy and painful. Is this normal?
- Scenario 8 - I had sex with my boyfriend and now I think I might be pregnant.

Mystery shoppers were encouraged to substitute their own wording to ensure that the contact appeared realistic, starting with their opening line, then responding to the questions of the Adviser. Immediately after each contact, the shopper completed a questionnaire which served as a tool to assess and give structured feedback on contacts. Four versions of questionnaire were used, one for each mode of contact. All explored the delivery and content of the advice offered and were split into three sections, 'Greeting', 'Dealing with your enquiry' and 'Overall'.

Mystery shoppers were asked to take into account the different forms of contact when making their assessments, particularly in relation to SMS text. Pre-fieldwork consultation has shown that the 160-character limit on SMS texts encourages Connexions Direct Advisers to invite texters to call the service for more detailed advice.

**Key Findings**

- Email contacts were given the highest mark out of 10 scoring 8.1; telephone contact scored 7.7; webchat scored 7.3; SMS text scored 6.7.
- Mystery shoppers were given a 'definitive answer to their question' (as opposed to being 'signposted' or referred to another agency) in 26% of contacts. This was most common in response to scenario one where a definitive answer was given in 69% of cases.

- 12% of mystery shops were abandoned due to there being no response to emails or texts, being left on hold, receiving a garbled text message response or in the case of webchat, losing the link.
- Webchat and text had high rate of abandonment; this did not happen at all with e-mail or telephone.
- 26% of webchats were abandoned because contact was repeatedly lost or because there was no initial response.
- Mystery shoppers felt that the Adviser's tone 'put them at ease' most often in e-mail (97%), telephone (93%) and webchats (87%) and significantly less so via text (71%).
- Mystery shoppers felt a satisfactory response was given to their question in 97% of e-mail contacts, 86% of telephone calls, 83% of webchats and 80% of texts.
- The information was most likely to be perceived as 'clear and relevant' via email (100%). In webchats this fell to 97%, for telephone contacts it was 92% and for text 86%.
- In a minority of contacts, mystery shoppers felt that they were given too much information; one mystery shopper commented "the call was long and I was bombarded with information which was a little overwhelming".
- The report concludes that the pilot mystery shopping programme worked well and provides a good basis for future work. There are a number of suggestions for adjustments to the approach including a recommendation that mystery shopping should be combined with other methods to make an overall assessment of service quality.

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**Thomson, S., and Hawthorn, R., (2004): *UK Country Report - Interviews with experts. ICT skills for guidance counsellors Leonardo da Vinci project.***

### **Focus**

The UK report which forms part of WPA3 above provides a detailed insight into practitioner skills, training and policy development related to the use of ICT in the delivery of careers education and guidance.

### **Methodology**

The UK report is based on responses from telephone interviews with 11 guidance experts. These were individuals working in schools, further education colleges, universities, the public employment service, government departments, the Connexions service and careers services. Experts were initially contacted by e-mail and provided with the questions in advance of the interview. Their answers and comments were recorded in writing and e-mailed to them for approval before publication.

### **Key Findings**

#### *The extent to which ICT is used in CEG*

- Most practitioners use basic word processing, the telephone (including mobile phones), e-mail and the internet to carry out administrative tasks such as record keeping.
- The use of e-mail for communicating with colleagues or clients is less extensive by teachers in schools than in other sectors such as Connexions.
- In Connexions and the Employment Service the requirement to use a specific software package for record keeping and management information statistics is mandatory.

- Teachers regularly use word processing and multimedia presentations to prepare careers education materials.
- Careers teachers and education-based guidance practitioners use software packages to help students engage in course- and job-matching activity in careers lessons.
- ICT is mainly used as a resource to provide information but seldom as a medium for providing guidance. Commonly used websites and programs deliver occupational and course information rather than developing career management skills and aiding decision-making.
- Where the use of ICT by guidance practitioners is extensive it is because individuals are keen to adopt technology and are innovative in their work, rather than that policy and practice requires it.

#### *Problems and barriers*

- Lack of recognition of the potential for using ICT in guidance.
- National policy-makers for Connexions in particular, do not see the use of ICT as a high priority that deserves training provision. The use of ICT can be seen as a substitute for practitioners' guidance skills with a belief that if a guidance website is good enough it does not need mediation.
- Developing and using ICT skills has not been given a high priority in Connexions services where the emphasis has been on training related to the change from careers work to the holistic and targeted approach of Connexions. Some Connexions Advisers are currently suffering from training overload in other aspects of their work.
- National policy-makers, senior managers of schools, colleges and guidance providers believe that basic ICT skills have been or are being acquired by guidance practitioners through training provision already in place. The reality is that the level of ICT competence in the guidance community is poor and skills have not been maintained through use.
- Careers teachers generally have not applied the ICT skills learned for their subject teaching to guidance work.
- Lack of time.
- Inadequate provision of accommodation, hardware, software and internet access for guidance practitioners and their clients.
- Lack of access to e-mail for many careers teachers in schools.
- Difficulty of discriminating between good and poor programs and internet sites in relation to impartiality and validity of information.
- A long-standing attachment to using paper leading to resistance by some guidance practitioners to take up ICT training.
- The cost and difficulty of getting supply teachers to enable the release of teachers for training.
- Perceptions of ICT as only for experts rather than a key part of guidance practitioners' professional capability.
- Practitioners' perceptions that use of ICT is restricted to information giving. There is still a strong belief amongst the guidance community that one-to-one work is the gold standard and that technology weakens it.

Effective training was seen as key by most experts but they emphasised that practitioners first need to understand the potential of ICT both as a resource and a medium for guidance, and how that links to the principles of good guidance. Training programmes should start with this objective before going on to developing skills. Other essential elements of effective training were identified as:

- short, practical sessions with a strong hands-on element;
- time for practising the skills acquired during training sessions once back at work;
- provision of support after training from colleagues, a mentor, or on-line;

- small groups, occasionally 1:1, in well equipped facilities;
  - time for reflection on how best to apply the skills gained to practice; and
  - opportunities such as a work-based project to develop strategies for use and integration of ICT in guidance.
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**Venezky, R.L., (2002) *Quo Vademus? The Transformation of Schooling in a Networked World*. Paris: OECD/CERI.**  
<http://www.oecd.org/dataoecd/48/20/2073054.pdf>

### **Focus**

Venezsky reports on a broad study undertaken by OECD which looks at the transformation of schooling.

### **Methodology**

The study used an 'explanatory case study approach' based on qualitative data and a survey of schools in 23 countries.

### **Key Findings**

The study uncovered a number of barriers that inhibit the use of ICT in teaching:

- lack of opportunities for staff development during working hours;
- teacher resistance to the use of ICT; and
- limited infrastructure (especially technical support);

Cases were cited where teachers were reluctant to integrate ICT into their teaching, mainly because they feared technical problems or they had a preference for traditional methods. However, there are also cases in evidence where the integration of ICT has been successful in spite of technical problems.

In the case of Germany, staff ICT competence and a 'critical level' of ICT infrastructure are perceived as key factors leading to success. The research also reveals inconsistencies between ICT training and its application in the classroom. In the case of Sweden, staff turnover, among other things, is perceived as a barrier to sustainability.

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**Watts, A.G., and Jackson, C., (1999), *Networking PROSPECT (HE): Practice and Potential*. Manchester: Higher Education Career Services Unit.**

### **Focus**

PROSPECT<sub>(HE)</sub> is a computer-based tool designed specifically for the HE sector that reflects a well-established model of career choice. It is intended to be used by students without supervision or direct support. Recent developments in networking PROSPECT<sub>(HE)</sub> to broaden access have resulted in widespread use within the HE environment. This report evaluates use of the network initiative.

### **Methodology**

The evaluation was undertaken by NICEC and involved short visits to six HEIs. Data were collected from each institution using interviews with the head of the careers service, the senior manager responsible for the career service and with the ICT manager. Focus-group discussions were carried out with all careers advisers, information officers and some academic staff, as well as students. HEIs were

selected to cover a range of types of institution, and reflect diverse careers and ICT provision.

### **Key Findings**

Evidence suggests that the benefits of networking outweigh any perceived risks. The greater access opens up possibilities for more widespread usage and flexibility. However, it appears that the system may be under-utilised for a number of reasons.

The system is still seen as information focused rather than fulfilling its potential as a learning resource. Authors recommend that institutions should consider a range of possibilities for integrating PROSPECT<sub>(HE)</sub> with other career activities. Training is seen as critical to success.

## Appendix 2

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