

A Systematic Literature  
Review of  
**Research into  
Career-related  
Interventions  
for Higher  
Education**

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Dr. Jenny Bimrose – Principal Research Fellow, who was the project manager and lead writer.

Dr. Sally-Anne Barnes – Research Fellow, who managed the review process and is co-writer of this report.

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## Table of contents

	Page
<b>Executive Summary</b>	<b>i</b>
<b>Section 1: Introduction</b>	<b>1</b>
<b>Section 2: Research design process</b>	<b>5</b>
2.1 Overview of methodology	5
2.2 Searching	5
2.3 Screening	13
2.4 Data-extraction	15
2.5 Synthesis	17
<b>Section 3: Strengths and limitations of a systematic review process</b>	<b>19</b>
3.1 Strengths of the review	19
3.2 Limitations of the review	20
3.3 Overall effects of the applied criteria	21
<b>Section 4: Curricular and extra-curricular interventions</b>	<b>23</b>
4.1 Specialist career-related interventions	23
4.2 Curricular interventions to support vocational trajectories	27
4.3 Curricular-related interventions	29
4.4 Extra-curricular interventions	31
4.5 Pre-entry curricular interventions	33
4.6 Multicultural curricular interventions	35
<b>Section 5: Social, economic and demographic factors</b>	<b>37</b>
5.1 Gender	37
5.2 Ethnicity and race	40
5.3 Socio-economic factors	41
5.4 Cross-cutting factors	42
5.5 Environmental factors	44

<b>Section 6: Conclusions</b>	<b>46</b>
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<b>Section 7: Research gaps and recommendations</b>	<b>48</b>
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7.1	Setting the context: evaluating the influence of career guidance	48
7.2	Identifying possible omissions in the research evidence	50
7.3	Curricular and extra-curricular interventions	51
7.4	How students & graduate make career-related decisions, engage in career learning/development and progress towards entry to the labour market	54
7.5	Theories of learning that underpin career decision-making, learning/development and progress towards entry to the labour market	55
7.5	Recommendations for future research	56

<b>Section 8: References</b>	<b>57</b>
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## Appendices

1	Further information on databases	63
2	Search strategy for electronic databases	66
3	Data extraction instrument	68

## Figures

1	A model of the forms of strategic action of individuals in relation to their career goals	53
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## Tables

1	Electronic database searched	5
2	Initial search strategy using specified keywords	8
3	Revised search strategy: keywords and search strings	9
4	Details of the website searches	10
5	Number of references searched, included and excluded	15

## Executive Summary

1. **Career-related interventions in higher education** and their impact on students' career-related decisions, career learning and progression towards the labour market **have been well researched**. Initial searches yielded 77,272 references.

2. Of the 18,189 references identified for inclusion in the in-depth review, a rigorous process of progressive focusing enabled a total of **59 empirical studies to be selected** as the basis for this report.

3. Despite limitations, the systematic review methodology used has provided a sound framework for undertaking **a comprehensive, objective and transparent assessment of available research**, though in this review, researcher judgement has played a significant role.

4. Although there is a substantial literature on different curricular and extra-curricular interventions, broadly defined, which may influence students' learning, progression and career-decision making, **evidence relating to the efficacy of these interventions is limited**.

5. **Six themes were identified** from the literature which related to the main review question: career-related interventions; curricular interventions to support vocational trajectories; curricular-related interventions; extra-curricular interventions; pre-entry curricular interventions; and multicultural curricular interventions.

6. **For specialist career interventions, evaluations were generally positive**. These comprised courses and modules, computer programs, one-to-one interviews and e-guidance.

7. **Curricular interventions** to support career decision-making, learning and progression have generally been **designed for specific purposes** (like choice of specialism) **and for particular vocational areas** (like medical-related careers).

8. **Mentoring and shadowing** are used successfully as curricular-related interventions, mainly to **support under-represented student groups** in their career progression.

9. **Structured employment experiences** are used as extra-curricular interventions

to support career learning and decision-making.

10. A range of **pre-entry curricular interventions** (such as structured support programmes for disadvantaged students) **have been used positively** to support progression into higher education.

11. **Multicultural curricular interventions for targeted groups** enhance career-decision-making and learning.

12. **Gender, ethnicity and socio-economic background all influence career-related behaviour**, with career-related interventions designed and implemented to address some negative impacts.

13. **Other external influences** on the career behaviour of students **include the higher education environment, age and disability**.

14. **Future research** needs to have clear parameters and a longitudinal timeframe, be theoretically-informed and influenced by a broad range of research that goes beyond a consideration of what works.

## Section 1: Introduction

This literature review, commissioned by the Higher Education Careers Service Unit (HECSU), provides an analysis of research evidence relating to curricular and extra-curricular interventions that influence the career-related decision making, learning and progression of students and graduates.

### Aims and objectives

The aim is to ensure that a robust evidence-base is established that can inform the design of the Core and Subsidiary studies, which have been commissioned by HECSU in parallel with the review. It should be both 'systematic and transparent' (HECSU Protocol for Researchers, January, 2005). The objectives state that it should:

- Review a range of published literature in career-related research.
- Report on key messages and themes arising in the literature.
- Identify omissions in previous research.
- Provide an analysis and commentary.
- Make recommendations for research questions.
- Work in partnership with those responsible for the Core and Subsidiary studies.

### Review questions

The HECSU Protocol for Researchers (January, 2005) acknowledged that the scope for the review is large. The dynamic and rapidly changing context of higher education<sup>1</sup> has ensured that a wide range of factors influence the career-related behaviour of prospective students, students and graduates. Implications for the need to deliver efficient, effective and economical careers education, information and advice services within higher education are profound<sup>2</sup>, with a modernising agenda identified<sup>3</sup> and quality assurance of services prioritised<sup>4</sup>.

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<sup>1</sup> Department for Education and Skills (2003). *The Future of Higher Education*. London: The Stationery Office Ltd. Cm 5735.

<sup>2</sup> Harris, M. (2001). *Developing Modern Higher Education Careers Services*. Nottingham: DfEE Publications.

<sup>3</sup> Universities UK (2002). *Modernising HE careers education: a framework for good practice*. London: Universities UK.

<sup>4</sup> Department for Education and Skills (2005). *Delivering Quality: Quality assurance and delivery of careers education, information and guidance for learning and work within higher education*. Sheffield: DfES.

QAA (2001). *Code of Practice: Career education, information and guidance*. [Online]. Available: <http://www.qaa.ac.uk/academicinfrastructure/codeOfPractice/section8/default.asp>, [8 November, 2005].

The main question and sub-question for the review, specified by HECSU, are framed in a manner that permits this complexity to be addressed. The main review question is:

*What curricular and extra-curricular interventions appear to assist students and graduates to make career-related decisions, engage in career learning/development and progress towards entry into the labour market?*

With the sub question:

*What social, economic, or demographic factors appear to impact upon career decision-making, career learning and occupational progression?*

## **Definitions**

Changes in the labour market (like the development of information technology and globalisation) have challenged the relevance of the established, narrow view of career transition as a one-off event at an early stage of an individual's development, replacing it with a broader understanding of how transitions into, and through, education, training and employment are more complex, more prolonged and often span lifetimes<sup>5</sup>. On examination of the evidence, what becomes clear is the increasing complexity and changing patterns of employment and career.

Recent definitions try to capture the implications of these changes for career guidance. Two examples are those proposed both by the Organisation for Economic Co-operation and Development (OECD, 2004<sup>6</sup>) and the Council of the European Union (2004<sup>7</sup>). Both emphasise the need for career guidance to support multiple transitions over a prolonged time-span and neither make particular distinctions about the type of activities career guidance involves. The OECD (2004) argues that career guidance is needed to support active labour market policies and notes how terms like information, advice and guidance, vocational guidance, vocational counselling, career counselling and career development are used to refer to a range of activities, which they include within the term 'career guidance' (p.18) and define as:

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<sup>5</sup> Young, R.A. and Collin, A. (2000). 'Introduction: Framing the Future of Career', in Collin, A. and Young, R.A. (Eds) *The Future of Career*, Cambridge: Cambridge University Press, p.5.

<sup>6</sup> OECD (2004). *Career Guidance and Public Policy: Bridging the Gap*, Paris: OECD.

<sup>7</sup> Council of the European Union (2004). *Draft Resolution of the Council on the representatives of the Governments of the Member States meeting within the Council on Strengthening Policies, Systems and Practices in their field of Guidance throughout life in Europe*. Brussels: Council of the European Union.



*Services intended to assist people of any age and at any point throughout their lives to make educational, training and occupational choices to manage their careers. Career guidance helps people to reflect on their ambitions, interests, qualifications and abilities. It helps them to understand the labour market and education systems, and to relate this to what they know about themselves. Comprehensive career guidance tries to teach people to plan and make decisions about work and learning. Career guidance makes information about the labour market and about educational opportunities more accessible by organising it, systematising it and making it available when and where people need it.*

(OECD, 2004, p.19)

The Draft Resolution of the Council of the European Union (2004) defines guidance in the context of lifelong learning, referring to it as:

*...a range of activities that enables citizens of any age and at any point in their lives to identify their capacities, competences and interests, to make educational, training and occupations decisions and to manage their individual life paths in learning, work and other settings in which these capacities and competences are learned and/or used.*

(Council of the European Union, 2004, p. 2)

Career-related decision-making, career learning/development and progression are, therefore, regarded as desirable outcomes from a wide range of interventions required to support individuals in making successful career transitions throughout their lifetimes. However, achieving clarity about the precise nature of the interventions required to achieve these outcomes, and the conditions necessary to support their successful implementation is not straightforward. Even at a basic level, the nature of career decision-making and learning is, itself, contested. The HECSU Protocol for Researchers (2005) highlights the existence of competing theoretical perspectives on career decision-making. For example, whilst some regard it essentially as a technically rational and linear process<sup>8</sup>, others argue that it is the result of more affective processes<sup>9</sup>, and yet others that it is constrained largely by external factors<sup>10</sup>. Similarly,

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<sup>8</sup> For example, Holland, J.L. (1992). *Making Vocational Choices: a theory of vocational personalities and work environments* (2nd Edn), Odessa, Florida: Psychological Assessment Resources.

<sup>9</sup> Savickas, M.L. (1997). 'Constructivist career counseling: models and methods', *Advances in Personal Construct Psychology* 4(2): 149-182.

there are varied conceptions of career learning and how this relates to career-decision making. There exists, therefore, a wide and fluid framework within which what 'counts' for this literature review had to be determined.

## **Report structure**

The report comprises eight sections, including this introduction. Section 2 provides details of the research design process, with an overview of the methodology.

Section 3 examines the strengths and limitations of the systematic review process, together with a consideration of the overall effects of the applied criteria to the outcomes of the review.

Evidence relating to the main review question, on the influence of different types of curricular interventions on career decision-making and learning, is reviewed in section 4.

Findings related to the sub-question are presented in section 5, with consideration given to the impact of gender, ethnicity, socio-economic background, together with a range of cross-cutting factors and environmental factors.

Conclusions from the review are outlined in section 6 and discussion of the omissions in the research evidence and recommendations for future research can be found in section 7.

Finally, the references used for the review can be found in section 8.

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<sup>10</sup> Roberts, K. (1997) Prolonged transitions to uncertain destinations: the implications for careers guidance, *British Journal of Guidance and Counselling* **25**(3): 345-360.

## Section 2: Research design process

### 2.1 Overview of methodology

The process used for this literature review is highly systematic and comprises a number of distinct phases:

- *Searching*: the systematic identification of potentially relevant studies.
- *Screening*: the application of pre-determined inclusion and exclusion criteria derived from the review question to report titles, abstracts and full texts.
- *Data-extraction*: the in-depth examination of studies, meeting the pre-determined inclusion and exclusion criteria, to assess the quality of the study and extract evidence in support of the in-depth review.
- *Synthesis*: the development of a framework for data analysis and identification of key themes.
- *Reporting and dissemination*: presentation of the review findings.

### 2.2 Searching

The first stage of the process involved the identification of papers, research reports and policy documents that were broadly concerned with interventions in higher education to assist students' career-related decisions and career learning. The research team identified appropriate electronic databases and websites. Potentially relevant papers were identified using these sources, with personal contacts and prior knowledge supplementing the process. The following databases were searched:

**Table 1 Electronic databases searched**

Electronic databases
ABI/Inform
Blackwell Synergy
Business Source Premier
EBSCO*
Emerald Text**
Ingenta Connect***
Sage Journals on-line
ScienceDirect
Wiley Interscience
Zetoc

\* This database did not specify the number of references beyond 1000+ when a search returned more than thousand hits

\*\* Due to a re-construction of this website between the searching and screening phases the abstracts were lost, and subsequently the 25 identified references could not be subjected to the screening phase.

\*\*\* Limited searches were undertaken in this databases due to technical difficulties both searching the databases and importing the references in to Reference Manager.

Appendix 1 provides additional information on the electronic databases illustrating why some searches yielded better results than others.

### **2.2.1 Development of a search strategy**

To ensure that all the searches undertaken were consistent and comparable, a search strategy was developed.

Keywords and phrases were derived from the research question. These were then placed into categories and assigned keyword numbers (see Table 1) to allow their strategic combination according to researcher impressions from a preliminary literature trawl: keyword 1 words were to be paired with every keyword 2 word once. Table 2 illustrates this initial search strategy; it was utilised to search only the first two databases searched. Subsequent to those two searches, the keyword list was refined to include only words which had produced successful results and was consequently re-categorised (see Table 3)<sup>11</sup>. Where the initial strategy returned a high number of references (that is, 250 or more), the second search strategy was further refined by adding keyword 3 word to the search string. Additionally, two stand-alone key phrases were found to be effective in searching for relevant literature (see Table 3).

Boolean logic was used to allow more efficient searching which ensured that the databases were searched within the timeframe, for example:

- (student OR graduate OR undergraduate OR postgraduate) AND (keyword 2)
- (student OR graduate OR undergraduate OR postgraduate) AND (keyword 2)  
AND (keyword 3)

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<sup>11</sup> The variations in the spelling of 'undergraduate' and 'postgraduate' using a hyphen have been omitted from the search as they did not reveal relevant literature and revealed less than 30 references when entered alone (compared to thousands when the non-hyphenated versions were entered alone). (Also, the hyphenated versions are technically incorrect spellings of the word.)

The researchers kept a log of the search strings used and the results. In the event that a search string in a particular database yielded more than about 200 references, or the relevance of the returned references was poor, additional terms (keyword 3 words) were added to the string in order to focus the search more accurately. Search logs were compared between researchers to ensure that the terms had been applied consistently. Some examples of successful search strings in the different electronic databases are listed in Appendix 2.

Career-related interventions in higher education and their impact on students' career-related decisions, career learning and progression towards the labour market have been well researched. Initial searches yielded a total of 77,272 references. In order to reduce the number of potential papers to a manageable level within the available timeframe, a significant proportion were screened online in order to determine their suitability for inclusion in the systematic literature review. During online screening, references that were conducted before 1995, that were not written in English or did not centrally address the research question were excluded. This was usually performed on the basis of the title, but in some instances the abstract was used (this depended on the transparency of the title). It should be noted that some electronic databases and websites had the facility to specify date of publication in the search terms. In these cases it was possible to eliminate articles published prior to 1995 from the outset. Online screening was a beneficial element of the process as this enabled the researchers to recognise when a database had been comprehensively searched because duplications would be identified.

### **2.2.2 Website searches**

This same search strategy was inappropriate for searching websites because far fewer references were listed. Where possible, therefore, (because not all websites had a search facility), just one or two very broad search terms were systematically entered (again using Boolean logic as above, where possible). Table 4, below, details the exact terms with which each website was searched.

**Table 2 Initial search strategy using specified keywords**

- keyword 1 + keyword 2

	<b>Career decision making</b>	<b>Career related interventions</b>	<b>Other</b>	<b>Misc. words on HECSU tender</b>
<b>Keyword 1</b>	<b>Keyword 2</b>	<b>Keyword 2</b>	<b>Keyword 2</b>	<b>Keyword 2</b>
Student	Action planning	Career	Career trajectory	Choice
Graduate	Career management	advice	employability	Career information
Undergraduate	Decision making	Action learning sets	Employment interview	Locus of control
Under-graduate	Occupational assessment	Career learning	(Graduate) destinations	Occupational choice
Postgraduate	Occupational information	Career guidance	(Graduate) labour market	Peer induction
Post-graduate	Occupational knowledge	Career libraries	(Graduate) unemployment	Induction
	Occupational selection	confidentiality	Graduates with disabilities	Personal development
	Personal development planning	Electronic guidance	Investment in education	Reflective practice
	Professional learning	Gap year experiences	Job application	
	Self-awareness	Guidance skills	Labour market	Career advice
	Transition planning	Impartial advice	Minority ethnic (graduates)	Career counselling
	Transition to work	Job sampling	On-line job application	Career information
	Vocational education	Learner support	Postgraduate study choice	Career information sources
	Guidance	Mentoring	Professional development	Career interview
	Information	Peer mentoring	Professional qualifications	Career planning
		Peer tutoring	Progression from higher education	Group processes
		Personal tutoring	Recruitment and selection	Occupational awareness
		Self assessment	Selection tests	Vocational choice
		Skills development	Work life balance	Work preparation
		Student advice	Employment	Workplace learning
		Vocational employment	Unemployment	Female graduates
		Work experience		Male graduates
				Vocational qualifications

**Table 3 Revised search strategy: keywords and search strings**

- keyword 1 + keyword 2
- keyword 1 + keyword 2 + keyword 3

Keyword 1	Keyword 2			Keyword 3
	Career decision making	Career related interventions	Other	Used to refine search further
student	career management	action learning sets	career trajectory	career
graduate	decision making	advice	employability	career choice
undergraduate	guidance	career	employment	guidance
under-graduate	induction	career advice	employment interview	labour market
postgraduate	information	career counselling	graduate destinations	
post-graduate	locus of control		labour market	
	occupational awareness	career guidance	professional development	
<b>Searched as key phrases:</b>	occupational choice	career information	professional qualifications	
widening access to higher education	occupational information	career planning	postgraduate study choice	
progression (into/from) higher education	occupational knowledge	gap year	networking	
	occupational selection	internships	recruitment	
	personal development	mentoring	selection	
	personal development planning	self assessment	unemployment	
	professional learning	skills development	widening access	
	self-awareness	work experience	work life balance	
	transition planning			
	transition to work			
	vocational education			

NB Appropriate truncations, wildcards and operators were applied to enhance the search strategy.

**Table 4 Details of the website searches**

Association of Colleges <a href="http://www.aoc.co.uk">www.aoc.co.uk</a>	(student OR graduate OR undergraduate OR postgraduate) AND career
Association of Graduate Careers Advisors <a href="http://www.agcas.org.uk">www.agcas.org.uk</a>	Manual
Association of Graduate Recruiters <a href="http://www.agr.org.uk">www.agr.org.uk</a>	(student OR graduate OR undergraduate OR postgraduate) AND career
Canadian Career Development Foundation <a href="http://ccdf.ca/">http://ccdf.ca/</a>	Manual
Careers Research and Advisory Centre (CRAC) <a href="http://www.crac.org.uk">www.crac.org.uk</a>	Manual
Centre for Guidance Studies (CeGS) <a href="http://www.derby.ac.uk/cegs">www.derby.ac.uk/cegs</a>	Manual
Centre for Labour Market Studies <a href="http://www.clms.le.ac.uk/">www.clms.le.ac.uk/</a>	Manual - searched all publications because the site was unable to offer an appropriate refinement criteria.
Chartered Institute of Personnel Development (CIPD) <a href="http://www.cipd.co.uk">www.cipd.co.uk</a>	(student OR graduate OR undergraduate OR postgraduate) AND career
Department for Education and Skills <a href="http://www.dfes.gov.uk">www.dfes.gov.uk</a>	(student OR graduate OR undergraduate OR postgraduate) AND career
Department of Educational Research, University of Lancaster: <a href="http://www.lancs.ac.uk/fss/edres/research/intro.htm">www.lancs.ac.uk/fss/edres/research/intro.htm</a>	Manual
Department for Trade and Industry <a href="http://www.dti.gov.uk">www.dti.gov.uk</a>	Career (student, graduate, postgraduate and undergraduate returned no results)
EducationOn-line: <a href="http://brs.leeds.ac.uk/~beiwww/beid.html">brs.leeds.ac.uk/~beiwww/beid.html</a>	(student OR graduate OR undergraduate OR postgraduate) AND career
ESRC <a href="http://www.esrc.ac.uk">www.esrc.ac.uk</a>	(student OR graduate OR undergraduate OR postgraduate) AND career choice
ESRC Teaching and Learning Research Programme (TLRP) <a href="http://www.tlrp.org/">www.tlrp.org/</a>	Flat filter facility (282 possible keywords) relevant keywords searched: Career position, Newly qualified, Higher Education, Guidance, Transition, University, Mentors, Professional development, Factors and post-16 education
Federation of Professional Associations in Guidance: <a href="http://www.fedpig.com">www.fedpig.com</a>	No publications available to search
Florida State University: <a href="http://www.fsu.edu">www.fsu.edu</a>	(student OR graduate OR undergraduate OR postgraduate) AND career
Guidance Council <a href="http://www.guidancecouncil.com">www.guidancecouncil.com</a>	Manual



Higher Education Research Centre, University of Salford: <a href="http://www.edu.salford.ac.uk/her/herc/">www.edu.salford.ac.uk/her/herc/</a>	(student OR graduate OR undergraduate OR postgraduate) AND career
Higher Education Statistics Agency <a href="http://www.hesa.ac.uk">www.hesa.ac.uk</a>	Manual
INFED <a href="http://www.infed.org">www.infed.org</a>	(student OR graduate OR undergraduate OR postgraduate) AND career
Institute for Employment Research (IER) <a href="http://www.warwick.ac.uk/ier">www.warwick.ac.uk/ier</a>	Student AND career
Institute of Career Guidance <a href="http://www.icg-uk.org">www.icg-uk.org</a>	"Career choice" and student
Investors in People <a href="http://www.investorsinpeople.co.uk">www.investorsinpeople.co.uk</a>	Career AND student
Joseph Rowntree Foundation: <a href="http://www.jrf.org.uk">www.jrf.org.uk</a>	Career AND student
Learning and Skills Development Agency (LSDA) <a href="http://www.lsda.org.uk">www.lsda.org.uk</a>	Career
National Association for Educational Guidance for Adults (NAEGA) <a href="http://www.naega.org.uk">www.naega.org.uk</a>	Career
National Institute for Adult Continuing Education (NIACE): <a href="http://www.niace.org.uk">www.niace.org.uk</a>	Career AND student
National Institute for Careers Education and Counselling <a href="http://www.nicec.org.uk">www.nicec.org.uk</a>	Same publication facility as CRAC
National Centre for Guidance in Education <a href="http://www.ncge.ie">www.ncge.ie</a>	Manual
National Centre for Vocational Education Research (NCVER) <a href="http://www.ncver.edu.au">www.ncver.edu.au</a>	Career AND student
National Council for graduate Entrepreneurship <a href="http://www.ncge.org.uk">www.ncge.org.uk</a>	Manual
National Council for Work Experience <a href="http://www.work-experience.org">www.work-experience.org</a>	Manual
National Learning and Skills Council (LSC) <a href="http://www.lsc.gov.uk">www.lsc.gov.uk</a>	Manual
National Foundation for Educational Research (NFER) <a href="http://www.nfer.ac.uk/">www.nfer.ac.uk/</a>	Career and student
National Guidance Research Forum (NGRF): <a href="http://www.guidance-research.org">www.guidance-research.org</a>	(student OR graduate OR undergraduate OR postgraduate) AND career choice
Organisation for Economic Co-operation and Development (OECD) <a href="http://www.oecd.org">www.oecd.org</a>	Career AND student

Sector Skills Development Agency (SSDA): <a href="http://www.ssda.org.uk">www.ssda.org.uk</a>	Career AND student
Teaching and Learning Research Programme (TLRP): <a href="http://www.tlrp.org">www.tlrp.org</a>	Same publication facility as ESRC
The Higher Education Academy <a href="http://www.heacademy.ac.uk">www.heacademy.ac.uk</a>	(student OR graduate OR undergraduate OR postgraduate) AND career choice
Trade Union Learning Services <a href="http://www.learningservices.org.uk/">www.learningservices.org.uk/</a>	Career AND student
Universities and Colleges Central Admissions Services <a href="http://www.ucas.ac.uk">www.ucas.ac.uk</a>	Manual
Universities UK <a href="http://www.universitiesUK.ac.uk">www.universitiesUK.ac.uk</a>	Career AND student

### **+2.3 Screening**

The results of each search string were assessed on screen in order to ascertain whether the documents were likely to meet pre-determined inclusion and exclusion criteria. The inclusion and exclusion criteria were derived from concepts inherent in both the main review question and the sub-question, and are as follows:

#### **Studies included:**

- i. are written in English;
- ii. are conducted after 1995;
- iii. draw on published and/or unpublished research;
- iv. focus on career-related curricular and extra-curricular interventions linked with higher education;
- v. focus on career decision-making and career related interventions in relation to students and graduates entering, going through and leaving higher education;
- vi. focus on transitions made by students and graduates as they progress towards entry into the labour market.

#### **Studies excluded that:**

- i. were not written in English;
- ii. were conducted before 1995;
- iii. were not based on empirical research;
- iv. were based on single person opinion;
- v. did not focus on curricular or extra-curricular interventions;
- vi. focus on students not going into, or in, higher education;
- vii. focus solely on generic learning experiences of students and graduates in higher education;
- viii. were only concerned with curricular and extra-curricular interventions in higher education, without reference to student and graduate career-related interventions, learning and decisions.

The bibliographic information for those that appeared to meet the remaining inclusion criteria were entered into a database for screening by title and abstract. Reference Manager was used to capture the bibliographic information. A number of the electronic databases had the facility to export bibliographic information directly from the database into Reference Manager. Where this facility was not available, the information was downloaded in a text file and imported using an appropriate filter into Reference

Manager. The bibliographic information for relevant articles identified from websites and personal contacts was entered into the master database manually.

The master file, containing 3,089 references, was then sorted by author in order to identify duplicates. All duplicates were removed, using an automated Reference Manager facility, leaving a database containing 1,922 references. However, during the screening process, additional duplicates were manually identified. These had not been identified during the initial trawl because author details had been imported inconsistently. Thus, subsequent to the screening process the master database was manually searched for duplicates and additional duplicates were also excluded. The removal of duplicate references reduced the number of potential studies for inclusion in the in-depth review to 1,836.

Screening by title, abstract and full-text entailed removing all references that met one or more of the exclusion criteria into one of a set of seven databases that corresponded to the exclusion criteria ii. – viii. listed above. The exclusion criteria were applied hierarchically and articles were excluded on the basis of the first criterion met.

At this stage, it became apparent that a minimal number of references had been imported incorrectly into the master file. Thus, an additional database entitled 'irrelevant' was created to store irrelevant references that had been imported inadvertently. This database comprised references that did not meet any of the inclusion or exclusion criteria, but had been identified and imported because they contained text that shared the same or similar terms to those associated with the in-depth literature review. For example, a few studies concerning psychiatric interventions for students in higher education had been mistakenly imported into the master file.

References that met all of the inclusion criteria for the in-depth review and none of the exclusion criteria were exported into a database named 'Inclusion'. The number of references in 'Inclusion' at this stage totalled 76. The full texts for each of the documents were then obtained from library resource centres at the University of Warwick and the University of Derby. Documents that were unavailable at these locations were obtained from the British Library. A further 29 studies were excluded after the full texts had been obtained.

Eighty-one potential references were identified during the selected website searches, which were screened by title, abstract and then full-text. Eight texts could not be obtained within the timescale. Seven empirical studies were included in the review. The National Learning Resource for Guidance (NLRG) at the University of Derby was also

searched as a comprehensive resource on guidance literature using some keywords. From the 138 references found using a keyword search, 76 were identified as potential inclusions so were screened by title and abstract. Four of these references were then included in the review. Finally, 11 studies were identified by personal contacts and colleagues and of these, two were included in the in-depth review.

Table 5, below, summarises the searching and screening process from various sources, including the databases, websites, NLRG and additional documents identified by colleagues.

**Table 5 Number of references searched, included and excluded**

	Source			
	Databases	Websites	NLRG	Additional documents provided by contacts
Initial search	388,057			
further keywords applied to refine search	18,169			
on-line screening (added to Reference Manager )	3,089		138	
number of duplicates	1,253			
Abstract and titles screened (1)	1,836		76	
Studies for potential inclusion	76	81	17	11
Full-text screened (2)	30	74	13	9
<b>Final studies for inclusion</b>	<b>46</b>	<b>7</b>	<b>4</b>	<b>2</b>
Total number excluded:	1,790	74	13	7
exclusion 2	256		3	2
exclusion 3	160	23	4	3
exclusion 4	139			
exclusion 5	639	38	4	1
exclusion 6	263	3	2	
exclusion 7	105			
exclusion 8	157	1		1
irrelevant	26	1		
unable to obtain	45*	8B		

\* Includes 20 references that were included for screening from the Emerald database, but were unobtainable when the database changed during the review process. Eight possible inclusions were identified, but the full text could not be obtained in time for data extraction, and 17 studies were unobtainable (including reports and conference papers which were not available on the internet, references in which a lack of information was imported to make a reliable decision and further information could not be found).

## 2.4 Data extraction

The research team developed and agreed an instrument designed to provide a framework for extracting, assessing and analysing the data contained within the

included studies (see Appendix 3). The instrument was designed to support the process of synthesising and reporting the review findings and report writing. It was used in this review to reduce any bias from the processes that mediate the research process and production<sup>12</sup>. The data extraction instrument included a series of structured questions and comprises five sections:

- i. bibliographic information;
- ii. focus of the study;
- iii. methodology;
- iv. findings; and
- v. analysis

The series of structured questions within each section were designed to ensure that the review team extracted the data consistently.

The quality of the studies and the evidence produced were assessed by an analysis of the strengths and limitations of the empirical studies, which were included in the 'Methodology' section of the data-extraction instrument. The EPPI-Centre identified the following three components to help assess the quality of studies in terms of 'weight of evidence' and were used in this review:

- i. the soundness of studies (internal methodological coherence), based upon the study only;
- ii. the appropriateness of the research design and analysis used for answering the review question;
- iii. the relevance of the study topic focus (from the sample, measures, scenario, or other indicator of the focus of the study) to the review question.

The 'weight of evidence' within each study was addressed in the final section of the data-extraction instrument, the analysis section. The aim was to identify the available evidence in support of the review question and sub-question focusing on:

- the curricular and extra curricular interventions identified and their aims;
- the evidence demonstrating that the curricular or extra-curricular interventions *assist* career decision-making, learning and occupational progression; and

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<sup>12</sup> See for example: Wallace, A., Croucher, K., Quilgars, D. and Baldwin, S. (2004). Meeting the challenge: developing systematic reviewing in social policy, *Policy and Politics* 32(4): 455-470.

- the evidence demonstrating that the curricular or extra-curricular interventions *fail to assist* students.

The final question in the analysis section focused on the review sub-question:

- evidence of social, economic or demographic factors that influence interventions aimed at assisting career decision-making, learning and occupational progression.

Each data extraction was used to draw out key themes in the evidence as part of the synthesis stage of the review process.

## 2.5 Synthesis

From the systematic review of the literature, using the key word search, 59 studies were identified for in-depth study. Countries of origin included the United Kingdom, the United States, Canada, Taiwan, Brazil, Europe and Australia.

The data were synthesised according to emergent themes that relate to the underlying concepts of the review question and sub-questions. These themes are:

### **Specialist career-related interventions**

Studies of various specialist career interventions included:

- Career courses/modules
- Computer-aided guidance
- One-to-one interventions
- E-guidance

### **Curricular interventions to support vocational trajectories and lifelong learning**

Research into various types of curricular interventions that support specific vocational trajectories included:

- Selection of clinical specialism in medicine
- Entry into and progression in teaching
- Master courses
- Strategies for securing employment
- Curriculum design

### **Curricular-related interventions**

A body of literature relating to the use of curricular-related interventions that support career decidedness, career learning and career progression included:

- Mentoring
- Shadowing

### **Extra-curricular interventions**

Extra-curricular interventions included:

- Work placements
- Internships
- Structure use of part time and vacation employment experience.

### **Pre-entry curricular interventions**

Various interventions have been studied which were designed to support students, particularly under-represented groups (e.g. minority ethnic groups and groups that suffer from socio-economic disadvantage) in various ways progress towards aspirational career goals. These include those designed to:

- Promote higher education to under-represented groups
- Challenging occupational stereotypes
- Widening access to higher education
- Extra-curricular pre-entry interventions

### **Multicultural curriculum interventions**

A small number of studies have been published which focus on the value of developing a multicultural approach to curricular interventions for under-represented groups in higher education.



## **Section 3: Strengths and limitations of a systematic review process**

This review has provided a sound evidence base on curricular and extra-curricular interventions assisting career decision-making, career learning and occupational progression for practitioners, researchers and policy-makers. Strengths and limitations of the review process have been learnt during previous reviews<sup>13</sup> and this section considers these, together with the overall effects of the applied criteria.

### **3.1 Strengths of the review**

The underpinning principles and key concepts used were adapted from the work of the EPPI-Centre at the Institute of Education, University of London. Crucial to the process is the rigorous monitoring and recording of all the references selected and screened. Although the systematic review methodology is time consuming, labour intensive and driven by process, it provides a sound framework for undertaking a comprehensive, objective and transparent assessment of available research. All references used in this literature review were screened online prior to being exported to Reference Manager. This proved to be an invaluable part of the process as it enabled the research team to gain familiarity with the references, help identify when a database had been exhausted, and also gain a greater understanding of emerging evidence.

The systematic review methodology is designed to reduce any unintended bias, which may occur in the use of other review methodologies. The application of a clearly defined search strategy (i.e. the identification of keywords and search strings) ensured that the research team were consistently searching with the same understanding and were able to moderate the process. The development and application of agreed inclusion and exclusion criteria in this way has therefore ensured that the results of the review are objective and unbiased. Additionally, the process ensures that the studies selected and included in the review address the research question and sub-question. Consequently, the process has assisted with the identification of both potential gaps in the existing research and areas for future reviews to inform elements of the longitudinal study.

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<sup>13</sup> See for example, Hughes, D., Bimrose, J., Barnes, S-A., Bowes, L. and Orton, M. (2005). *A Systematic Literature Review of Research into Career Development Interventions for Workforce Development*. Derby: Centre for Guidance Studies, University of Derby.

The EPPI systematic literature review methodology has been criticised as it “adheres too closely with one research paradigm [and], is mechanical...”<sup>14</sup>. Contrary to the strict EPPI guidelines, the team of researchers undertaking this review have played central and critical roles in the process. This has been a significant strength and addresses many criticisms to which the EPPI approach is vulnerable when applied in a more mechanistic way<sup>15</sup>. The latter downplays the role of researcher judgment and does not build on other reviews that may be useful. Throughout this review, the researcher has been regarded as an integral part of the process by exercising professional judgements, in discussion with other research team members, as to what should be included, together with what is considered as a curricular and extra-curricular interventions. The systematic review methodology has, therefore, not been followed uncritically.

Finally, it is important to note that the review has successfully identified over 1,800 references relevant to the field of curricular and extra curricular interventions, which will be of future use in this field of study. Fifty-nine studies on curricular and extra-curricular interventions assisting career decision-making, career learning and occupational progression have been successfully identified, including examples from across the world. Evidence gaps have also been identified, with the potential for existing knowledge to be extended in a way that deepens understanding of curricular interventions and their influences on decision-making and learning.

### **3.2 Limitations of the review**

As with any method of literature review, the systematic review process has its limitations. Some relevant to this review include: accuracy; unobtainable texts; timeframe restrictions; and technical difficulties:

- Whilst, the process makes every effort to include all materials relevant to the research question and sub-question, some studies may not have been identified due to poor key wording imposed by the editorial process in the databases.
- Although every endeavour was made to obtain all materials considered relevant to the research question and sub-question, some texts (53 in total) were excluded simply because of lack of availability or changes in access to the

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<sup>14</sup> Wallace *et al.* 2004, page 456.

<sup>15</sup> See for example: MacLure, M. (2004). ‘*Clarity bordering on stupidity*’: *Where’s the quality in systematic review?* Paper presented to the British Educational Research Association Annual Conference, Manchester.

databases. For example, not all references are available electronically and obtaining these texts proved time-consuming, particularly when operating within a restricted timeframe. Texts relevant to the process were ordered as soon as they were identified, so this stage of the review process was not discrete.

- The review was limited to a certain extent due to the restricted timeframe and budget, so a selected number of databases and websites were searched. The research team is, however, confident that all selected databases were searched to their full extent and that few, if any, new references of any relevance would have been identified had the team persevered with the searches.
- Finally, databases with which technical difficulties have been experienced by the team were not searched as would have been too time consuming. For example, during the initial searching phase, several texts were identified in the Emerald database, but changes to access meant that these texts could not be obtained for the screening process.

### **3.3 Overall effects of the applied criteria**

A total of 59 empirical studies were selected from the original 18,189 references identified for inclusion in the in-depth review. This was the result of progressive focusing that is both essential to the systematic review process and ensures that the evidence addresses the review question and sub-question. Literature was excluded from the review based on the exclusion criteria, which ensured a focussed review answering the question.

From the empirical studies collected it appears that that much of the evidence relates to on-course curricular and extra-curricular interventions. Relatively little evidence was found on career-related pre-entry interventions and interventions for graduates. However, this finding may be partly a result of the applied inclusion and exclusion criteria in the review process.

Studies which did not focus on pre-entry students, undergraduates or graduates were excluded. For instance, a career-related intervention for young people that was not specifically designed to support entry to and/or progression within higher education would have been excluded under exclusion criteria 6. Furthermore, many studies that focused on the generic learning experiences and/or the career progression of students, without evidence of an intervention, were excluded.

Defining and searching for 'extra-curricular' interventions has been complex. This term is broad and encompasses a variety of activities. Researcher judgement has therefore been critical to the process of identifying activities categorised under this heading. Curricular interventions were easier to define. Overall, similar numbers of studies on these two types of interventions were included in the review.

Although there is a substantial literature on different curricular and extra-curricular (broadly defined) interventions which may influence students' learning, progression and career-decision making, evidence relating to the efficacy of these interventions is limited. This limitation is reflected in the review. The efficacy of these interventions is often presented in terms of respondents' perceptions of their situation and self-awareness of abilities and confidence.

Conclusions that can be drawn from the review are limited due, at least in part, to the nature of the research available, particularly in relation to:

- Problems defining 'curricular' and 'extra-curricular' interventions;
- Limited evidence on the influence and efficacy of these interventions; and
- Often impressionistic reporting of soft outcomes from these interventions.

## **Section 4: Curricular and extra-curricular interventions**

This section examines the body of evidence which has emerged from the literature review related to the main question. Six themes have been identified: career-related interventions; curricular interventions to support vocational trajectories; curricular-related interventions; extra-curricular interventions; pre-entry curricular interventions; and multicultural curricular interventions. Each of these is discussed below.

### **4.1 Specialist career-related interventions**

Research into specialist career interventions include: careers courses and modules; computer aided guidance programs, one-to-one careers interventions and e-guidance.

#### **4.1.1 Career courses/modules**

Eight research studies into the effectiveness of specialist career, curricular-based interventions are included in the review which have focused on enhancing student career management and professional skills, and/or a particular subject areas, like business, psychology, medicine and management (Huiling, 2001; Hustler *et al.*, 1998; Leong *et al.*, 2005; Miller and Liciardi, 2003; Thomas and McDaniel, 2004; Uzoamaka *et al.*, 2000; Viitanen, 2001; Wessel *et al.*, 2003).

- Three studies examined the impact of career curricular interventions designed to enhance career decision-making. One of these investigated the relative merits of two contrasting approaches for first-year business students (Huiling, 2001). A conventional training in career decision-making skills was compared with a cognitive re-structuring intervention. Mentoring and the completion of a personal career plan were common elements. Positive benefits from both types of curricular interventions were found, with no significant differences between the two experimental groups.

The second study, by Thomas and McDaniel (2004), investigated the impact of the introduction of a career planning course as a compulsory component of a Psychology degree. The objectives of this course were to increase awareness of opportunities; build confidence and support the development of occupational identity. Results revealed that this curricular intervention achieved all of its goals.

The third study investigated a 'career planning and development' module implemented in one university in response to the relatively poor employment outcomes of its graduates (Miller and Liciardi, 2003). The module developed job

search skills and self awareness, as well as helping students achieve their employment goals. The module was evaluated as successful since students learned that goal setting and long-term career plans allowed them to take control and manage their career development.

- Leong *et al.* (2005) evaluated the impact of a two-session workshop designed to support career speciality choice for second-year medical students. In particular, they examined the relationships between measured career speciality interests, work values and personality types. They found that two distinct student sub-groups opted in for the sessions – one had already decided on their career speciality and the other was undecided. Whilst both groups benefited from the workshops, those who were decided about their specialism reported a higher level of satisfaction.
- A 'career success club' module aimed at increasing students' career maturity and was found to be a positive influence (Wessel *et al.*, 2003). The module: assessed skills, values and interests; explored career options; developed job search skills; helped with career-related work experience; supported postgraduate study and full-time employment; and promoted lifelong career management. Students who completed the module were more likely to have a career objective; persist in academic goals; gain career related work experience; and find employment.
- An investigation into how relevant skills are transmitted and relate to effective career management was undertaken with management graduates by Uzoamaka *et al.* (2000). They found that the acquisition and utilization of skills relating to self-knowledge, interpersonal knowledge and environmental knowledge are associated with personal learning, goal setting, career strategies and career decision-making. Moreover, these skills were associated with effective career management.
- Hustler *et al.* (1998) examined the factors which both inhibit and enhance a student's career management skills within a structured programme. Factors found to support the development of these skills included an early intervention that is embedded in the curriculum and has strong employer involvement.
- An evaluation of a professional development training programme for higher education students to complement the degree system produced positive results (Viitanen, 2001). The professional development programme was aimed at

welfare and healthcare services management students and was successful in promoting managerial skills, creating a better understanding of the field and increasing knowledge of networking.

#### **4.1.2 Computer-aided guidance**

The use of computer technology in career interventions has become standardized practice. However, whilst its potential use, limitations and cost-benefits have been widely discussed, less emphasis has been placed on investigating their effectiveness. Two studies have compared the effectiveness of different types of career computer programs (Wei-Chang, 1999) and examined their use as a supplement to practitioner-based interventions in contrast to a 'stand alone' service (Eveland *et al.*, 1997).

- Wei-Chang (1999) set out to investigate the relative value of different types of computer-assisted career programs designed to achieve different outcomes, specifically: career decision-making; self-directed search; and occupational/career exploration. Positive effects on undergraduates of all the programs investigated were found. However, students preferred the computer intervention designed to support self-directed search and user satisfaction ratings did not necessarily correlate with objective measurement of benefits.
- The efficacy of a computer program designed to increase career decidedness, with and without practitioner support, was the focus of a study by Eveland *et al.* (1998). Variations according to age, gender and ethnicity were also explored. It was found that both the computer only and computer plus practitioner interventions were effective in significantly increasing career decidedness. However, the computer plus practitioner intervention proved to be most beneficial.

#### **4.1.3 One-to-one interventions**

Six studies focused on the value of one-to-one advice and guidance interventions for different populations of higher education students (Bimrose *et al.* 2004; Carter *et al.*, 2003; DfEE/CSU/AGCAS/IER, 1999; Marsland, 2001; Morely *et al.*, 2003; Purcell *et al.*, 2005).

- Morey *et al.* (2003) examined higher education career services and how they can enhance the employability of graduates from disadvantaged backgrounds, including: ethnic minority students; students with a disability; and students from a lower socio-economic background. Graduates did not want to be identified as

disadvantaged, or receive special treatment, though students with disabilities reported dissatisfaction when practitioners did not have specialist knowledge.

Interventions and activities studied included: one-to-one advice, presentations on career planning and employability linked to the curriculum; job shops; employer fairs; work experiences opportunities (again embedded in the curriculum); and mentoring. Career planning and employability presentations were successful in raising students' awareness of transferable skills, helping students' transition from education to work, assisting students reflect on their abilities and encourage students' to articulate their employability. University job shops and mentoring were also successful methods of supporting students' career learning and career progression.

- A further study examined the relationship between students from different ethnic backgrounds and their experiences of career counselling (Carter *et al.*, 2003). It was found that only those minority ethnic students who attended career counselling frequently reported positive outcomes.
- Pre-entry career guidance for nurses qualifying from the pre-registration diploma course leading to higher education was found to support career development (Marsland, 2001). Guidance was received on career planning and strategies to inform career plans. One-to-one interventions enabled nurses to develop fulfilling careers, benefiting both recruitment and retention.
- One-to-one guidance interventions were highly valued by higher education students (Bimrose *et al.*, 2004). In exploring how effective guidance is practised, 'effective' was defined in this study as what was found 'useful' to clients, judged independently by clients, practitioners and expert witnesses. Useful guidance was defined as: supporting positive outcomes for the client; providing access to expert knowledge, information and networks; promoting constructive change in the client; and, overall, providing the client with a positive experience.
- A survey of graduates three years after their graduation asked them to reflect upon the careers services (DfEE/CSU/AGCAS/IER, 1999). Respondents thought that the careers service, over the longer term, could be of benefit to those who are unclear about their options on leaving higher education. Early intervention on the part of the careers service was recommended.



- However, more recent research (Purcell *et al.*, 2005) suggests that although the careers service is a popular source of information, half of the respondents had not found the service useful. Those students in greatest need of help (including those with poor degree results and less marketable degree subjects) were least likely to have used the careers service.

#### **4.1.4 E-guidance**

- A pilot of e-guidance services in higher education, which rationalised previously disparate email services into a streamlined, monitored system has produced positive results (Madahar and Offer, 2004). This intervention is regarded as an integral part of existing careers guidance services and is used variously as preparatory to face-to-face interviews or linking with existing curricular modules.

## **4.2 Curricular interventions to support vocational trajectories**

Evidence exists from various studies into the influence of curricular interventions in supporting vocational trajectories. Some have been designed to support particular vocational trajectories, like medical careers (Dunn *et al.*, 1998; Elnicki *et al.*, 1999; Harrigan *et al.*, 2003; Holmes, 2002; Sobral, 2001; White, 1999; Wright *et al.* 1997) or teaching (Cushner and Mahon, 2002; Kelley, 2004; Weinberger, 2000). The value of various Masters degrees in supporting career transition has been studied by Bowman *et al.*, (2005), whilst strategies and activities employed by students to secure employment after graduation have also been scrutinized (Xiang *et al.*, 2004). Finally, research into curriculum structure, content and assessment has provided indicators of course enhancement (Candy, 2000; Clarke *et al.*, 2001).

### **4.2.1 Selection of clinical specialism in medical careers**

Different types of curricular interventions have been designed both to support the selection of clinical specialism in medical careers and address labour shortages (Dunn *et al.*, 1998; Elnicki *et al.*, 1999; Sobral, 2001; Wright *et al.* 1997).

- Three studies have focused on the role of different types of curricular interventions on the choices of medical specialism. First, an exploration of influences on the career choice of medical students showed that the experience of selective traineeships exercised a stronger influence than personal factors (like gender and early career preference) or one other curricular intervention (that is, cross-year clinical tutoring by peers) (Sobral, 2001).

Findings from this study confirm those from a second study (Elnicki *et al.*, 1999) into the impact of early clinical experience in a shortage area. This was found to benefit students academically and increase their interest in the shortage area.

Third, the relative merits of mandatory compared with elective research training in supporting career interest in academic surgery were examined by Dunn *et al.* (1998). Results indicated that residents with a strong interest in research are more productive and more likely to continue into academic surgery after residency.

- A curricular-related intervention found to have a positive influence on choice of clinical specialism was that of attachment to tutor role models. Wright *et al.* (1997) found that personality, teaching ability and clinical skills were most important in the selection of a role model and that the majority of students received career counselling and advice from these role models.

#### **4.2.2 Entry into and progression within teaching**

Three studies examined interventions that had supported both newly qualified teachers entering the profession and those with experience:

- An assessment of the impact of international teaching experiences on student teachers' professional and personal development was undertaken by Cushner and Mahon (2002). Student teachers participated in placements across the world to develop their intercultural skills, away from their traditional support networks. They reported both personal development (such as increased self-efficacy) and professional development (such as global-mindedness and increased cultural awareness). The overseas experiences were found to be a catalyst for further learning and learning from others.
- To support the induction and long-term retention of newly qualified teachers, a partnership programme between a university and various schools was implemented. An evaluation of this programme over the longer term revealed that it was successful in influencing teacher effectiveness, retention and progression within the profession (Kelley, 2004).
- Weinberger (2000) found that qualified and experienced teachers, who had successfully completed a Masters course in literacy by distance learning thought that this course had a direct bearing on either their change of job or development of their existing job.

#### **4.2.3 Masters courses**

Masters courses have been found to support career decision-making and learning in various ways:

- Bowman *et al.* (2005) investigated the impact of a range of different Masters courses on graduate progression into the labour market. They found that students on these courses were engaged in prolonged transitions that involved learning about themselves, their place in the world and constructing their employment identity. Masters' tutors, in particular, were found to be influential in decisions about future career trajectories. On vocational Masters courses, these tutors supported student progression into related occupations

#### **4.2.4 Strategies to secure employment**

- The strategies used by Management Information Systems (MIS) students to secure employment after graduation were examined by Xiang *et al.* (2004). As the IT economy is slowing, MIS graduates have been adopting several strategies to ensure employment, including participation in a MIS internship, completing double majors and undertaking more technical coursework. All three strategies were found to be successful in securing employment and being offered more full-time employment opportunities.

#### **4.2.5 Curriculum design**

- Candy (2000) identified five elements which encouraged and supported lifelong learning. These comprised: curriculum content; curriculum structure; teaching methods; assessment approaches; and the place of student support services. Institutional linkages to the adult education sector and supported graduate learning experiences strengthened the positive impact of these elements.
- A study of the impact of educational technology on students' learning, ability to get a job and expected job performance was reported as positive (Clarke *et al.*, 2001). Educational technology provided the use of an online syllabus, internet projects, online homework assignments, plus lecture outlines online.

### **4.3 Curricular-related interventions**

Research findings indicate that mentoring and shadowing have been used successfully to support career decidedness, career learning and/or career progression.

#### 4.3.1 Mentoring

Mentoring has been used for career-related purposes with under-represented groups. Specifically, it has been used to support both the entry of women into science and minority ethnic students into academia (Dixon-Reeves, 2003; Hill *et al.*, 1999; Marko and Savickas, 1998; Morey *et al.*, 2003; Packard, 2003).

- A mentoring programme designed to support minority ethnic students in preparing for careers in academia in psychology used members of academic staff as mentors. The success of this particular use of mentoring is attributed to the mentoring support being combined with student financial assistance (Marko and Savickas, 1998).

Similar evidence was reported by Dixon-Reeves (2003) in a study of mentoring for ethnic minority doctoral students and female students. Mentoring facilitated career advancement, enhanced networking opportunities and increased professional development activities.

In a further study (Hill *et al.*, 1999) mentoring was found to build resources to facilitate students' ability to enter and prosper in academia.

Finally, mentoring was found to be successful method of helping students from disadvantaged backgrounds with career learning and career progression by increasing their employability (Morey *et al.*, 2003).

- Composite mentoring (the strategic selection of a diverse set of mentors) has been used to support women into scientific careers (Packard, 2003). Despite already being students on scientific courses, women participating in the scheme studied had expressed concern about choosing a career in sciences and/or had experienced difficulty identifying with available mentors. These combined difficulties had resulted in their considering leaving science. Training support in selecting and negotiating appropriate composite mentoring support was found to be a key element for successful outcomes.

Additionally, methods for maximising benefits from mentoring for career development have been studied (Richard *et al.*, 2002).

- A study of mentoring for business students assumed benefits in terms of career mobility, satisfaction, commitment and promotion, so set out to identify factors to maximise its effectiveness (Richard *et al.*, 2002). Two were found. Participants

regarded their mentoring relationship positively when they felt that the process had taken their views and preferences into account (procedural voice) and when they perceived task allocation to be fair (distributive justice).

One study into a nurse mentoring scheme has focused on its effectiveness to support professional career development (Sword *et al.*, 2002).

- The use of 'mentorship' for role and career development in nurse education was evaluated positively by Sword *et al.* (2002). This scheme involved the use of alumni from the same nursing programme to mentor student nurses. Students valued this arrangement because it helped them to make personal, academic and career decisions. Additionally, alumni gained career benefits from sharing their professional knowledge and expertise.

#### **4.3.2 Shadowing**

The use of shadowing for a purposes similar to mentoring within nurse training has also been explored (Paskiewicz, 2002).

- Clinical shadowing (as an observational experience) was used to develop career goals. In particular, positive effects included the reinforcement of the need for life-long learning and progression into graduate education (Paskiewicz, 2002).

#### **4.4 Extra-curricular interventions**

Extra-curricular interventions are used in various ways to support career learning, increase employability, develop decision-making skills; secure employment and develop transition skills. These interventions include work placement, internships and structured workplace learning:

- A work placement year for human resource management students was re-designed to accommodate their applications for membership of a professional association (Chartered Institute of Personnel Development). This has supported what is regarded as a more strategic career decision-making process for students (Morgan and Turner, 2000).

The supervised work experience placement of university students in the hospitality sector was considered successful where a good relationship operated between the universities, the students and businesses in the sector (McMahon

and Quinn, 1995). The work experience influenced whether students choose a career in the hospitality sector.

Three studies (Busby, 2003; Callanan and Benzing, 2004; Gault *et al.*, 2000) emphasise the early careers advantages and successes of interns compared to non-interns, highlighting skills development relevant to career goals, better starting salaries, job satisfaction and gaining their first job faster:

- A 'tourism internship' has been used to achieve a number of objectives, one of which is to develop attitudes and standards appropriate to career objectives (Busby, 2003). Students reported that over the year of the industry placement, they had been able to clarify their career intentions and develop skills relevant to career aspirations. It was also noted that some providers used internships to select staff for employment.

A significant relationship between early career success and past participation in an internship was also reported by Gault *et al.* (2000). Students who had undertaken an internship entered the labour market faster than those who had not. Interns also experienced increased monetary compensation and greater overall job satisfaction.

Callanan and Benzing (2004) reported the benefits of students completing an internship prior to graduation and subsequent employment in a career-orientated job after graduation. Internships enabled students to explore the environment and their personal fit, so was viewed as an important tool in the career management process. Students believed that their confidence had increased as a direct result.

Structured work-place learning has also been used to support career progression. For example:

- Part-time and vacation employment was used to develop transferable skills and employability. A 'workfile' was used which recorded relevant skills and attributes (Davies, 2000). This method was found to be successful in developing graduate employability skills.

Supervised work experience of undergraduate students was also reported to be successful as this developed their employability skills. A survey of graduates by CSU/AGCAS/IER (1999) assessed whether the 1995 graduates had met their career development expectations 18 months after their graduation. Evidence

stressed the importance of work experience in developing graduates' employability skills and enabling them to obtain appropriate employment.

## **4.5 Pre-entry curricular interventions**

### **4.5.1 Promoting higher education to under-represented groups**

Six studies focused on pre-entry (to higher education) interventions have been studied which were designed to promote higher education to under-represented minority ethnic groups and support students from underprivileged educational backgrounds and/or suffering financial hardship with their career progression:

- Focus groups and a postal survey were used by Harrigan *et al.* (2003) to collect data from under-represented minority ethnic groups on barriers preventing entry to nurse training. From data collected, recommendations were formulated that were designed to encourage and support the career decision-making of members of the targeted groups. These included academic counsellors, financial support and a wide range of career guidance support programmes.
- A pilot study has demonstrated how support from local undergraduate medical and dental students, as part of a structured school/college based programme, resulted in an increase of academically able students from (socio-economically) underprivileged educational backgrounds progressing to study medicine and dentistry (Kamali *et al.*, 2000).
- Timms (2001) investigated the role of the careers guidance that was offered to new students in receipt of financial awards to assess its value. Students wanted confirmation that their course would fit with their plans. After the career interviews, students reported increased motivation to continue with their studies. Financial awards were seen as offering positive support to students who are facing financial difficulties related to unemployment, low pay or disability.
- A 'school to work' programme for students from a district with poor educational provision aimed to influence students' decisions to enter and progress through higher education was evaluated by Maxwell (2001). The programme involved students entering an academy as preparation for higher education. It was effective in increasing successful completions and reducing the number of withdrawing from higher education.

- McGrath and Millen (2003) examined the factors affecting the choices of 16-19 years olds in full-time education at all stages of their entry into higher education. Factors examined included parental influences, financial factors and environmental factors. The careers adviser intervention was not found to be as influential on young people's choices as their personal tutor. Young people interested in higher education said they required more information about financial support.
- Differences in learning and career progression were found between students from high and low socio-economic groups (classified by parental income) (Cooter *et al.*, 2004). This study concluded that financial concerns influenced students' career choice. Students who were provided with financial assistance to pursue a medical education successfully completed their courses.

#### **4.5.2 Challenging occupational stereotypes**

In nurse training, research has been undertaken into barriers to choice of clinical areas suffering shortages (White, 1999).

- The impact of clinical experiences during pre-registration diploma in nursing courses on career choice have been investigated by White (1999) who concluded that students used preconceived, stereotypical images and expectations about nursing which they relied on for job selection, unless changed by personal experience during their course.

#### **4.5.3 Access courses**

Access courses assist career learning and progression in various ways for targeted student groups:

- A widening access to medicine course for mature students was studied to ascertain its role in supporting student career progression (Holmes, 2002). Not only was this course successful in supporting an increased proportion of students progressing into medical school over a four year period, but also a higher than expected proportion of students from socioeconomic groups IV and V successfully completed.
- The increased level of risk-taking required of mature women from working class backgrounds to progress into higher education has been investigated by Reay (2003). Whilst Access to higher education courses were found to be a qualified success in supporting some of the women to progress within a recommended



time-frame, most either took significantly longer or failed to complete. This slower completion rate, and failure, is attributed to the lack of support and resources.

- An Access to higher education course was being used by students to escape labour market marginalisation and navigate socio-economic disadvantage (Warmington, 2003). Because of the belief by students in the dominance of the qualification system, the Access course was regarded as the means to career progression as it helped gain entrance to (higher) education, which gave access to higher status employment and so achieved social inclusion.

#### **4.5.4 Extra-curricular pre-entry interventions**

Two studies examined the role of extra-curricular pre-entry interventions that supported career decision-making:

- A study of gap years found that this intervention helps students in forming and developing their careers choices (Jones, 2004). A range of benefits for young people participating in a gap year were identified as: improved educational performance; better developed career choices; improved employability and opportunities; acquisition of non-academic skills and qualifications; increased life skills; and the development of social values.
- A pre-entry intervention led participants through a discussion of their vocational interests which supported subject choice and occupational choices. This was found to be successful in helping career undecided women identify the barriers to their career decision-making (Tinsley *et al.*, 2002).

#### **4.6 Multicultural curricular interventions**

Five studies emphasise the value of developing a multicultural approach to curricular interventions in higher education that support career progression.

- A study of higher education in seven European countries found that guidance and counselling had strategic importance in widening access, supporting learning and assisting progression into employment (Bimrose, 1996). A key recommendation related to the need for guidance and counselling to take account of multi-cultural influences on students and adapt practice accordingly.

- Research into barriers facing minority ethnic groups under-represented in the health professions developed an investigative approach that modelled good multicultural practice. For example, community elders and parents were consulted about their views in focus groups (Harrigan *et al.*, 2003).
- A mentoring programme designed to support the progression of minority ethnic students into academic careers, models best practice as reflected in multicultural guidelines for the recruitment and retention of minority ethnic staff (Marko and Savickas, 1998).
- A further study of mentoring and role models supporting ethnic minority students extolled the value of such interventions as supporting students with their career decision-making processes (Lease, 2004).
- A university-based intervention, designed to support ethnic minority students into science, engineering and mathematics (SEM) has proved successful (Maton *et al.*, 2000). Students from this programme were more likely to graduate successfully, achieve good grades and progress into SEM graduate courses. Features of this programme included good practice in multicultural curricular approaches (including the formation of a programme community, involvement of parents, positive mentoring, peer support and financial assistance).

## Section 5: Social, economic and demographic factors

This section of the report examines evidence related to the review sub-question, which focuses on social, economic, demographic and other factors that appear to impact upon career decision-making, career learning and occupational progression of students and graduates both into and out of higher education. Since the studies identified in the review did not take gender, age or ethnicity as their prime focus, the evidence is not substantial. However, the review methodology has highlighted the influences of these factors, where they were identified in the studies.

Five themes relevant to the sub-question have been identified: gender; ethnicity and race; socio-economic factors; cross-cutting factors; and environmental factors. Some studies focused specifically on the impact of particular factors, like social, economic or demographic. For instance:

- gendered choices and decisions were the focus of Purcell and Elias (2004), Takruri-Rizk and Jensen (2005), plus Tinsley *et al.* (2002);
- ethnicity and race were the focus of studies by Carter *et al.* (2003), Hill *et al.*, (1999) and Lease (2004);
- socio-economic factors were investigated by Cooter *et al.* (2004) and Maxwell (2001).

No studies were identified that specifically identified disability or age (see evidence for cross-cutting factors), or environmental factors.

Other studies include some evidence that addresses the sub-question (DfEE/CSU/AGCAS/IER, 1999; McGrath and Millen, 2003; Morey *et al.*, 2003; and Xiang *et al.* 2004).

### 5.1 Gender

Evidence about the impact of gender on career-related decisions and learning emerges from the literature. Studies relate to new graduates (both men and women) (DfEE/CSU/AGCAS/IER, 1999; Purcell and Elias, 2004; Takruri-Rizk and Jensen, 2005; Xiang *et al.*, 2004); women returners (Tinsley *et al.*, 2002); undergraduates (Huiling, 2001; Leong *et al.*, 2005; Packard, 2003; Sobral, 2001; Wei-Chang, 1999); and generic student populations (Madahar and Offer, 2004).

**New graduates:**

- A study of the experiences of graduates three years after graduation who qualified in 1995 reported that employment in a non-graduate occupation is not only associated with gender, but also degree subject, low entry qualifications and degree class (DfEE/CSU/AGCAS/IER, 1999). It concluded that women are more likely to be employed within an occupation using their degree subject than men.
- These findings are supported by Purcell and Elias (2004) who examined the relationship between the career aspirations of UK graduates, the availability of suitable jobs, gendered choices and constraints facing both women and men. A strong relationship was found between gender and subject choice, and gender and employment.
- In another study of recent graduates, both women and men were asked to identify barriers to women studying and working in engineering. Takruri-Rizk and Jensen (2005) focused on the cultural perceptions of women, working practices and access to career advice. Family members working in the engineering sector emerged as a significant influence on women's decisions to study and enter engineering. Industrial placements proved particularly useful to women starting an engineering career.
- Although not the focus of the study, Xiang *et al.* (2004) investigated the interplay between gender and various curricular and extra-curricular interventions on full-time MIS job opportunities and salary levels. However, no gender interactions were found. Female MIS students received the same number of MIS full-time job offers as their male counterparts, and also received similar initial salary level offers.

**Women returners:**

- A structured career intervention, designed to support women returners, identified barriers to career-decision making and explored vocational interests (Tinsley *et al.*, 2002). This extra-curricular intervention helped participants gain occupational knowledge, increase self awareness, clarify occupational identity and select a course. However, effectiveness varied according to the women's cognitive ability. That is, women who used rational decision-making processes and inner experiences reported greater benefits than those who used intuitive decision-making, external information processing or were more flexible and spontaneous. Overall, however, the research demonstrated the effectiveness of

the intervention for women who were undecided about their career, regardless of their cognitive processing.

***Undergraduates:***

- The benefits of a conventional training in career decision-making skills were compared with a cognitive re-structuring intervention (Huiling, 2001). Mentoring and the completion of a personal career plan were elements common to both interventions. Positive benefits from both types of curricular interventions were found. No evidence was found to suggest that gender affected career indecision.
- Leong *et al.* (2005) investigated the impact of a two-session workshop designed to support career speciality choice for second-year medical students. In particular, they examined the relationships between measured career speciality interests, work values and personality types. Significant gender differences emerged between scores on a measure of medical speciality preference and of work values and personality.
- Composite mentoring (the strategic selection of a diverse set of mentors) has been used to support women to continue from their courses into scientific careers (Packard, 2003). The women had experienced difficulties that had resulted in their considering leaving science. A composite mentoring scheme was introduced and found to have a positive impact.
- An exploration of influences on the career choice of medical students showed that the experience of selective traineeships exercised a stronger influence than personal factors (like gender and early career preference) or one other curricular intervention (that is, cross-year clinical tutoring by peers) (Sobral, 2001).
- No gender differences were found in a study by Wei-Chang (1999) who set out to examine the impact of different types of computer-assisted career programs. Positive effects on undergraduates were found of all the programs investigated.

***Generic student populations:***

- An e-guidance pilot in higher education has yielded positive results (Madahar and Offer, 2004). No gender differences in usage have, as yet, emerged. Whilst still at a relatively early stage of implementation, two success indicators (customer satisfaction and range and reach) both suggest this initiative has the potential to make a positive impact on career decision-making and progression.

## 5.2 Ethnicity and race

Like gender, ethnicity and race emerge as strong influences on career decision-making, career learning and occupational progression. Evidence examines the impact of particular interventions, like mentoring; career counselling; and higher education career services. It also explores barriers faced by minority ethnic groups.

### ***Mentoring:***

- The impact of mentoring on students' career decision-making was studied by Lease (2004). This intervention was found to have more of a positive effect on students from ethnic minority groups than White students. Whilst minority ethnic students were found to operate more than White students with an external career locus of control (that is, felt less autonomous and more controlled by external factors out of their control), race was not found to be an indicator of career undecidedness.
- A mentoring programme designed to support minority ethnic students in preparing for careers in academia used members of academic staff as the mentors. The success of this particular use of mentoring is attributed to the mentoring support being combined with student financial assistance (Marko and Savickas, 1998).
- An intervention with an element of mentoring was found to have a positive effect on the career related decisions and progression of minority ethnic students by Hill *et al.* (1999). A doctoral scholars' programme, aimed at ethnic minority doctoral students, was investigated. The intervention was found to be successful in helping students train and prepare for an academic career, dispel stereotypes and influence career decisions to enter academia.

### ***Specialist careers provision:***

- Carter *et al.* (2003) examined the relationship between students from different ethnic backgrounds and their experiences of career counselling, with the aim of identifying successful interventions that meet their particular needs. Differences emerged with Black students reporting lower rates of satisfaction and attending less frequently. However, for the minority ethnic students who did attend more frequently for career counselling, positive outcomes were reported.
- The work of Morey *et al.* (2003) examined higher education career services and the impact of these services on graduates from disadvantaged backgrounds,

including minority ethnic students. Students did not want to be identified as disadvantaged or receive special treatment. They reported a key weakness in available services was lack of information and networking opportunities with local employers and recruiters. This study highlighted how employers were less willing to participate in fairs at universities with a high proportion of students from non-traditional populations.

***Overcoming barriers to progression:***

- Recommendations, designed to encourage and support targeted groups into nursing, are identified from research undertaken by Harrigan *et al.* (2003) into barriers facing under-represented minority ethnic groups.
- Supporting minority ethnic students into science, engineering and mathematics (SEM) is the objective of specialist university-based intervention examined by Maton *et al.*, 2000. Features of this programme include the formation of a programme community, involvement of parents, positive mentoring, peer support and financial assistance.

### **5.3 Socio-economic factors**

The evidence on the socio-economic factors affecting students' career decision-making, learning and progression considered the impact of parental income (Cooter *et al.* 2004; Morey *et al.* 2003), financial constraints (Maxwell, 2001; McGrath and Millen, 2003) and student perceptions (Warmington, 2003).

***Parental income:***

- Morey *et al.* (2003) (see also 5.3, above) examined higher education career services, focusing specifically on graduates from disadvantaged backgrounds including students from a lower socio-economic background. Financial issues were reported to have a major impact. One consequence was that students often had to work part-time in order to finance full-time study. This affected their ability and motivation to participate in curricular or extra-curricular activities, which may have helped with career related decisions and learning. Job shops were effective in helping retention rates, particularly for those students experiencing financial difficulties.
- Cooter *et al.* (2004) investigated the relationship between a student's family income and specific educational and professional outcomes of medical students

who had received financial support. This study included an analysis of educational debt and whether financial support facilitated learning or speciality choice. Differences in learning and career progression were found between students from high and low socio-economic groups (classified by parental income). It concluded that parental income and student debt may interact in influencing career choice, as students from high income families were more likely to choose surgery and low income students were more likely to choose family medicine. Students from low income families are also more likely to experience high levels of educational debt.

***Financial constraints:***

- Support from local undergraduate medical and dental students, as part of a structured school/college based programme, resulted in an increase of academically able students from underprivileged educational backgrounds progressing to study medicine and dentistry (Kamali *et al.*, 2000).
- Maxwell (2001) examined the effect of a 'school to work' programme for students from one district with poor educational provision. The aim of the programme was to influence students' decisions to enter, and progress through, a four year higher education course. The programme was effective in increasing successful completions and reducing drop-out. However, the number of entrants reduced, perhaps because students possessed a clearer understanding of higher education.
- High quality, comprehensive information on the financial implications of higher education is needed to support realistic decision-making by Year 11 and 12 pupils for higher education (McGrath and Millen, 2003).

***Student perceptions:***

- An Access to higher education course was being used by students to escape labour market marginalisation and navigate socio-economic disadvantage (Warmington, 2003). Because of the belief by students in the dominance of the qualification system, the Access course was regarded as the means to gain entrance to (higher) education and employment and so achieve social inclusion.

## **5.4 Cross-cutting influences**

Disadvantage is often multi-dimensional and isolating the impact of one dimension is



problematic. Some research evidence suggests that a combination of influences interact to have an impact on the career-related decisions and learning of students.

***Gender and ethnicity:***

- Dixon-Reeves (2003) demonstrate the importance of mentoring for women from ethnic minority groups for enhancing opportunities and achievements of newly qualified doctorates. Effective mentoring emerged as crucial to professional development, publications, permanent appointment and advancement in academia.

***Gender and socio-economic background***

- The increased level of risk-taking required of mature women from working class backgrounds to progress into higher education has been investigated by Reay (2003). Whilst Access to higher education courses were found to be a qualified success in supporting some of the women to progress within a recommended time-frame, most either took significantly longer or failed to complete. This slower completion rate, and failure, is attributed to lack of support and resources.

***Ethnicity and geographical location:***

- The impact of gap years on career decision-making and choice was studied by Jones (2004). Gap years were found to have a positive impact on student career decision-making. Employers also regarded gap year experience as valuable, because of the skills associated with gap year participation (such as interpersonal, communication, process skills, leadership, communication and self-discipline). Students less likely to take a gap year were those from minority ethnic groups, those who had attended a state school and/or who lived in an economically deprived area.

***Age and socio-economic status:***

- A widening access to medicine course for mature students was studied to ascertain its role in supporting student career progression (Holmes, 2002). Not only was this course successful in supporting an increased proportion of mature students progressing into medical school over a four year period, but also a higher than expected proportion of students from socioeconomic groups IV and V successfully completed.

***Age, gender and ethnicity:***

- The efficacy of a computer program designed to increase career decidedness, with and without practitioner support, was the focus of one other study (Eveland

*et al.*, 1998). Variations according to age, gender and ethnicity were also explored. No significant differences were found.

### ***Disability and age:***

Only one study (Morey *et al.*, 2003) was identified that included an analysis on the influence of disability and age. The study focused on how higher education career services can enhance the employability of graduates from disadvantaged backgrounds (including: ethnic minority students, students with a disability and students from a low socio-economic background). Findings included:

- One-to-one advice did not address the needs of students with disabilities, as practitioners did not have the required knowledge. However, students appreciated the helpfulness of careers staff. One university careers service has set up a website, dedicated to students with a disability, offering information and help with off-campus learning, internship, work experiences, work placements and secondments.
- Similarly, mature students reported that their individual needs were not being met by their careers service.

Finally, a study by CSU/AGCAS/IER (1999) notes how career trajectories are influenced by demography, educational attainment and/or university attended:

- CSU/AGCAS/IER (1999) assessed the experiences of UK graduates who qualified in 1995, 18 months after their graduation. It focused on how successful the graduate respondents had been in meeting their career development expectations and concluded that the career trajectories of different graduates are the result of one or a combination of the following factors: gender; age; degree subject; degree performance; and type of university attended.

## **5.5 Environmental factors**

The university environment and services offered are noted as influential in four studies. A range of factors are categorised as environmental, which include: the type of university (CSU/AGCAS/IER, 1999; DfEE/CSU/AGCAS/IER, 1999); the services and information offered by the university (Cooter *et al.*, 2004; CSU/AGCAS/IER, 1999; McGrath and Millen, 2003); together with subjects studied and pressures to perform (CSU/AGCAS/IER, 1999; DfEE/CSU/AGCAS/IER, 1999). Overall, evidence illustrates

that without a sound careers service infrastructure, services of benefit to students are seriously compromised.

- Lack of information on universities has a negative effect on students considering higher education (see for example McGrath and Millen, 2003). Similarly, the lack of information offered by the careers service has a negative effect on career progression (Cooter *et al.*, 2004; CSU/AGCAS/IER, 1999). Careers services were, however, found to have a positive influence on the educational outcomes of students (Cooter *et al.*, 2004).
- A study of graduates three years after their graduation found that students' subject choice influenced whether or not they accessed the careers service (DfEE/CSU/AGCAS/IER, 1999). For instance, graduates on vocational pathways had clearer ideas of their options than those who were not, tended to enter the labour market quickly and were more likely to be in a job requiring their degree than those graduates who took a non-vocational course. Early interventions by the careers service were found to be effective for those students taking non-vocational courses.
- Pressures existing around examination periods to perform well meant that students were less likely to find time to access the careers service (DfEE/CSU/AGCAS/IER, 1999). Additionally, the pressures on students to perform academically displaces the effort required to find employment. Evidence from this study indicates that class of degree obtained was strongly correlated with whether or not a graduate was employed using their degree.
- The type of university attended has also found to be a factor influencing a graduates' career trajectory as some graduates are more likely to be in a non-graduate occupation (CSU/AGCAS/IER, 1999; DfEE/CSU/AGCAS/IER, 1999). Those graduates from new universities were less likely to be in jobs which required their degree.

## Section 6: Conclusions

- The remit for this literature review was extremely broad, with different aspects of the review question studied more extensively than others.
- The systematic methodology has proved effective in achieving the aim and objectives of the review.
- Relevant research has been drawn from many countries, with the majority of studies from North America.
- Little evidence has been found of longitudinal research relevant to the review focus.
- The review process has yielded a mixture of qualitative and quantitative research approaches.
- Specialist career curricular interventions have been implemented in subject specific areas in response to an identified need, like to support the choice of clinical specialism in medicine or improve the career management skills of graduates in business, psychology and management. In all eight studies reviewed, positive outcomes were reported.
- Computer-aided guidance programs yielded a limited number of studies into their efficacy. Of the two studies reviewed, programs that facilitated self-directed searches were preferred by users and a combination of a program supported by a practitioner intervention was found to be most useful.
- One-to-one career interventions featured in six studies. They were found useful by students as they gave access to specialist knowledge; supported positive outcomes; provided a positive experience and promoted constructive change. However, disadvantaged students found this type of intervention of limited value unless practitioners had specialist knowledge of their circumstances and needs. Early one-to-one interventions were found to be most beneficial.
- E-guidance is indicated by a pilot study as an intervention with the potential for a positive impact on career decision-making and progression.

- Interventions to support the choice of medical specialism emphasised the value of early clinical experiences and positive role models.
- Three studies focused on teacher education. International placement experiences and partnership programmes are examples of successful interventions in this context.
- Master programmes, particularly vocational courses, supported learning and progression in a number of beneficial ways.
- Internships and curriculum design have provided significant benefits to students.
- Mentoring offers multiple advantages and has been used to support under-represented students (like minority ethnic students) and those entering non-traditional areas (like women into science). Other uses include confirmation of occupational identity and the development of career management skills.
- The benefits of different types of structured work-experience are reported in seven studies.
- Successful intervention aimed to support progression into higher education of non-traditional students included the use of focus groups, structured support from undergraduates and a school-to-work programme.
- Access courses continue to provide an effective means of supporting career decision-making, learning and progression.
- Multicultural curriculum interventions have the potential to support entry to and progression with higher education. These interventions should focus on the particular needs of target groups.
- Gender, ethnicity and socio-economic background all influence career progression, mostly in negative ways. Curriculum and extra-curricular interventions can be used to ameliorate disadvantage suffered.
- It is recognised that social factors associated with disadvantage interact (like gender with age and ethnicity with gender) and various curricular and extra-curricular interventions are being used to address multiple disadvantage, with varying degrees of success.

## Section 7: Research gaps and recommendations

### 7.1 Setting the context: evaluating the influence of career guidance

The concept of accountability has become an overarching feature of career guidance research designed to bring about ‘the establishing of responsibility for certain outcomes, given a set of human and non human resources’ (Sampson *et al.*, 2003, p268<sup>16</sup>). Policy-makers and providers have become engaged in a new type of dialogue focusing more on the demonstration of the impact of services and less on anecdotal accounts of how clients have benefited. However, different stakeholders have different agendas. For example, policy-makers are primarily influenced by the need to ensure that targets are met, whilst managers with organisational goals often operate with other intrinsic motives, such as ensuring high quality services to individuals. However, they are inevitably driven by funding mechanisms that determine service provision. Practitioners, who are responsible for implementing policies and accountable to others for their work, are influenced by their experience, training experiences, ethics and values.

What are regarded as desirable outcomes from careers guidance, therefore, depends in part on the stakeholder perspective. Outcomes include: providing value for money; meeting organisational goals; achieving government agendas; providing a service of value to users; meeting the needs of the labour market; and benefiting individual clients on a personal level.

With different stakeholder groups interested in different types of outcome, evaluating the influence of various types of career intervention is not without problems. Key issues include: the time frame being considered (i.e. immediate, intermediate or long-term) and the perspective from which effectiveness is being evaluated (e.g. policy-maker, practitioner, guidance manager, client, independent observer).

Certain types of evidence are already available. Previous research (Hughes *et al.*, 2002<sup>17</sup>; Killeen *et al.*, 1992<sup>18</sup>) shows that effective guidance can be assessed through activities that focus on:

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<sup>16</sup> Sampson, J.P., Reardon, R.C., Peterson, G.W. and Lenz, J.G. (2003). *Career Counseling and Services: A Cognitive Information Processing Approach*, Florida State University: Wadsworth, Thomson Learning.

<sup>17</sup> Hughes, D., Bosley, S., Bowes, L., and Bysshe, S. (2002). *The Economic Benefits and Guidance*, Research Report, Derby: Centre for Guidance Studies, University of Derby.

<sup>18</sup> Killeen, J., White, M. and Watts, A.G. (1992). *The Economic Value of Careers Guidance*, London: Policy Studies Institute/Department for Education and Employment.

- Immediate outcomes: including enhanced knowledge and skills (i.e. the ability to make effective transitions); attitudinal change (e.g. increased self-confidence and esteem); and increased motivation (e.g. willingness to consider new employment or learning options).
- Intermediate outcomes: for example, enhanced job-search, or other search strategies like career planning.
- Longer-term outcomes (for the individual): including enhanced participation in new opportunities and retention within learning and labour markets.
- Longer-term outcomes (for the economy): like increased Gross Domestic Product (GDP), productivity gains when individuals are settled in appropriate employment, reductions in skills gaps and shortages, and enhanced income levels and reductions in benefit payments.

In seeking to assess and measure the effectiveness of career guidance, it is crucial to understand and take account of the complex inter-relationships and variables that exist. These include the way that individuals vary in respect of their personal circumstances such as gender, age, ethnicity and attainment; the contexts in which clients operate vary in relation to their domestic situation, geographical location, mobility and labour market status; and the career guidance interventions that individuals have access to vary extensively in terms of the type, intensity and duration of the intervention(s); the resources available; the nature of the specific needs of clients; the experience and training of the practitioner; and the discreteness of provision (for instance, experienced as a specific activity or part of an integrated, on-going learning programme).

Additional issues are relevant, including: how should change in the client receiving guidance be evaluated and which sources of information should be used to evaluate change resulting from career guidance (i.e. the client, the guidance practitioner, a 'significant other' or an independent expert in guidance)? Whilst the client's perspective is important, potential challenges need to be acknowledged. For example, whilst some benefits of effective guidance are immediate and recognisable (for example, entry to an educational course) others are likely to accrue over an extended time period. It is not unusual for clients to recognise, only with the benefit of hindsight over a number of years, that career guidance contributed to their personal development. Additionally, the extent to which beneficiaries of career guidance are able to distinguish and recognise the value of an effective career guidance intervention in enhancing their educational progress is likely to be problematic, since clients may place more value on the learning or employment that may follow from guidance than on the guidance itself. Finally, a positive outcome from a career guidance intervention might be facilitating a client's

acceptance that aspirations are unrealistic. This could be (and often is) regarded negatively, even though retrospectively its value is recognised.

Models that have been developed to evaluate the effectiveness of career guidance interventions are limited in number. Sampson *et al.* (2003, p268<sup>19</sup>) suggest that the apparent lack of progress in the development of useful accountability and evaluation models is linked to the absence of conceptual and operational constructs that define the outputs of career service interventions.

## **7.2 Identifying possible omissions in the research evidence**

The main review question, specified by HECSU, was:

*What curricular and extra-curricular interventions appear to assist students and graduates to make career-related decisions, engage in career learning/development and progress towards entry into the labour market?*

With the sub question:

*What social, economic, or demographic factors appear to impact upon career decision-making, career learning and occupational progression?*

The way that the main question was framed ensured a focus for the review on existing research evidence for career-related interventions in higher education. This question has been comprehensively addressed by the review.

However, reframing the question into two separate parts helps point to omissions in the research evidence. The first part of the question re-framed for this purpose would relate to curricular and extra-curricular interventions that are designed to support career learning/development broadly defined. The second would relate to how students and graduates make career-related decisions, engage in career learning/development and progress towards entry into the labour market. Additionally, it may be helpful to reflect upon which theories of learning underpin any intention to support more informed career-related learning and development.

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<sup>19</sup> Sampson, J., Reardon, R.C., Peterson, G.W., and Lenz, J. (2003). *Career Counseling and Services: A Cognitive Information Processing Approach – Accountability and Evaluation in Career Services*, Florida Sate University: Wadsworth Thomson Learning.



Recommendations for future research will also be considered that are theoretically-informed, as well as influenced by a broad range of research that goes beyond a consideration of what interventions work.

### 7.3 Curricular and extra-curricular interventions

Three issues need to be highlighted when considering omissions in the research evidence on the impact of higher education curricular and extra-curricular interventions that are designed to support student career-related decision-making, career learning/development and progression, broadly defined. The first is that the orientation of those designing or implementing curricular or extra-curricular interventions may be driven by pragmatism, with a focus on 'what works' and little, or no, consideration given to existing evidence prior to implementation. Even where relevant research evidence exists about a particular intervention, this may be quite dated. For example, the Council for National Academic Awards (CNAA) drew together evidence on the value of supervised work experience in their development series<sup>20</sup>, but this was nearly three decades ago, in the 1980s.

Additionally, those designing or implementing interventions may not publish findings from any systematic evaluation that was undertaken following implementation. Indeed, much curriculum evaluation (including the use of student feedback etc.) may indeed inform subsequent curriculum design, but remains unpublished. Classically, Stenhouse (1975)<sup>21</sup> argued for a process approach to curriculum development with a central role for evaluation and for practitioners to be engaged in their own research. The curriculum is perceived as 'an active process in which planning, acting and evaluating are all reciprocally related and integrated into the process' (Grundy 1987, p 115)<sup>22</sup>.

The second issue relates to possible problems of the transferability of interventions to other contexts. Cornbleth (1990)<sup>23</sup> highlights the importance of context and this produces another dimension where activities, even where regarded as 'good practice', have to be adapted to fit the context. Curriculum in this view is what actually happens in practice, that is, 'an ongoing social process comprised of the interactions of students, teachers, knowledge and milieu' (1990, p 5). The importance of milieu, or context,

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<sup>20</sup> CNAA (1984). *Supervised Work Experience in CNAA first-degree courses: An appraisal*. CNAA Development Services 5, London: CNAA.

<sup>21</sup> Stenhouse, L. (1975). *An introduction to Curriculum Research and Development*, London: Heinemann.

<sup>22</sup> Grundy, S. (1987). *Curriculum: Product or Praxis*, Lewes: Falmer.

<sup>23</sup> Cornbleth, C. (1990). *Curriculum in Context*, Basingstoke: Falmer Press.

implies that the question of which curricular interventions are valuable means that they do not only have to be fit for purpose, they also have to be fit for context. An example here would be the added value from academic tutors visiting students on work placement. This was a viable (and frequently employed) strategy for higher education staff in the 1980s (CNAA, 1984)<sup>24</sup> but it is not viable in most circumstances in the changed context of higher education in 2005.

The third issue is that significant attempts to support career learning and development are often not distinct curriculum interventions, but rather built into the initial framework and curricular thinking of many programmes in higher education. Foundation degrees, programmes incorporating work-based learning and vocational degrees (especially part-time professional development programmes and/or those tied to entry into a profession) all have a very explicit vocational orientation. Many are expressly vocational in two ways: first, they deal to some extent with authentic problems faced in vocational practice and, second, they are also concerned with the development of a particular vocational identity.

In this sense, following a curriculum where you are learning to be a teacher, doctor, or radiographer is qualitatively different from engaging in discipline or subject-based studies. In the former cases a vocational identity is being forged in engagement with the complexities of practice at the same time as the student is engaged in a higher education programme, while in the latter cases future vocational orientation is less clear and cannot be used to provide a strong vocational context to learning. However, even in the former cases, career learning and vocational identity development do not necessarily develop in the ways intended. For example, since 1993 radiography has been an all-graduate entry. This meant that as science graduates, qualified radiographers also had opportunities to work outside the health sector, often at a higher salary. Brown (2004a)<sup>25</sup> quotes one practitioner: “For example, last year only just over half the graduates from one training course went into radiography’ and that, ‘the old-style radiography training qualified people only for radiography. The new degree course opens doors to other careers as well’. Also, during their studies, students get an idea of what radiography is really about (‘stress, direct responsibilities, physically moving people’) and may decide to change careers” (p. 218).

This example shows that curricular interventions, such as moving professional training

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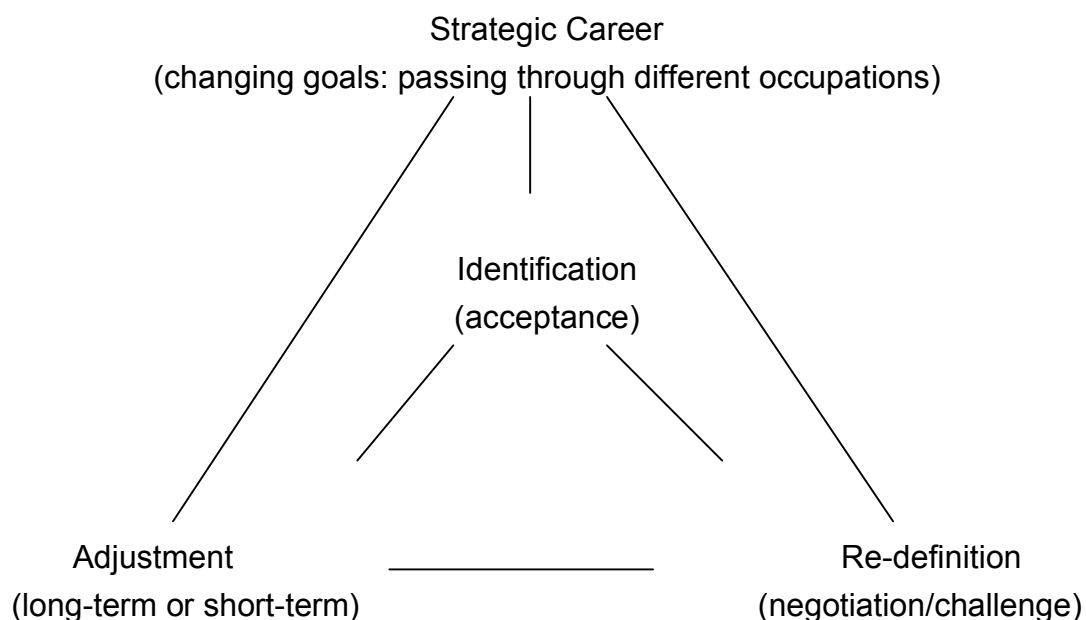
<sup>24</sup> CNAA (1984). Supervised Work Experience in CNAA first-degree courses: an appraisal. CNAA Development Services 5, London: CNAA.

<sup>25</sup> Brown, A. (2004a) Professionals under pressure: contextual influences on learning and development of radiographers in England. *Learning in Health and Social Care* 3(4): 213-222.

into higher education, may be designed to improve career learning in one respect (by giving radiographers a stronger scientific understanding of the basis of their practice), but that these changes may have unintended career learning consequences – that is, the students gain an understanding of a much wider range of career options. This highlights the need to draw attention to the role of individual agency, as well as understanding the context in which curricular interventions take place and the nature of career learning or development that occurs.

These three issues, taken together, mean that the career-related decisions, learning, development and progression of individuals need to be considered in terms of occupational goals (which may be more or less clearly specified). The relationship between individuals, what they are learning and their occupational goals could be represented in terms of their patterns of strategic action across a range of structural, cultural and social contexts. Individuals develop characteristic repertoires of strategic action and these included identification; long-term adjustment; short-term adjustment; adopting a strategic career perspective; and re-definition of career goals. (See Figure 1 below: Brown, 2004b)<sup>26</sup>.

**Figure 1: A model of the forms of strategic action of individuals in relation to their career goals**



<sup>26</sup> Brown, A. (2004b). Engineering identities, *Career Development International* 9(3): 245-273.

## **7.4 How students & graduates make career-related decisions, engage in career learning/development and progress towards entry to the labour market**

Eraut (2000<sup>27</sup>, 2004<sup>28</sup>) has carried out substantive research on early (and mid-) career learning at work (so it fell outside the remit of this literature review) and emphasises the importance of learning and contextual factors in how individual careers develop. One of the major research studies involved a longitudinal investigation of the early career learning of graduates in their first three years of employment as nurses, engineers and trainee accountants. From this, generic aspects of early career learning were identified that almost certainly apply to other contexts, such as internships, practical placements and other substantive forms of work experience within higher education. The research emphasised the overwhelming importance of confidence (and commitment to colleagues, clients, the organisation and learning). Much learning at work occurs through doing things and being proactive in seeking learning opportunities. This requires confidence. Confidence develops from successfully meeting challenges in work that have a clear value, while the confidence to take on such challenges depended on the extent to which learners felt supported in that endeavour and received feedback on their performance. Thus, there is a triangular relationship between challenge, support and confidence (Eraut *et al.*, 2000)<sup>29</sup>. If there is neither a challenge, nor sufficient support to encourage a person to seek out or respond to a challenge, then confidence declines and with it the motivation to learn.

Contextual factors influencing early career learning relate to the allocation and structuring of work because this affects: the difficulty or challenge of the work; the extent to which it was individual or collaborative; opportunities for meeting, observing and working alongside people who had more or different expertise; and forming relationships that might provide feedback, support or advice. Eraut (2004) argues that for relative novices, a significant proportion of their work needs to be sufficiently new to challenge them, without being so daunting as to reduce their confidence. Additionally, their workload needs to be at a level that allows them to respond reflectively to new challenges, rather than develop coping mechanisms that might later prove to be ineffective<sup>30</sup>.

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<sup>27</sup> Eraut, M (2000). Non-formal learning and tacit knowledge in professional work, *British Journal of Educational Psychology* 70, Part 1, 2000 pp.113-136.

<sup>28</sup> Eraut, M (2004.) Informal learning in the workplace, *Studies in Continuing Education* 26(2): 247-273.

<sup>29</sup> Eraut, M, Alderton, J, Cole, G, Senker, P (2000). *Development of Knowledge and Skills at work*, in F.Coffield (Ed) *Differing Visions of a Learning Society*, Vol 1, Bristol, The Policy Press, pp.231-262.

<sup>30</sup> Detailed descriptions of how these factors combine to influence the early career learning of

Even though this research-informed theory of early career learning was outside the scope of the literature review, it could almost certainly be applied to other contexts, such as internships, practical placements and other work experience within courses with a strong vocational orientation. In all these circumstances, the experience of work in some form strongly influences early career learning/development, progress towards entry into the labour market and acquisition and development of a vocational identity.

### **7.5 Theories of learning that underpin career decision-making, learning/development and progress towards entry to the labour market**

If this review and the related studies are seen as a prelude to action, then an additional question arises: What will be the theoretical underpinning of the approach to learning in any attempt to enhance or extend current practice?

People learn in different ways and through combinations of learning, such as imitation; participation; acquisition; experimentation; discovery and knowledge-building. Activities designed to enhance career-related decisions, learning/development and progression need to be placed within a suitable frame of what they are trying to achieve and by what means. The work of Eraut (2000, 2004) referred to in 7.4 above, gave careful consideration to the following:

- What is being learned?
- How is it being learned?
- What factors affect the learning (learning factors and contextual factors)?
- What is the role of implicit learning (past events and memories being interpreted in the light of recent experience; current experience)?
- What is the role of reactive learning (reflection; observation; recognition of possibilities)?
- What is the role of deliberative learning (discussion and review; engagement in decision-making; planning learning opportunities)?

These could be adapted when thinking about trying to improve the career decision-making and learning of students and graduates:

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trainee accountants, graduate trainee engineers and newly qualified nurses can be found in Eraut, M., Steadman, S., Furner, J., Maillardet, F., Miller, C., Ali, A. and Blackman, C. (2004). *Learning in the Professional Workplace: Relationships between Learning Factors and Contextual Factors*, Division I Paper Session, Monday 12th April AERA 2004 Conference, San Diego.

Additionally, however, the success of many attempts to enact curricular change to enhance career learning will depend to some extent upon multi-professional collaboration between careers practitioners and teaching staff. Higher education careers services operate in a context where their decision-making is often constrained, even where they are delivering an extra-curricular programme. For example, one university careers service may operate a 'skills for employment' programme that students evaluate as very useful, but because the funding for this comes from a special university initiatives fund, rather than a mainstream budget, then the programme is discontinued despite its success.

## **7.6 Recommendations for future research**

Following on the arguments presented above, it is important that future research has clear parameters, taking account of stakeholder interests. It should be theoretically-informed, as well as influenced by a broad range of research that goes beyond a consideration of what interventions work.

Given the challenges inherent in evaluating the outcomes of career guidance (see 7.1, above) the most obvious need is for longitudinal research that tracks the development of strategic career biographies of individuals as they move into, through and out of higher education at different phases of their lives, with special reference to their engagement (or not) with particular curricular or extra-curricular interventions designed to support their career learning and development. These 'career narratives' would not only be invaluable in understanding career learning and development, crucially, they could also be adapted as a tool to help the career decision-making, learning and development of students and graduates, as well as forming the basis for multi-professional collaboration between careers practitioners and teaching staff.

## Section 8: References

- Bimrose, J. (1996). *Guidance and counselling for higher education*. Cheltenham: UCAS with the Council of Europe.
- Bimrose, J., Barnes, S.-A., Hughes, D. and Orton, M. (2004). *What is Effective Guidance? Evidence from Longitudinal Case Studies in England*. Coventry: DfES/Warwick Institute for Employment Research.
- Bowman, H., Hodgkinson, P. and Colley, H. (2005). *Employability and career progression for fulltime, UK resident Masters students*. Final Report for the Higher Education Careers Service Unit. Leeds: University of Leeds, Lifelong Learning Institute.
- Busby, G. (2003). Tourism degree internships: A longitudinal study. *Journal of Vocational Education and Training* **55**(3):319-334.
- Callanan, G. and Benzing, C. (2004). Assessing the role of internships in the career-oriented employment of graduating college students. *Education & Training* **46**(2/3):82.
- Candy, P. (2000). Reaffirming a proud tradition: Universities and lifelong learning. *Active Learning in Higher Education* **1**(2):101-125.
- Carter, R.T., Scales, J.E., Juby, H.L., Collins, N.M. and Wan, C.M. (2003). Seeking career services on campus: Racial differences in referral, process, and outcome. *Journal of Career Assessment* **11**(4):393-404.
- Clarke, I., III, Flaherty, T.B. and Mottner, S. (2001). Student Perceptions of educational technology tools. *Journal of Marketing Education* **23**(3):169-177.
- Cooter, R., Erdmann, J.B., Gonnella, J.S., Callahan, C.A., Hojat, M. and Xu, G. (2004). Economic diversity in medical education: The relationship between students' family income and academic performance, career choice, and student debt. *Evaluation and the Health Professions* **27**(3):252-264.
- CSU/AGCAS/IER (1999). *Working out? Graduates' early experiences of the labour market*. Manchester: DfEE/HECSU/AGCAS/IER.
- Cushner, K. and Mahon, J. (2002). Overseas student Teaching: Affecting personal, professional, and global competencies in an age of globalization. *Journal of Studies in International Education* **6**(1):44-58.

- Davies, L. (2000). Why kick the "L" out of "Learning"? The development of students' employability skills through part-time working. *Education & Training* **42**: 436-445.
- DfEE/CSU/AGCAS/IER (1999). *Moving on – graduate carers three years after graduation*. Manchester: Higher Education Careers Service.
- Dixon-Reeves, R. (2003). Mentoring as a precursor to incorporation: An assessment of the mentoring experience of recently minted Ph.Ds. *Journal of Black Studies* **34**(1):12-27.
- Dunn, J.C.Y., Lai, E.C.K., Brooks, C., Stabile, B.E. and Fonkalsrud, E.W. (1998). The outcome of research training during surgical residency. *Journal of Paediatric Surgery* **33**(2):362-364.
- Elnicki, D.M., Halbritter, K.A., Antonelli, M.A. and Linger, B. (1999). Educational and career outcomes of an internal medicine preceptorship for first-year medical students. *Journal of General Internal Medicine* **14**(6):341-346.
- Eveland, A.P., Conyne, R.K. and Blakney, V.L. (1998). University students and career decidedness: effects of two computer-based career guidance interventions. *Computers in Human Behavior* **14**(4):531-541.
- Gault, J., Redington, J. and Schlager, T. (2000). Undergraduate business internships and career success: Are they related? *Journal of Marketing Education* **22**(1):45-53.
- Harrigan, R.C., Gollin, L.X. and Casken, J. (2003). Barriers to increasing native Hawaiian, Samoan, and Filipino nursing students: Perceptions of students and their families. *Nursing Outlook* **51**(1):25-30.
- Hill, R.D., Castillo, L.G., Ngu, L.Q. and Pepion, K. (1999). Mentoring ethnic minority students for careers in academia: The WICHE doctoral scholars program. *The Counselling Psychologist* **27**(6):827-845.
- Holmes, D. (2002). Eight years' experience of widening access to medical education. *Medical Education* **36**(10):979-984.
- Huiling, P. (2001). Comparing the effectiveness of two different career education courses on career decidedness for college freshmen: an exploratory study. *Journal of Career Development* **28**(1):29-41.
- Hustler, D., Ball, B., Carter, K., Halsall, R., Ward, R. and Watts, A.G. (1998). *Developing*



- career management skills in higher education.* NICEC Project Report. Cambridge: CRAC.
- Jones, A. (2004). *Review of gap year provision* (DfES Research Brief No. RB555). Nottingham: Department for Education and Skills.
- Kamali, A.W., Nicholson, S. and Wood, D.F. (2000). A model for widening access into medicine and dentistry: the SAMDA-BL project. *Medical Education* **39**(9): 918-925.
- Kelley, L.M. (2004). Why Induction Matters. *Journal of Teacher Education* **55**(5):438-448.
- Lease, S.H. (2004). Effect of locus of control, work knowledge, and mentoring on career decision-making difficulties: Testing the role of race and academic institution. *Journal of Career Assessment* **12**(3):239-254.
- Leong, F.T.L., Hardin, E.E. and Gaylor, M. (2005). Career specialty choice: A combined research-intervention project. *Journal of Vocational Behavior* **67**(1):69-86.
- Madahar, L. and Offer, M. (2004) *Managing e-guidance interventions within HE careers services: a new approach to providing guidance at a distance.* Manchester: Graduate Prospects and HECSU.
- Marko, K.W. and Savickas, M.L. (1998). Effectiveness of a career time perspective intervention. *Journal of Vocational Behavior* **52**(1):106-119.
- Marsland, L. (2001). Looking to the future: Career guidance received by students qualifying as learning disability nurses. *Journal of Learning Disabilities* **5**(4):353-367.
- Maton, K.I., Hrabowski I.I.I., F.A. and Schmitt, C.L. (2000). African American college students excelling in the sciences: College and post-college outcomes in the Meyerhoff Scholars Program. *Journal of Research in Science Teaching* **37**(7): 629-654.
- Maxwell, N.L. (2001). Step to college: Moving from the high school career academy through the 4-year university. *Evaluation Review* **25**(6):619-654.
- McMahon, U. and Quinn, U. (1995). Maximizing the hospitality management student work placement experience: A case study. *Education & Training* **37**(4):13.
- McGarth, S. and Millen, P. (2003). *Getting them in: An investigation of factors affecting*

*progression to higher education of 16-19 year olds in full-time education.*  
Manchester: Manchester Metropolitan University.

- Miller, S. and Liciardi, R. (2003). Tertiary student perceptions of the benefits of professional career management education: an exploratory study. *Career Development International* **8**(6):309.
- Morey, A., Harvey, L., Williams, J., Saldana, A., Mena, P. with Watson, S. and MacDonald, M. (2003). *HE careers services and diversity: How careers advisory services can enhance the employability of graduates from non-traditional backgrounds.* A report of AGCAS. Manchester: HECSU/CRQ.
- Morgan, A. and Turner, D. (2000). Adding value to the work placement: working towards a professional qualification in an undergraduate degree programme. *Education & Training* **42**(8):453-461.
- Packard, B.W.-L. (2003). Student training promotes mentoring awareness and action. *The Career Development Quarterly* **51**(4):335.
- Paskiewicz, L.S. (2002). The shadowing experience: Valuing the link between faculty practice and student learning. *Journal of Professional Nursing* **18**(4):238-242.
- Purcell, K., Elias, P., Davies, R. and Wilton, N. (2005). *The class of '99: A study of the early labour market experiences of recent graduates.* (DfES Research Report no. 691). London: Department for Education and Skills.
- Purcell, K. and Elias, P. (2004). *Researching graduate careers seven years on: Higher education and gendered career development* (research paper no.4). ESRU/IER. Online: <http://www2.warwick.ac.uk/fac/soc/ier/research/current/7yrs2/rp4.pdf>.
- Reay, D. (2003). A Risky Business? Mature Working-class Women Students and Access to Higher Education. *Gender and Education* **15**(3):301-317.
- Richard, O.C., Taylor, E.C., Barnett, T. and Nesbit, M.F. (2002). Procedural voice and distributive justice: their influence on mentoring career help and other outcomes. *Journal of Business Research* **55** (9):725-735.
- Sobral, D.T. (2001). Selective training and cross-year clinical tutoring as educational influences on generalist career choice. *Education for Health: Change in Learning & Practice* **14**(2):295-303.
- Sword, W., Byrne, C., Drummond-Young, M., Harmer, M. and Rush, J. (2002). Nursing

- alumni as student mentors: nurturing professional growth. *Nurse Education Today* **22**(5):427-432.
- Takruri-Rizk, H. and Jensen, K. (2005). *Achieving gender equality and diversity in engineering. Manchester: Graduate Prospects.*
- Thomas, J.H. and McDaniel, C.R. (2004). Effectiveness of a required course in career planning for psychology majors. *Teaching of Psychology* **31**(1):22-27.
- Timms, J. (2001). An investigation into the benefits of careers guidance opportunities for Open University students in receipt of financial awards. Milton: Keynes: Open University.
- Tinsley, H.E.A., Tinsley, D.J. and Rushing, J. (2002). Psychological type, decision-making style, and reactions to structured career interventions. *Journal of Career Assessment* **10**(2):258-280.
- Uzoamaka, P.A., James, C.H. and Susan, M.S. (2000). Knowledge-related skills and effective career management. *International Journal of Manpower* **21**(7):566-579.
- Viitanen, E. (2001). Learning to manage welfare and health services: Evaluating a three-year academic training programme in professional development. *Evaluation* **7**(1):79-97.
- Warmington, P. (2003). 'You Need a qualification for everything these days.' The impact of work, welfare and disaffection upon the aspirations of access to higher education students. *British Journal of Sociology of Education* **24**(1):95-108.
- Wei-Cheng, M. (1999). Effects of computer-assisted career decision making on vocational identity and career exploratory behaviors. *Journal of Career Development* **25**(4):261.
- Weinberger, J. (2000). Students' experience of a distance learning professional development course in literacy education. *Literacy (formerly Reading)* **34**(2):90-95.
- Wessel, R.D., Christian, N.T. and Hoff, A.K. (2003). Enhancing career development through the career success club. *Journal of Career Development* **29**(4):265.
- White, J. (1999). The impact of clinical experiences during preregistration diploma in nursing courses on initial career choice. *Journal of Nursing Management*

**7(3):157-165.**

Wright, S., Wong, A. and Newill, C. (1997). The impact of role models on medical students. *Journal of General Internal Medicine* **12(1):53-56.**

Xiang, F., Sooun, L., Lee, T.E. and Huang, W. (2004). Critical factors affecting job offers for new MIS graduates. *Journal of Information Systems Education* **15(2):189-198.**

## Appendix 1: Further information on databases

The following information was taken from respective websites in October 2005.

### **ABI/Inform** <http://proquest.umi.com/login>

One of the world's first electronic databases, ABI/INFORM has been a premier source of business information for more than 30 years. The database contains content from thousands of journals that help researchers track business conditions, trends, management techniques, corporate strategies, and industry-specific topics worldwide

The Global edition of ABI/INFORM is available on the Web through ProQuest®, a premier information access and retrieval system. It is suitable for all types of researchers whether online novices or information professionals. Natural language searching, database segmenting, and conceptual smart searching are just a few of the features that help users find the exact information they need quickly and easily. Includes approximately 1,300 full text titles mainly Business and Economics, overall covering 1971 to present.

### **Blackwell Synergy** <http://www.blackwell-synergy.com>

Blackwell Synergy is the online journals service from Blackwell Publishing. It holds the content for most of Blackwell's journals, the majority of which are published on behalf of international scholarly and professional societies. Blackwell Synergy helps to improve the quality of research time by enabling readers to search for relevant articles, read abstracts for free, print the full-text of subscribed to articles, download citations, and make connections to other relevant research through reference linking. Includes approximately 670 full text titles covering all subjects.

### **Business Source Premier**

As the world's largest full text business database, Business Source Premier provides full text for nearly 8,200 scholarly business journals and other sources, including full text for more than 1,125 peer-reviewed business publications. This database offers information in nearly every area of business including management, economics, finance, accounting, international business, and more. This database provides full text (PDF) for more than 350 of the top scholarly journals dating as far back as 1922. This database is updated on a daily basis via EBSCOhost.

### **EBSCO** <http://www.ebsco.com>

EBSCO stands for Elton B. Stephens Company. EBSCO Subscription Services, EBSCO Publishing and EBSCO Book Services form the EBSCO Information Services

group. EBSCO is a worldwide leader in providing information access and management solutions through print and electronic journal subscription services, research database development and production, online access to more than 100 databases and thousands of e-journals, and e-commerce book procurement.

EBSCO has specialized products and services for academic, medical, government, public and school libraries as well as for corporations and other organizations. EBSCO maintains a comprehensive database of more than 282,000 serial titles and upholds active relationships with more than 60,000 publishers worldwide. EBSCO has been serving the library and business communities for almost 60 years.

**Emerald** <http://www.emerald-library.com/>

Emerald was established in 1967 by a group of senior academics who, dissatisfied with the international publishing distribution outlets of the time, formed MCB University Press, an alternative publishing house that focused on niche management disciplines including strategy, change management, and international marketing. In 2001 MCB University Press adopted the name Emerald as its new organizational identity, reflecting a renewed, high-level commitment to its guiding principles.

Publisher of the world's widest range of management and library and information services journals, as well as a strong specialist range of engineering, applied science and technology journals. Emerald currently publishes more than 150 journal titles in the fields of management and information science. Emerald Fulltext offers an expanding collection of 40,000 articles from titles published by Emerald. Includes approximately 135 full text titles, mainly Social Science.

**IngentaConnect** <http://www.ingenta.com>

Since its launch in May 1998, Ingenta has developed and grown to become the leading Web infomediary empowering the exchange of academic and professional content online. IngentaConnect offers a comprehensive collection of academic and professional research articles online with citation date for 19 million articles from 29,500 publications, plus 8,000 online covering a range of subjects.

**Sage Journals Online** <http://www.sagepub.com>

SAGE Publications is an independent international publisher of journals, books, and electronic media and is known for their commitment to quality and innovation. It is a leader in both educational, and professional markets. Since its inception in 1965, SAGE Publications has been a leader in publishing high-calibre titles for academic researchers in the social sciences, humanities, and life sciences publishing more than 400 journals.

Building on that solid foundation, offering a broad selection of textbooks and resources to enrich the classroom experience for undergraduate and graduate students.

**ScienceDirect** <http://www.sciencedirect.com/>

Since its launch in 1997, ScienceDirect has evolved from a web database of Elsevier journals to one of the world's largest providers of scientific, technical and medical (STM) literature covering 25% of work in this area. ScienceDirect® is a part of Elsevier (<http://www.elsevier.com>).

With ScienceDirect® you can: access over 2,000 scientific, technical and medical peer-reviewed journals; search over 60 million abstracts from scientific articles; and link out to articles from over 170 other publishers.

**Wiley InterScience** <http://www3.interscience.wiley.com>

Wiley InterScience features over 1,000 journals, major reference works, online books, current protocols laboratory manuals, and databases as well as a suite of professional and management resources. The site was launched in 1997 and currently caters to over 12 million users in 87 countries.

**Zetoc** <http://zetoc.mimas.ac.uk/>

Zetoc provides access to the British Library's Electronic Table of Contents of around 20,000 current journals and around 16,000 conference proceedings published per year. The database covers 1993 to date, and is updated on a daily basis.

## **Appendix 2: Search strategy for electronic databases**

The following search strings are some successful examples applied in the various electronic databases searched.

### **ABI/Inform**

- student AND 'career guidance'
- student AND 'transition to work'
- (graduate OR undergraduate OR postgraduate) AND internship?

### **Blackwell Synergy**

- (student OR graduate OR undergraduate OR postgraduate) AND guidance
- (student OR graduate OR undergraduate OR postgraduate) AND mentoring
- (student OR graduate OR undergraduate OR postgraduate) AND employability

### **Business Source Premier**

- (student OR graduate OR undergraduate OR postgraduate) AND 'decision making' AND career
- (student OR graduate OR undergraduate OR postgraduate) AND 'occupational choice'

### **EBSCO**

- (student OR graduate OR undergraduate OR postgraduate) AND information AND labour market
- (student OR graduate OR undergraduate OR postgraduate) AND 'work experience' AND career

### **Emerald**

- (student OR graduate OR undergraduate OR postgraduate) AND employment

### **Sage Journals Online**

- (graduate OR undergraduate OR postgraduate) AND 'locus of control' AND guidance
- 'widening access to higher education'

### **ScienceDirect**

- (student OR graduate OR undergraduate OR postgraduate) AND selection AND career
- (student OR graduate OR undergraduate OR postgraduate) AND networking



**Wiley InterScience**

- (student OR graduate OR undergraduate OR postgraduate) AND 'personal development'
- (student OR graduate OR undergraduate OR postgraduate) AND guidance

**Zetoc**

- 'progression from higher education'
- 'access to higher education'

### Appendix 3: Data extraction instrument

<b>1. Biographical Information</b>	
Author(s)	
Date of Publication	
Title	
Journal Title*	
Journal Volume*	
Journal Number*	
Page Number*	
Place of publication*	
Publisher*	
Commissioning body	
<b>2. Focus of the Study</b>	
Main topic focus of the study. If the study has a broad focus and this data extraction focuses on just one component, please specify here and provide details:	
Broad aims of the study	
When the study was carried out	
Demographic details of participant population(s)	
Location of the study	
<b>3. Methodology</b>	
Theoretical approach	

Sampling Strategy including sampling frame and sample size.
Data collection methods
Data analysis methods
Strengths of methodological approach (if applicable)
Limitations of the approach (if applicable)
<b>4. Findings</b>
Results/ main findings
Conclusions
Recommendations
<b>5. Analysis</b>
Summary of the ways in which the article contributes to the literature review.

What curricular or extra-curricular interventions have been identified? And what are the aims of these interventions?
Evidence to demonstrate curricular or extra-curricular interventions <b>assisting</b> career decision-making, career learning and occupational progression:
Evidence to demonstrate curricular or extra-curricular interventions <b>failing</b> to assist career decision-making, career learning and occupational progression:
Evidence of social, economic or demographic factors that influence career decision-making, career learning and occupational progression
Evidence of social, economic or demographic factors that <b>influence interventions</b> aimed at assisting career decision-making, career learning and occupational progression

**Jenny Bimrose is Principal Research Fellow and Sally-Ann Barnes is Research Fellow at the Institute for Employment Research at the University of Warwick.**

The Institute for Employment Research is one of Europe's leading centres for research in the labour market field. Its work focuses upon the operation of labour markets and socio-economic processes related to employment and unemployment in the UK at national, regional and local levels. It includes comparative European research on employment and training.