

Leading the world

The economic impact of UK
arts and humanities research



Arts & Humanities
Research Council

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Front cover images

*Left: Allen Lane, founder of Penguin Books.
Credit: Courtesy of Bristol University Special Collections – Penguin Archive*

*2nd left: TTURA. Designed by Tim Hubbard.
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*Middle: Grippa
Design Against Crime Research Centre*

*2nd from right: The outer circle of Avebury stones
Image courtesy Dr Mark Gillings - University of Leicester*

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Preface

Context

The UK Arts and Humanities Research Council ('the AHRC') is a non-departmental public body sponsored by the Department for Innovation Universities and Skills ('DIUS'). It came into existence on 1 April 2005 (in succession to the Arts and Humanities Research Board) under the terms of the Higher Education Act 2004 and pursuant to a subsequent Royal Charter. It became one of what are now seven Research Councils sponsored by DIUS and resourced from the Science and Research Budget (until 2008 'the Science Budget') that DIUS administers.

The AHRC's Mission, Role and Public Accountability

The transition from AHRB to AHRC in April 2005 was marked by a higher level of financial accountability and a new set of mission imperatives set out in our Royal Charter. These imperatives include not only the requirement to fund basic research and postgraduate provision, but also the need to contribute to the economic competitiveness of the UK and the effectiveness of public services and policy, and to enhance the quality of life and the creative output of the nation. These imperatives are reflected in our Vision and Strategy.

The Vision of the AHRC is to be a recognised world leader in advancing arts and humanities research and its four Strategic Aims are as follows:

- To promote and support the production of world-class research in the arts and humanities.
- To promote and support world-class postgraduate training designed to equip graduates for research or other professional careers.
- To strengthen the impact of arts and humanities research by encouraging researchers to disseminate and transfer knowledge to other contexts where it can make a difference.
- To raise the profile of arts and humanities research and to be an effective advocate for its social, cultural and economic significance.

This report summarises why the £110 million that the UK Government allocates annually from the Science and Research Budget to the AHRC represents an excellent investment for the nation. This investment generates wealth, improves public policy and helps to maintain quality of life. To confirm the truth of this statement we have framed the report to answer three critical questions:

- Why is arts and humanities research important?
- Why should the taxpayer pay for arts and humanities research?
- Why fund arts and humanities research through the AHRC?

At a time when the UK is facing unprecedented challenges to the economy, quality of life, environment and security, the AHRC believes that the arts and humanities can make a decisive contribution in all these areas. Meeting these challenges requires innovative and creative ways of thinking and processes of knowledge generation, transfer and exchange that are distinctive of the arts and humanities. As we will see in the report, these processes in the arts and humanities are often significantly different from those in other areas of the research base. Nevertheless, the outcomes, in terms of economic impact, can be seen in increased productivity and innovation, human capital, public knowledge and a skilled labour force, policy interventions and innovation in the public sector, and in improvements to the quality of life. Like other parts of the research base, the arts and humanities make a vital contribution to all these areas.



*Sir Alan Wilson, FBA FRS
Chairman, The Arts and Humanities Research Council*

Executive summary

The AHRC is responsible for the effective and efficient use of public funds to support research in the arts and humanities and to deliver demonstrable benefits to the UK and its citizens.

In early 2008 the AHRC created an Impact Task Force to provide evidence to Government and other interested parties such as Parliament, the Higher Education sector, industry, the press, and the taxpayer of the value of the research it funds and how it generates value for the UK taxpayer.

In 1997 the Science and Research Budget allocation was £1.3 billion. By 2007/8 it had more than doubled in real terms to £3.4 billion. Maintaining its commitment to a ring-fenced Science and Research Budget growing in real terms by 2.5% per annum, the Government's allocations means that the budget will rise to almost £4 billion by the end of the Comprehensive Spending Review period (2010/11).

Money spent on science and research is money not spent on other priority areas and the increase in expenditure and the current economic climate mean Government needs to be able to justify these allocations, as well as ensuring that public services are delivered effectively and efficiently.

This report summarises why the £110 million that the UK Government allocates annually to the AHRC represents an excellent investment for the nation. The arts and humanities cover a very wide range of intellectual and practice-based disciplines and research areas. These include history, classics, archaeology, English literature, philosophy, religion, law, modern languages, linguistics, informatics, media studies, drama, and music and design. Research into these subjects is an investment that generates wealth, improves public policy and helps to maintain quality of life. To confirm the truth of this statement the report answers three critical questions:

- **Why is arts and humanities research important?**
- **Why should the taxpayer pay for arts and humanities research?**
- **Why fund arts and humanities research through the AHRC?**

Why is arts and humanities research important? (Chapter 1)

The arts and humanities touch people's lives at every level. They contribute to our quality of life because, once our basic subsistence needs have been satisfied, they encompass those things that make life worth living. They also contribute to the level of civilisation that makes this country such an attractive place in which to live and work.

Arts and humanities research underpins our experience when we attend a concert or a theatre, visit an art exhibition, a museum or a heritage site, read a book, or simply wonder what it means to be human. Activities, such as these, it is thought, enrich our understanding of our own lives, fire our imaginations, give us a safe emotional outlet, help us feel we share fascinations with others and belong to a continuum of human activities, all of which make us happy.

Arts and humanities research also allows us to grow our body of knowledge on all aspects of human experience, agency, identity and expression, as constructed through language, literature, artefacts and performance. As such, it is a driving-force of what can be called the UK's culture ecosystem, that is to say, the distinctive system of interlocking elements of (a) the UK's extremely rich store of cultural heritage, traditions and practices; (b) huge popular engagement with that culture; (c) popular reflection on that culture, and (d) professional reflection on it by arts and humanities researchers. The impact of arts and humanities research goes far beyond the reaches of academia.

Of the 28,000 or so arts and humanities academics working in UK HEIs, some 14,000 of them are research-active, a full 27% of all researchers submitted in RAE 2008. At any one time these academics, including a high proportion of world-leading researchers, are teaching about 535,000 undergraduates and postgraduates in their disciplines. One aspect of the contribution to the UK's culture ecosystem is the (export) income earned from non-UK students. There are about 80,000 of them studying arts and humanities here at present and they make a direct contribution per annum of approximately £1.306 billion (£603 million in tuition fees and £703 million in living expenses). Applying economic multipliers to this amount (a conservative multiplier of 1.57 and a possibly more realistic one of 2.52 used by Universities UK) produces a total economic impact capable of straightforward monetary calculation in the range of £2.05 billion to £ 3.39 billion.

Why should the taxpayer pay for arts and humanities research? (Chapter 2)

The remarkable successes of the British team at the Beijing Olympics in 2008 largely depended on significant public investment in British sport over a period of several years preceding those games. As with our Olympian victors, the UK's arts and humanities community lead the world. The international pre-eminence of the UK's arts and humanities research community provides the foundation for the outstanding economic impact of their research. There are three areas of evidence.

Published articles: The AHRC produces nearly as many scholarly articles as their USA colleagues (over three years, in a given sample the UK produced 33% and the USA 37%), even though the USA has five times our population. By way of contrast, the UK produces 10% of the world's science, compared with 25% for the USA.

Number of citations: In July 2008 Evidence Ltd published for DIUS a report entitled *International Comparative Performance of the UK Research Base*. This showed that whereas the UK produced 12% of the world's citations, second in the world, with the best result in scientific citations being secured in the area of health and medically-related area with 14.5%, humanities (admittedly on a small sample, given that humanities bibliometrics is still at an early stage) produced 24.9% of citations (compared to 44% from the USA).

RAE results: The RAE 2008 findings that show arts and humanities researchers secured the highest percentage of research in the 4* category.

Economic impact of arts and humanities research

In 2008, the AHRC commissioned some thirty senior researchers, representing a large cross-section of our disciplines, to write on the value of an area of arts and humanities research of their choosing. They generated data that allowed us to develop a new model that illustrated 'economic impact' as defined by HMT and re-described within the context of the arts and humanities along two axes, one of them embracing economic capital and civic capital and the other stretching from the maintenance of such capital to its growth. In this context 'civic capital' means social capital as currently understood and the knowledge necessary for the relationships and trust central to social capital to function.

Improving economic performance through input into innovation

Arts and humanities researchers are helping to improve the economic performance of the UK through its input into the national innovation system. This can be demonstrated especially by summarising new work undertaken by the AHRC jointly with NESTA in 2008. This work reveals how much arts and humanities research contributes to 'fifth generation innovation', which is especially characterised by the integration of all knowledge and the extensive use of brokerage and networks to generate economic growth.

Why fund arts and humanities research through the AHRC? (Chapter 3)

Quantifying the wide and varying impacts of the AHRC's work is challenging. Indicative estimates from PwC suggest that for every £1 spent on research by the AHRC, the nation may derive as much as £10 of immediate benefit and another £15-£20 of long-term benefit. Thus in 2006-7, the AHRC invested £60.3 million in new research, which implies immediate returns of over £616.9 million and a possible additional return over 25 years of around £1 billion. While specific examples are given in the main report, more general examples of its impact include:

- The AHRC is the only funding body in the UK that supports arts and humanities researchers in large-scale collaborative research across disciplinary boundaries. It does this especially by funding the participation of arts and humanities researchers in cross-Research Council programmes in areas like Global Security, the New Dynamics of Ageing, Living with Environmental Change and Digital Economy. These are programmes that address the big questions of national and global significance which will not be solved without the contribution of the arts and humanities research community.
- The AHRC is also the only arts and humanities funding body that is driving forward a knowledge transfer and economic impact agenda

- The AHRC is by far the largest funder of arts and humanities postgraduate awards in the UK. At any one time it supports some 2,500 students on Doctoral and Masters Awards, representing around 10% of the entire arts and humanities postgraduate population and some 30% of doctoral students.

Conclusion

If the UK is to increase its innovative capacity, it must harness the full capabilities of the research community. The solutions to social problems and to creating high-quality goods and services are to be found in the exploitation of knowledge from the entire spectrum of an integrated research base. Ultimately, the success of the AHRC will depend on its impact on academic culture and the appetite for arts and humanities research more generally. As the benefits arising from connections between researchers, businesses, other organisations and government become more established, increasingly consistent expectations within those communities will emerge and be satisfied. This will lead to an even greater role for the arts and humanities in the innovation system and to the subsequent growth of the British economy in ways that are unimaginable were we unwisely to seek to revert to older modes of innovation than those we are currently experiencing.

Copies of the full report can be downloaded from www.ahrc.ac.uk

Why is arts and humanities research important?

The arts and humanities touch people's lives at every level. They contribute to our quality of life because, once our basic subsistence needs have been satisfied, they encompass those things that make life worth living. They also contribute to the level of civilisation that makes this country such an attractive place in which to live and work.



Writing in his recent work *Happiness: Lessons from a New Science*, Professor Richard Layard expressed the following view:

As Western societies have got richer, their people have become no happier ... On average people are no happier today than people were fifty years ago. Yet at the same time average incomes have more than doubled.

If we want people to be happier, we really have to know what conditions generate happiness and how to cultivate them.¹

Highly relevant to our happiness is our quality of life, for beyond a certain level necessary to guarantee material wellbeing (financial stability and health), income and even level of education have no significant influence on happiness, on health and even on survival.²

Supporters of arts and humanities research consider that research underpins our experience when we attend a concert or a theatre, visit an art exhibition, a museum or a heritage site, read a book, or simply wonder what it means to be human. Activities such as these, it is thought, enrich our understanding of our own lives, fire our imaginations, give us a safe emotional outlet, help us feel we share fascinations with others and belong to a continuum of human activities, all of which make us happy.

In this report we will build upon these insights to demonstrate how, within the governmental framework for funding that includes the Science and Research Budget, arts and humanities research generates enormous 'economic impact', as now explained.

Public spending priorities and the economic impact of arts and humanities research

The Government set out its long-term vision for UK science and innovation in July 2004, published in the *Science and Innovation Investment Framework 2004-2014*. In this document the Government recognised that 'for the UK economy to succeed in generating growth through productivity and employment in the coming decade, it must invest more strongly than in the past in its knowledge base, and translate this knowledge more effectively into business and public service innovation.'³ Accordingly, the UK can no longer rely on the manufacture of physical capital to retain its global competitiveness but must instead invest in knowledge-intensive goods and services.

In 1997 the Science and Research Budget allocation (then called the Science Budget) stood at £1.3 billion, but by 2007/8 it had more than doubled in real terms to £3.4 billion. The 2007 Comprehensive Spending Review ('CSR') settlement represented the largest ever

investment in research. Maintaining its commitment to a ring-fenced Science and Research Budget growing in real terms by 2.5% per annum, the Government's allocations will cause this budget to rise to almost £4 billion by the end of the CSR period (2010/11). This increasing expenditure, which the AHRC benefits from along with the other Research Councils, has been largely driven by the recognition that advanced nations need to compete to have the most knowledge-intensive societies and economies.

The increase in expenditure and the current economic climate have meant that Government now takes a close interest in the benefits produced by this expenditure. Money spent on science and research is money not spent on other priority areas and Government needs to be able to justify these allocations, as well as ensuring that public services are delivered effectively and efficiently. Accordingly, Government properly expects that public spending, including that on research, will generate value for the UK taxpayer.

As noted in the Preface to this report, the AHRC is required by its Royal Charter (pursuant to the terms of which it receives public moneys for distribution) to contribute to the economic competitiveness of the UK and the effectiveness of public services and policy, and to enhance the quality of life and the creative output of the nation. Since late 2006 the AHRC has been working closely with the other Research Councils to demonstrate the economic impacts of the research they fund under the broad banner of 'Excellence with Impact'. In accordance with their Royal Charters and with HM Treasury guidance on the nature and appraisal of economic impact, the Research Councils jointly describe impact as:

the demonstrable contribution that excellent research makes to society and the economy ... Impact embraces all the extremely diverse ways in which research-related knowledge and skills benefit individuals, organisations and nations by:

- fostering global economic performance, and specifically the economic competitiveness of the United Kingdom,
- increasing the effectiveness of public services and policy, and
- enhancing quality of life, health and creative output.

As the AHRC is responsible for the effective and efficient use of public funds to support research in the arts and humanities and to deliver demonstrable benefits to the UK and its citizens, it is entirely right that the AHRC should provide, in this report and elsewhere, evidence of its value and impact.

This was one of the main reasons why the AHRC created an Impact Task Force early in 2008. It was launched to establish the value of the investment in arts and humanities research and to provide evidence to Government and other interested parties such as Parliament, the Higher Education sector, industry, the press, and the taxpayer of that value.

¹ Layard, R. (2005) *Happiness: Lessons from a New Science*. London: Allen Lane.

² *Ibid*, pp. 3-4

³ HM Treasury (2004) *Science and innovation investment framework 2004 - 2014*. London: HM Treasury, p5.

“The aim of this report is to show just how effectively arts and humanities research, including that funded by the AHRC, does produce economic impact on British society and the economy.”

Some arts and humanities researchers react negatively to the use of the word ‘economic’ in relation to the value of their work, usually for the reason that what they do has an ‘intrinsic’, as opposed to an ‘instrumental’ value, where economics can play no role. This is an unfortunate error that has been forcefully refuted in a recent paper by Hasan Bakhshi, Alan Freeman and Graham Hitchen.⁴ These authors persuasively argue that arts policymakers, leaders and funders (and, we will add, arts and humanities researchers) should stop attempting to isolate themselves from arguments concerning the basis for appeals to the public purse on the basis of the ‘intrinsic’ and hence non-economic value of the arts, and recognise instead that economics provides tools for measuring intrinsic as well as instrumental value in a manner that is commensurable with other appeals on the public purse. Such cultural economics has actually been in existence for decades,⁵ even if it needs more resource devoted to it.

The aim of this report is to show just how effectively arts and humanities research, including that funded by the AHRC, does produce economic impact on British society and the economy. In the current chapter we are doing so by answering the first of the three questions we have set: ‘Why is arts and humanities research important?’

What do we mean by arts and humanities?

The arts and humanities cover a very wide range of intellectual and practice-based disciplines and research areas. These include history, classics, archaeology, English literature, philosophy, religion, law, modern languages, linguistics, informatics, media studies, drama, music and design.

Why does arts and humanities research matter?

Research into these subjects is necessary for us to grow our body of knowledge on all aspects of human experience, agency, identity and expression, as constructed through language, literature, artefacts and performance. At a very general level - that we will explain in great detail in this report - arts and humanities research matters to our society for the following reasons:

- It generates public arts and humanities knowledge, human capital and a skilled labour force.
- It preserves and interprets archives and other repositories or features of national heritage and experience, that might otherwise be lost or insufficiently addressed.

⁴ Bakhshi, H., Freeman, A. And Hitchen (2009) ‘Measuring Intrinsic Value: How to Stop Worrying and Love Economics’.

⁵ See, for example, Throsby, David and Withers, Glen (1984) ‘What Price Culture?’, the Australia Council, and Throsby, David (2001) *Economics and Culture*. Cambridge: Cambridge University Press.

- It encourages a deep understanding of identities and cultural diversity (necessary for a well-informed and tolerant society) that forms the foundation for policy interventions and improvements in the public sector.
- It maintains and enhances the quality of life in the UK.
- It contributes to the excellence of the UK’s creative and cultural output, leading to innovations (in the form of new products, processes and services) in the creative and cultural industries that boost productivity and economic growth.
- It enhances the UK’s long-established international reputation for excellence in higher education, culture and the cultural industries, thus making the UK an attractive site for inward investment.

In broad terms, arts and humanities research enhances our understanding of individual and communal identities; cultures (including their institutions and their artefacts); ideas and beliefs; creativity; representation; and human communication in both the past and the present. Research achieves this through methods of questioning, challenging, probing, debating and unearthing the complexity of what it means to be human. While these core areas and values are expansive and fundamental to the research landscape, the AHRC, while recognising that no categorisation is perfect and that there are many cross-overs between arts and humanities areas, has provisionally (subject to consultation) conceptualised them into four principal areas.

1. *History, Thought and Systems of Belief*

Research in these areas **discloses** how people have lived in the past; how they have constructed identities and institutions; how they have expressed themselves in legal, political and popular documents, legislation and texts; and what this tells us about the values they share and where divergence lies. Research in these areas also identifies the spiritual, religious, moral, ethical and legal bases of human thought and behaviour.

2. *Creative and Performing Arts*

Research in these areas **enriches** the originality, quality and significance of creative outputs in visual art, music, design, performance, exhibition and creative writing for contemporary audiences and probes the significance of creative practices in the past. It also offers innovative practice-based methods of tackling research problems across a range of disciplines.

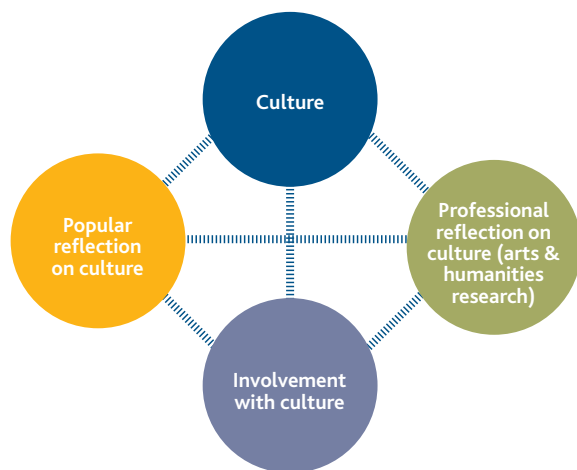
3. *Cultures and Heritage*

Research in these areas **interprets** material artefacts from the past and non-traditional textual sources (such as digital media) from the present to determine how and why they were made and used, how they were and are classified and displayed. It also explores why they have been valued and how we preserve, conserve and cultivate cultural heritage.

4. Languages and Literatures

Research in these areas **evaluates** how people have expressed themselves in various languages and in all forms of prose, poetry and fiction, what this expression reveals about societies, priorities and beliefs, and how human beings have used language to make sense of their world and to engage with each other.

The Role of the Arts and Humanities in the UK's Culture Ecosystem



A Model of the UK's Culture Ecosystem, highlighting the role of the arts and humanities within it.

To show more clearly how and why these areas of research are important we have developed a new conceptual model. Arts and humanities research is a potent driving-force in what we propose to call the UK's 'culture ecosystem', a fundamental dimension of British life where academic research is deeply integrated into our involvement with and enjoyment of culture across the entire population.

The core of the model is the four inter-related and inter-acting elements of a dynamic system that constitutes culture in the UK and the various processes of engagement with and reflection upon it.

Exploring the four components of the model

1. Culture

'Culture', as we understand it for this report, encompasses both material and immaterial dimensions. The material dimensions include moveable items like tools and weapons, clothing, jewellery, furniture, books, works of art and so on; and also immovable things like historic buildings and sites, museums and galleries, libraries and archives. The immaterial dimensions cover memories, traditions, ideas, values, feelings and aspirations (and the artistic, musical, literary and philosophical forms in which many of them are embodied), musical and dramatic performances, and so on. The arts represent a sub-set of culture, characterised by imagination-

driven forms of representation and performance, such as the visual arts, photography and cinema, music, drama and opera.

2. Involvement with Culture

Many of the UK's taxpayers and their families are directly involved with culture and the arts. Some are producing new cultural and artistic expressions, while others are experiencing culture and the arts by attending musical or dramatic events or by reading fiction, poetry or other forms of creative writing. Still others are doing both, such as those who produce user-generated content in media and who are active in the creation of websites and virtual worlds. The line drawn between the two circles represents the ways in which culture and involvement with it are mutually interactive. Exploring this relationship brings out the extremely high degree of cultural involvement characteristic of people in the UK. Examples of this involvement include:

Reading: The UK is a 'reading nation'.⁶ Among a study of 6000 people aged over 16 in England in 2003 commissioned by Arts Council England into involvement in the arts in the previous twelve months, reading for pleasure was the most commonly reported activity.⁷ 55% had read works of fiction, including novels, plays and short stories (with the majority doing so at least once a week), 25% had read biographies and 6.5% had read poetry. Half the sample had bought a novel, play or poetry for themselves in the previous year, while 4% had written poetry. Other evidence suggests that nearly half the adults in the UK read five books or more per year, while almost one in five claim to read more than twenty books a year.⁸ In 2007 UK publishers sold 498 million books in the domestic market, with an invoiced value of £1.88 billion.⁹ Of these 162 million were works of fiction,¹⁰ indicating an extraordinary passion for the novel among the British. Another 151 million were children's books. Spending on books in Britain is growing faster than anywhere else in Europe.¹¹ In 2006/07 46% of all adults in England visited a library, with a third of these doing so at least once a month.¹²

Performing arts: The UK likes the performing arts. As many as a quarter of the population attend a play each year, and the same number attend a musical. 25% watch plays and dramas via electronic media at least once a month. One in fifty perform in, or

⁶ See William St Clair (2004) *The Reading Nation in the Romantic Period*. Cambridge: Cambridge University Press.

⁷ Arts Council England (2004) *Arts in England 2003: Attendance, Participation and Attitudes: Findings of a Study Carried Out by Social Survey Division of the Office for National Statistics*. Research Report 37. London: Arts Council England, ('Arts in England 2003' hereafter).

⁸ *ONS Omnibus Survey* June 2002, which included a module on reading habits commissioned by the National Reading Campaign.

⁹ The Publishers Association (2008) *2007 Statistics Yearbook*, London: The Publishers Association, p.3.

¹⁰ *ibid.*, p. 25.

¹¹ See the Publishers Association website: www.publishers.org.uk

¹² DCMS (2008) *Taking Part: England's Survey of Culture, Leisure and Sport Annual Data 2006/07*. London: DCMS.

rehearse for, a play.¹³ Each year there are about 550 festivals in the UK and many of these (such as the biggest, the Edinburgh Festival) have a strong focus on drama. Dance is also extremely popular. Around 12% of the population attend a dance performance at least once a year and 10% dance for fitness.¹⁴

Visual arts: Evidence suggests that as many as one in five attend an exhibition of art, photography or sculpture each year, 13% paint, draw, make prints or sculpt, while 8% practise photography as an artistic activity.¹⁵

Music. Every year 20% of adults attend a pop or rock concert at least once, 10% attend a classical concert at least once (with one third of them attending at least three times), 6% attend an opera or operetta and 6% a jazz concert. Active music production is extremely significant: 9% play a musical instrument, 4% sing and 3% play a musical instrument to an audience and 1% compose music.

Visits: Visits to museums, galleries and historical sites are a major activity of the British people. Approximately 40% of all adults visit a museum or gallery at least once a year. Just over half visit a city or town of historic character, while about 40% visit a historic park, garden or landscape.¹⁶

From this array of information it becomes clear that a majority of the population have an extensive, and frequently intense, involvement with culture as it is defined here. This involvement constitutes a very significant proportion of leisure activity in the UK. It also indicates the extent to which the very character of existence in the UK - the quality of the life and the identity of its people - are indelibly stamped with cultural and artistic engagement. Not only is the UK a world-leader in providing a context for civilised life, but it is the vibrancy of its culture and arts and the extent of popular engagement with them that largely make it so.

3. Popular Reflection on Culture

Not only do millions of people in the UK treasure culture and the arts and relish direct involvement with them, but we are also passionately interested in the nature and origins of our culture: language, artefacts, art, religion and philosophy, architecture, literature, law, drama, film and digital media, music, dance and the other performing arts. We regard such reflective activities, in addition to the underlying experiences of attendance, participation

¹³ These views are based on the fact that 25% of those sampled for *Arts in England 2003* had been to a play in the previous year and 26% to a musical, while 2% had performed in or rehearsed for a play and 25% had watched plays or dramas on television, video or DVDs on electronic media.

¹⁴ Extrapolating from the English position (*Arts in England 2003*) to the UK as a whole.

¹⁵ Again, extrapolating from the English position (*Arts in England 2003*) to the UK as a whole.

¹⁶ Extrapolating from the English position (*Taking Part: England's Survey of Culture, Leisure and Sport Annual Data 2006/07*) to the UK as a whole.

or creation, as central to our happiness and as an integral part of UK life and identity.

Students in Higher Education: The first area of evidence consists of students taking arts and humanities degrees in Higher Education, who pursue these courses out of strong personal interest, as the path to a fulfilling career, or both. The statistics are instructive.¹⁷ In 2005/06 there were 2.3 million students enrolled in UK HEIs (this figure includes undergraduate and postgraduate, full- and part-time and UK and non-UK domicile students). Of these some 534,200 were in arts and humanities areas (and this involves omitting those in 'Social Studies' as classified by HESA, even though some of these, in politics, anthropology and geography are humanities in orientation):

Law	89,580
Mass Communications and Documentation	47,805
Languages	139,190
Historical and Philosophical Studies	101,445
Creative Arts and Design	156,180
Total	534,200

In 2005/06, of the total number of 460,000 enrolled students who graduated, the following were in arts and humanities areas:

Law	29,780
Mass Communications and Documentation	15,090
Languages	30,905
Historical and Philosophical Studies	23,495
Creative Arts and Design	44,390
Total	143,660

So arts and humanities subjects attract about one quarter of the total student population in Higher Education, a fact which itself speaks volumes for the importance of culture and the arts in our national life.

Students in secondary schools and FE colleges: The next body of evidence relates to the enormous number of school students in the UK who choose to take arts and humanities subjects in secondary schools and Further Education colleges. To cite the position in England, for example: of some 250,000 students each year who take A-levels, some 170,000 take English, 95,000 take art and design and 87,000 history.¹⁸ While we tend to take this situation for granted, in fact it is a remarkable tribute to the importance these pupils, and their parents and carers, attach to gaining familiarity

¹⁷ The statistics are from the HESA website.

¹⁸ Department for Children Schools and Families: *GCE/VCE/Applied A/AS and Equivalent Results in England, 2007/08 (Revised)* (<http://www.dcsf.gov.uk/rsgateway/DB/SFR/s000827/index.shtml>).

“Members of the arts and humanities research community fire the interest of the wider population in becoming and remaining curious about and reflective of culture and the arts.”

with and an understanding of the disciplines that are connected with the various aspects of culture and the arts.

General public: Each week huge numbers read sections of newspapers, magazines or specialist periodicals devoted to culture and the arts, including reviews of books, films, plays, operas, ballets and exhibitions. Millions more listen to radio shows and TV programmes on these subjects. Each year millions read works of history, biography, art history, literary criticism, philosophy and religion. In 2007 British publishers sold 126 million non-fiction/reference books in the UK, with biography and autobiography representing the largest part of the market.¹⁹ Large numbers take part in 50,000 book clubs that are estimated to exist in the UK.²⁰ They attend book and drama festivals. They absorb the explanations on museum and gallery exhibits and the plaques on buildings and other sites of national importance historically or culturally.

4. Professional reflection on Culture

As well as students and the general population, there is a particular group of people who devote their lives to this practice in a professional way: our arts and humanities researchers. Arts and humanities research is the deliberate and dedicated activity that generates, compiles, analyses, synthesises and propagates our deepest insights into who we are, where we have come from and the cultural expressions we have crafted. Typical activities of arts and humanities academics include: researching all the various dimensions of culture and the arts; publishing the fruits of such research in books, journal articles and essays in edited collections or in promulgating them in practice-based outputs in the visual and performing arts, or in design; engaging in dissemination (including by contributions to press, radio and TV); engaging in specific knowledge transfer activities, such as exhibitions, public policy development or business improvements; and teaching and supervising arts and humanities undergraduates and postgraduates.

The arts and humanities research community is a powerful engine driving the whole culture ecosystem in the UK. This becomes clear when we consider the dynamic nature of the ecosystem and their role within it. In modelling the UK's culture ecosystem we are not suggesting that it is not connected with other parts of British society or the economy. Indeed, the AHRC is strongly of the view that arts and humanities research is part of an integrated research landscape that includes, for example, evolving digital technologies. Nevertheless, for present purposes it is possible and useful to delineate the culture ecosystem that admittedly exists in a wider relationship with other sectors.

The dynamic nature of the ecosystem represented by a model

The system represented in model is a dynamic one. Not only is it made up of inter-related components but they are in a state

¹⁹ *The Publishers Association 2007 Statistics Yearbook*, pp. 31-33.

²⁰ The estimate is by Jenny Hartley, author of *The Reading Groups Book*, cited in *The Guardian*, 12 February 2005.

of continuous and varying inter-action. This can be illustrated by considering some of the relationships.

The Relationship Between Professional and Popular Reflection on Culture

Members of the arts and humanities research community fire the interest of the wider population in becoming and remaining curious about and reflective of culture and the arts. One sign of this dynamism is the way in which the popularity of subjects waxes or wanes; as student numbers rise or fall in line with these trends, academic departments swell or contract. Nevertheless, there is one overwhelmingly important factor here, namely, the sheer fact that all those undergraduates and postgraduates who undertake arts and humanities degrees (outlined earlier) need to be taught and supervised by specialists and that role is filled by some 28,000 arts and humanities academic staff in the UK,²¹ of whom approximately 14,000 were research active in RAE 2008. With this proportion of research activity and with the arts and humanities having the highest proportion of 4* research among all disciplines,²² there is a strong argument that arts and humanities undergraduate and postgraduate teaching is being strongly enriched and freshened by its close connection with the UK's world-class research base in these areas.

Hundreds of thousands of these students will become parents and inculcate in their children similar cultural and artistic interests and appetites. Thousands of them will become teachers and thus carry forward this process in primary and secondary schools. A smaller number of them will become academics themselves and thus sustain and refresh the academic research community. From the sheer numbers involved, it can be said that the arts and humanities departments in our HEIs propagate an enormous interest in culture and have a direct impact on those who go on to maintain and enrich British society and the economy.

In addition to stimulating and strengthening the curiosity toward and reflection on culture and the arts of the 150,000 students they teach or supervise who graduate each year, arts and humanities researchers spread their knowledge and understanding to the wider community:

- They write about culture and the arts in reviews in the printed media, speak on radio and appear on television, and interact with the public in many other ways, thus reaching an audience potentially much wider than those who have graduated with arts and humanities degrees. Many of the same people who are purchasing the 160 million novels sold in the UK each year read book reviews concerning particular titles published by arts and humanities researchers.
- They are often highly active in the production of artistic works and performances. Some researchers in English departments are

²¹ The student: staff ratio is about 19:1 (UCU 2006: 138); so 534,200 students means about 28,000 academic staff.

²² In addition, in the 2001 RAE of 12,000 arts and humanities submitted, 7,000 were located in 5 or 5* departments.

“It is essential for the healthy functioning of the culture ecosystem that arts and humanities academics are free to conduct research across the whole range of their disciplines.”

novelists or poets; others in music departments write operas or film scores, record new works, give or conduct performances (including student ensembles) and build musical instruments; researchers in dance generate choreography for new performances; colleagues in Classics departments provide new translations for performances of Greek or Roman drama; modern linguists do the same for contemporary plays in other languages.

Arts and humanities research as a driver of the culture ecosystem

It is essential for the healthy functioning of the culture ecosystem that arts and humanities academics are free to conduct research across the whole range of their disciplines. The strength of the system lies not so much in this or that particular piece of research, but the extent to which, taken collectively, their research is a powerful driver of the whole culture ecosystem. Nevertheless, while all excellent arts and humanities research contributes to the healthy functioning of the ecosystem, here are some AHRC-funded examples to show what is being achieved:

- A. The AHRC-funded ‘Old Bailey On-Line’ project. This is a major new asset for understanding British social history and the development of the English language.²³ It is a fully searchable edition of the records of 197,745 criminal trials held at London’s central criminal court from 1674 to 1913, and represents the largest body of texts detailing the lives of non-elite people in Britain ever published.
- B. The AHRC-funded project on the ethics of risk. This takes the important step of studying risk within a philosophical framework (rather than one derived from economics, psychology and sociology).²⁴ At its conclusion the project will have produced a significant series of studies that will expand our understanding of the ethics of risk in general and have contributed to the policy debates concerning the ethics of transport safety and the ethics of health policy.
- C. The AHRC-funded ‘Henry III Fine Rolls Project’. This is indispensable for the study of British political, governmental, legal, social and economic history.²⁵ It will publish the Fine Rolls of Henry III from 1216 down to 1272, one for each regnal year, with research relating to them. ‘Fines’ were payments of money made to the king for a multiplicity of concessions and favours.

- D. Work by AHRC-funded researchers on a major but unnoticed repertory of medieval music. This allowed the work to be heard for the first time in 500 years.²⁶ The focal point of this project is the music anthology of Hermann Poetzlinger (ca. 1415-1469) in the ‘St Emmeram Codex’ of the Bayerische Staatsbibliothek in Munich, which contains 255 compositions from across Europe, arguably the most valuable witness to the cultivation of polyphony (part-music) in the German-speaking part of Central Europe during the second quarter of the 15th century.

The UK’s culture ecosystem, inward investment and export income

Although the culture ecosystem provides the setting within which arts and humanities research generates economic impact, we will end this chapter on the importance of arts and humanities research by highlighting how one aspect of this system itself contributes to that aspect of impact referred to above as fostering Britain’s ‘economic competitiveness’: the value of foreign arts and humanities undergraduates and postgraduates to the UK economy.

In 2007-08 the UK achieved a record level of inward investment, with a record 1,573 projects established, meaning 45,000 new jobs, 58,500 jobs safeguarded and 103,500 associated jobs, new and safeguarded.²⁷ It is generally agreed that the strength and vitality of UK culture is an important factor in attracting inward investment, especially since today’s highly skilled professionals in the knowledge economy frequently require a high level of cultural activity to maintain their lifestyles. It is difficult to quantify the benefit the taxpayer gains from this factor. However, there is one area where it is a very straightforward exercise to quantify the value of arts and humanities research. This is the (export) income earned from some 80,000 non-UK students who undertake undergraduate and postgraduate degrees in the arts and humanities. They are attracted by excellent British universities, but also by the outstanding nature of arts and humanities provision in those universities provided by about 28,000 academics, half of whom are research active and clear world leaders. The following chart sets out recent statistics on these students.

²³ Professor Tim Hitchcock, University of Hertfordshire, *The electronic Old Bailey Sessions proceedings, c.1670 – 1778*, AHRC Resource Enhancement, Ref No: 11725, Amount awarded: £281,820, Project duration: 1/2/2001 – 31/1/2004; and *Proceedings of the Central Criminal Court 1834 to 1913, Online*, AHRC Resource Enhancement, Ref No: 112070, Amount awarded: £317,114, Project duration: 1/9/2005 – 31/8/2008.

²⁴ Professor Jonathan Wolff, University College London, *The Ethics of Risk*, AHRC Research Grant, Ref No: 128829, Amount awarded: £353,665, Project duration: 1/10/2007 – 30/07/2010.

²⁵ Professor David Carpenter, King’s College London, *The Henry III Fine Rolls project*, AHRC Resource Enhancement, Ref No: 136125, Amount awarded: £311,963, Project duration: 1/4/2005 – 31/3/2008.

²⁶ Professor Peter Wright, University of Nottingham, *The music anthology of Hermann Potzlinger (ca 1415-1469)* AHRC Research Grant plus Pilot Dissemination Award, Ref No: 18475, Amount awarded: £256,938, Project duration: 1/10/04 – 30/09/07.

²⁷ UK Trade and Investment (2008) *UK Inward Investment 2007/08*. London: UK Trade & Investment

“The value of non-UK undergraduates and postgraduates attracted here to undertake arts and humanities degrees lies in the range £2.05 billion and £3.29 billion.”

Income from arts and humanities overseas students 2007/08²⁸

Total Income Undergraduate Overseas students

	Total EU	Total Non European	All Overseas Students
Total UG Students*	21,855	25,965	47,820
Tuition Fees (£)**	70,482,375	252,275,940	322,758,315
Living costs (£)**	181,523,259	215,660,097	397,183,356
TOTAL Income (£)	252,005,634	467,936,037	719,941,671

Total Income Postgraduate Overseas students

	Total EU	Total Non European	All Overseas Students
Total PG Students*	10,000	22,505	32,505
Tuition Fees (£)**	36,910,000	243,249,794	280,159,794
Living costs (£)**	93,980,000	211,501,990	305,481,990
TOTAL Income (£)	130,890,000	454,751,784	585,641,784

Grand Total Income

	Total EU	Total Non European	All Overseas Students
Total UG & PG Students*	31,855	48,470	80,325
Tuition Fees (£)**	107,392,375	495,525,734	602,918,109
Living costs (£)**	275,503,259	427,162,087	702,665,346
TOTAL Income (£)	382,895,634	922,687,821	1,305,583,455

²⁸ The total number of overseas students in this chart in the UK is provided by HESA statistics for 2007-08 FPE (Full Person Equivalent). The total number of overseas students was broken down by arts and humanities subjects, domicile, level of study (PG or undergrad) and finally by Institution. From these numbers the HEIs with the highest number of overseas students were identified. These top 10 HEIs in terms of numbers of overseas students (and with an appropriate regional spread) then provided data (using 2009-10 rates) on their tuition fees for EU and Non-EU undergraduates and postgraduates. Their recommended living costs per annum were also provided. From the data gathered from these 10 HEIs, an average tuition fee for EU and Non-EU students and the average living cost was calculated for undergraduates and postgraduates. These figures were then multiplied by the number of arts and humanities postgraduate and undergraduate students respectively, to obtain a total figure of tuition fees and living costs. This indicates a total income of £719,941,671 for overseas undergraduates and £585,641,784 for overseas postgraduates in the arts and humanities. Therefore a grand total of £1,305,583,455 income is obtained from arts and humanities overseas students in UK HEIs.

To these direct payment amounts we have applied economic multipliers, using both a conservative figure of 1.57 derived from previous work carried out for the AHRC by PwC and a figure of 2.52 currently used by Universities UK, which suggests this multiplier for HEIs as they have a larger proportion of purchases on UK goods and services than other comparator industries.

Multipliers for income from arts and humanities overseas students

	Total Income (£)	UUK Multiplier (£)	PwC multiplier (£)
Undergraduate	719,941,671	1,814,253,011	1,130,308,423
Postgraduate	585,641,784	1,475,817,294	919,457,600
Total	1,305,583,455	3,290,070,305	2,049,766,024

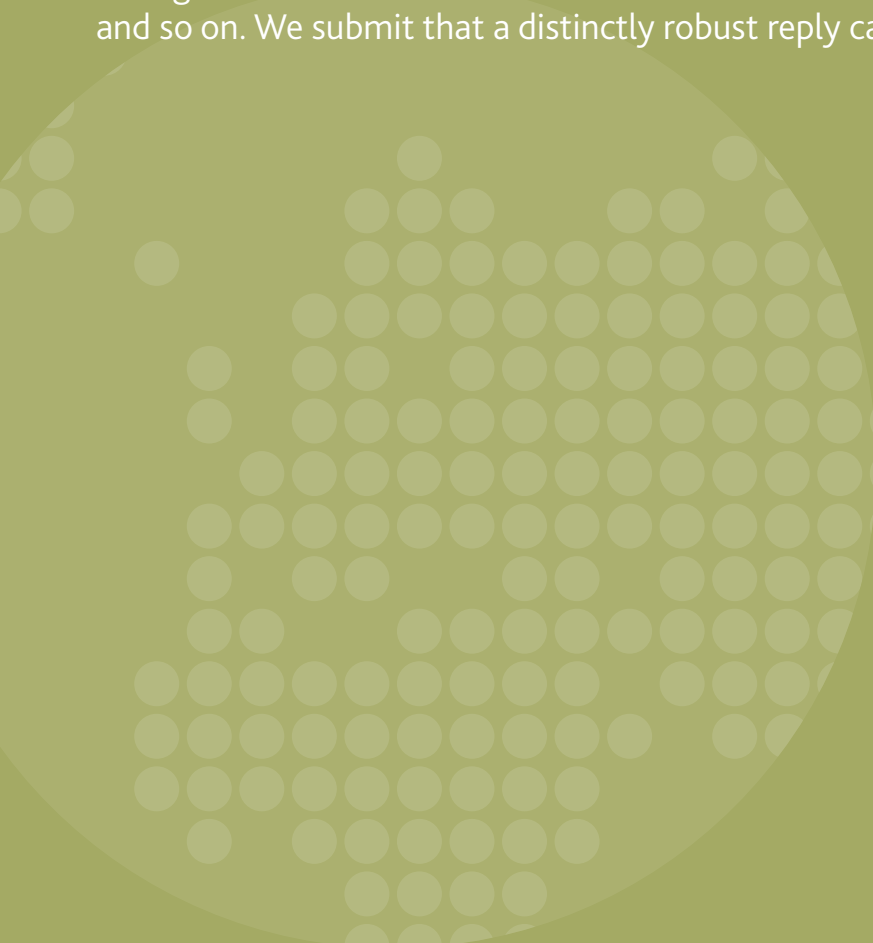
To summarise this data, there are some 80,000 non-UK arts and humanities undergraduates and postgraduates studying here at present and they make a direction contribution per annum of approximately £1.306 billion (£603 million in tuition fees and £703 million in living expenses). By applying multiplier figures of 1.57 and 2.52 to this amount, we learn that the total annual economic benefit capable of straightforward monetary calculation accruing to the UK from just this one part of the UK culture ecosystem comprising the arts and humanities research community lies currently in the range of £2.05 billion and £3.29 billion.

Conclusion

In this chapter we have sought to answer Question 1, ‘Why is arts and humanities research important’, by first situating the AHRC within the context of public funding and accountability, including an emphasis on economic impact, in which we operate, and then by explaining the characteristics and foci of arts and humanities research. We have then shown how arts and humanities research fulfils a vital function within the UK’s ‘culture ecosystem’ that is critical to the British way of life and to our social and economic well-being. We have also provided a metric for one aspect of contribution of the culture ecosystem to the British economy in the form of the immense value of non-UK undergraduates and postgraduates attracted here to undertake arts and humanities degrees, a benefit that lies in the range £2.05 billion and £3.29 billion.

Why should the taxpayer pay for arts and humanities research?

One of the greatest challenges for Government is to decide how to allocate the income it receives from taxation and other sources to competing areas of national priority. This readily translates into asking why should the taxpayer pay for X rather than Y? In this chapter we seek to answer the particular question ‘Why should the taxpayer pay for arts and humanities research?’ in the context of strong claims for such resource to be allocated to health, social services, defence and so on. We submit that a distinctly robust reply can be made to this question.



The UK's arts and humanities researchers are world leaders

The remarkable successes of the British team at the Beijing Olympics in 2008 largely depended on significant public investment in British sport over a period of several years preceding those games. By and large, the British people accepted the scale of that investment for the reason that it produced world-beating sportsmen and sportswomen. We begin this chapter with evidence for the fact that, as with our Olympian victors, the UK's arts and humanities community lead the world. Not only should the British taxpayer draw comfort from this, but the international pre-eminence of the UK's arts and humanities research community provides the foundation for the outstanding economic impact of their research. There are three areas of evidence.

Firstly, the AHRC has developed a list of 80 journals of high international standing in the arts and humanities from which a metric has been derived by assessing the proportion of scholarly articles originating in the UK (as determined by location of the lead author's institution) compared with those from other parts of the world. The AHRC has now conducted a study for 2006, 2007 and 2008:²⁹

²⁹ Since early 2005 the AHRC has been working with the European Science Foundation (ESF) to develop their European Reference Index for the Humanities (ERIH), an open access list of categorised and ranked international journals to serve the research community as a simple benchmarking tool and constitute the basis for the development of a reference index. Category 'A'-rated journals (those deemed to have international significance) from these lists have been cross-referenced with Thomson ISI Web of Knowledge listings to provide a sample of high quality peer-reviewed journals for analysis.

These are the figures with the unknown journal articles removed. The 2007 sample changed as the ERIH lists were updated and so we went back and re-did the figures for 2006.

Analysis of articles published in sample of 80 international arts and humanities journals

	Country of origin*							
	UK	US	Canada	Aus	France	Germany	Other Europe	Other World
2006	32.1%	38.4%	5.0%	3.6%	2.1%	2.7%	10.3%	5.9%
2007	34.3%	34.8%	5.6%	3.9%	2.1%	2.4%	11.0%	5.9%
2008	31.7%	37.6%	4.3%	3.2%	2.7%	2.2%	10.9%	7.3%

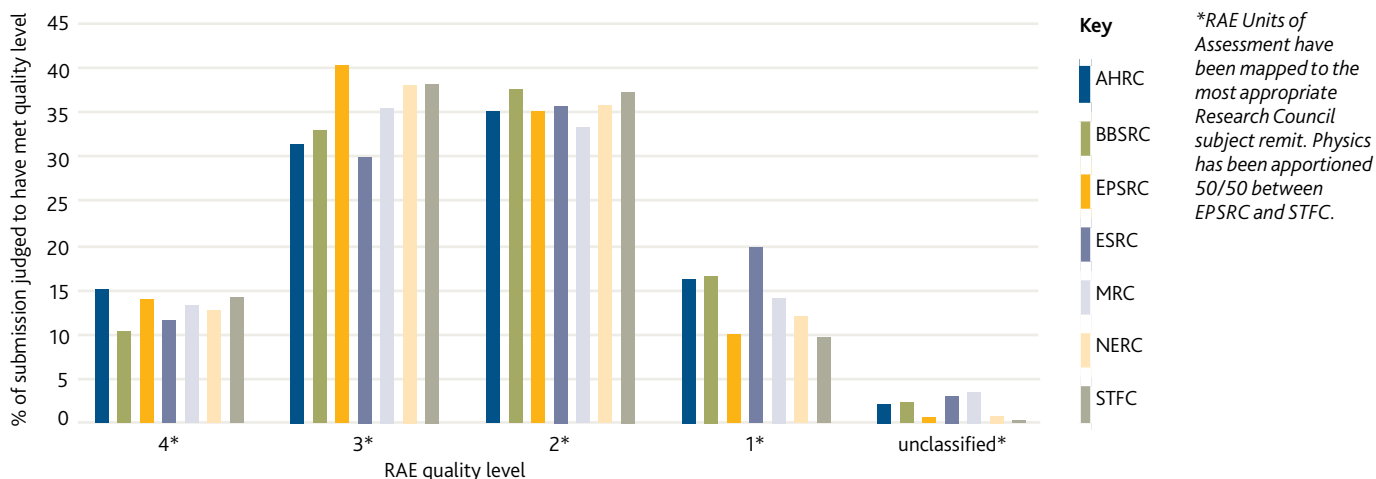
*determined by location of lead author's institution

From these figures it appears that the UK arts and humanities community is producing nearly as many articles as their US colleagues (over three years, the UK produced 33% and the USA 37%), even though the USA has five times our population. By way of contrast, the UK produces 10% of the world's science, compared with 25% for the USA.

Secondly, a similar picture emerges with the number of citations on a nation-by-nation basis. In July 2008 Evidence Ltd published for DIUS a report entitled *International Comparative Performance of the UK Research Base*. This showed that whereas the UK produced 12% of the world's citations, second in the world, with the best result being secured in science in the area of health and medically-related area with 14.5%, humanities (admittedly on a small sample, given that humanities bibliometrics is still at an early stage) produced 24.9% of citations (compared to 44% from the USA).

Thirdly, further confirmation of the fact that the UK's arts and humanities community is the most successful on the world stage of the various sections of the UK research comes from the RAE 2008 findings that show this group secured the highest percentage in the 4* category. AHRC subjects account for 27% of FTE Category A staff submitted to the RAE 2008 (around 14,000 researchers), the largest research community.

RAE 2008 quality profiles by Research Council subject remit*



A new model for the economic impact of arts and humanities research

In early 2008, as part of the Task Force that produced this report, the AHRC commissioned 34 senior researchers to write an essay on the value of an area of arts and humanities research of their choosing. Details of these researchers and their essays appear in the Appendix to this report. While they generated an evidentiary base that actually illustrated 'economic impact' as discussed in Chapter 1, when we began to analyse the essays it became obvious that a way of modelling the data they contained was necessary and that model is set out below. This is not a full analysis of the essays, but draws upon a majority of them to provide evidence of the usefulness of the approach. They will be published separately – in an edited volume.

Modelling the UK's culture ecosystem: A new way of demonstrating the economic impact of the arts and humanities

This model represents a theoretical framework that allows certain prominent features of the data in the essays relevant to the assessment of economic impact to be highlighted in comparison with it. It is a tool for understanding data in a comparative way. In particular, the four quadrants are not a set of pigeon-holes into which data is to be slotted. The same phenomenon may, indeed,

have a relationship with more than one quadrant. As we will soon see, although some areas of value identified by the writers of the essays can sensibly be analysed in relation to a single quadrant, some of them need to be related to two, some to three and some to all four quadrants. There may also be tensions between various phenomena. The model allows us to isolate features of the data and provides a discourse for discussing them; it is a tool, not an end in itself, serving to elucidate and situate data in relation to 'economic impact.' There are no doubt other ways to utilise the data in the essays - other ways to cut the cake, as it were - but this approach will, it is hoped, reveal its worth in what follows.

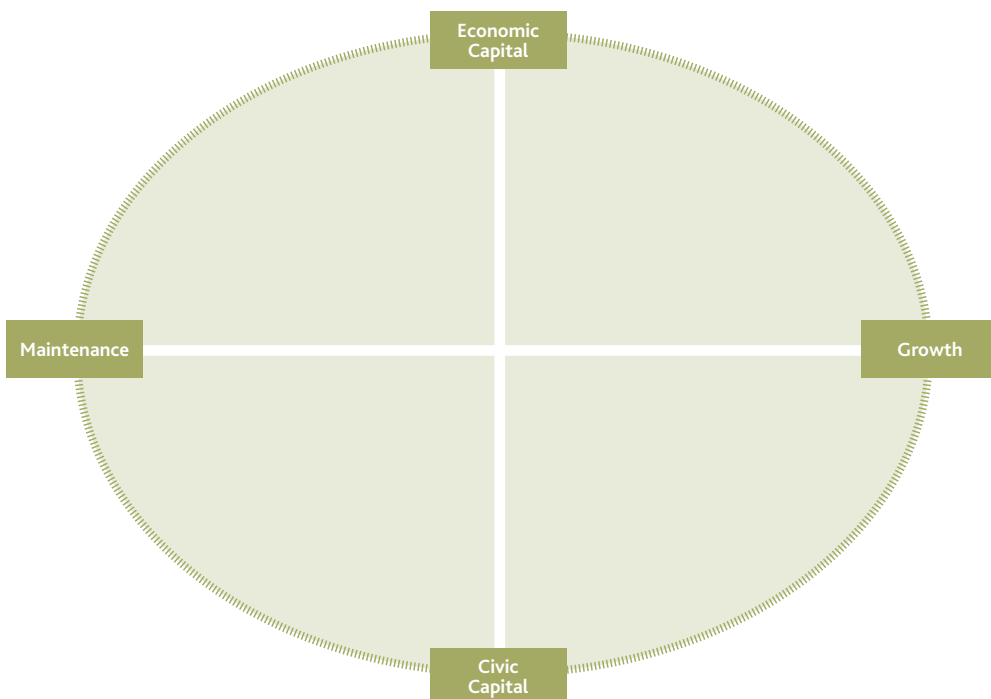
The Capital Axis

Consider first the vertical axis, which covers 'capital'. In economics 'capital' refers to any form of wealth that is capable of being employed in the production of more wealth. Many types of capital are found in a prosperous and successful society.

'Economic capital' usually refers to the amount of capital that a firm needs to ensure that it remains solvent over a certain time period with a pre-specified probability. In our model it is used in a different sense to refer to the totality of wealth represented in a national economy (the annual increase in which is Gross National Product) that is capable of monetary expression.

'Civic Capital' is a development of the 'Social Capital' idea. 'Social Capital', in what is probably its most useful formulation

A model of the Impact of Art & Humanities Research on UK Society & Economy



“A nation’s level of civilization, resting on knowledge preserved and disseminated by humanities experts, is what will keep it safe and allow its expression in a competitive world, more than money or military power”

as expressed by Robert Putnam in 1993, refers to the ‘features of social organisation such as networks, norms, and trust that facilitate coordination and cooperation for mutual benefit’.³⁰ Although there is a certain vagueness attached to this idea, Sanford Ikeda has recently found it still useful as emphasising the emergent character of norms and networks in public space, which is germane to the understanding of the entrepreneurially driven market process.³¹

One problematic feature of ‘social capital’ even understood in this way, however, is that it is incomplete and pitched at too general a level. Social networks, norms and trust take on their particular character and shape from the context in which they exist and, critically, where they are subjected to discussion, analysis and re-formulation. An essential part of this context consists of the knowledge and the competences of those who are members of the group in question. Accordingly, ‘Civic Capital’ is a way of expressing the notion of social capital filled out with such knowledge and competences and, for the purpose of this report, the focus is upon the Civic Capital present in the population of the UK. Here is an example. There are some 50,000 book clubs in the UK meeting regularly. Clearly these represent significant social networks, but ones whose members are possessed of a particular body of knowledge, especially to do with novels written in English, and competence in reading and interpreting those works. Those book clubs represent one part of the Civic Capital of the UK (some of its Social Capital but infused with knowledge and competences).

The notion of ‘Civic Capital’ links well with the importance of tacit knowledge in a civilised and successful society. Tacit knowledge largely refers to knowledge embodied in human beings that is shared and developed in the interaction and movement of people throughout the social system, as opposed to codified or disembodied knowledge in the form of books, journal articles, manuals, databases, patents and so on. The social networks, values and trust at the heart of the notion of ‘social capital’ especially draw upon knowledge in this tacit form to produce ‘Civic Capital’.

Concurrent work by the AHRC’s Impact Task Force on the role of arts and humanities research in the national innovation system shows that tacit knowledge plays a more prominent role in arts and humanities research than it does in scientific research. Unlike the natural sciences, which are heavily dependent on codified knowledge in the form of very recently published journal articles, the arts and humanities are probably more involved in tacit knowledge, as can be seen in their focus on monographs (which, admittedly, codify knowledge) and other outputs that are not so time-limited and, indeed, in drawing upon outputs that may be decades old and have become part of the research landscape with which all in the field are familiar.

³⁰ Putnam, R. D. (1993) ‘The Prosperous Community: Social Capital and Public Life’, *American Prospect*, 4:13

³¹ Ikeda, Sanford (2008) ‘The Meaning of “Social Capital” as It Relates to the Market Process’, *The Review of Austrian Economics* 21.

Although ‘Economic Capital’ appears at one end of the vertical axis and ‘Civic Capital’ at the other, there is relationship between the two. While it is possible to imagine a society with the latter but not the former (for example, a tribe of hunter gatherers in New Guinea untouched by contact with other peoples), it is very difficult to think of a society that has ‘Economic Capital’ but not ‘Civic Capital’. In fact, ‘Economic Capital’ and ‘Civic Capital’ are mutually reinforcing. The two are separated for the purposes of theoretical clarification, not because they are empirically separate. The vertical axis thus represents a spectrum of the main types of capital to which arts and humanities research contributes.

The Maintenance-Growth Axis

One thing that emerges from the 34 essays is the extent to which so many of their authors argue that arts and humanities research is responsible for the preservation of aspects of UK society and life that its citizens regarded as essential. This highlights the fact that, whereas government discourse tends to focus on impacts that take the form of growth (of turning A into A + B), impacts also subsist in preventing the loss or deterioration of something valued (of stopping A becoming A – B). The dramatic recent erosion of national GDPs around the world brings out the pertinence of this fact with great force. This is not to say that certain phenomena do not contribute both to maintaining what is valued and allowing it also to grow; we are dealing here with theoretical explication, not with phenomena that are necessarily cast into one quadrant or another.

Strikingly pertinent here is a view expressed by Samuel Taylor Coleridge in his work *On the Constitution of Church and State* (and favourably mentioned by John Stuart Mill in *On Liberty*), a reference unearthed by one of the essayists, Professor Jonathan Bate, for his own argument.³² Coleridge argued that the nation needs humanities experts to cultivate and enlarge the stock of knowledge and diffuse it throughout the community, to distribute to everyone ‘entitled to its laws and rights that quantity and quality of knowledge which was indispensable both for the understanding of those rights’ and for the performance of corresponding duties. This equates closely with the idea expressed above, that the notion of ‘social capital’ (that includes norms or values within it) requires knowledge to give it meaning in particular contexts. According to Coleridge, the role of these experts is, finally:

To secure for the nation, if not a superiority over the neighbouring states, yet an equality at least, in that character of general civilization, which equally with, or rather more than, fleets, armies, and revenue, forms the ground of its defensive and offensive power.

This is a richly suggestive notion. A nation’s level of civilization, resting on knowledge preserved and disseminated by humanities experts, is what will keep it safe and allow its expression in a competitive world, more than money or military power. Coleridge would not have liked the expression ‘knowledge economy’; he would

³² Coleridge, Samuel Taylor (1830) *On the Constitution of Church and State*.

“The remains of the past can act as powerful symbols that build and strengthen community and local identities, especially in times of rapid change”

have preferred, with good cause, 'knowledge nation.' A people, much more than just an economy, when fortified by an ample understanding of its past and of its cultural productions, including the values it holds dear, will stand firm and even flourish in the teeth of threats or in the face of opportunities, including financial ones.

The Four Quadrants

The combination of these two axes produces four quadrants:

- The maintenance of Economic Capital.
- The growth of Economic Capital.
- The maintenance of Civic Capital.
- The growth of Civic Capital.

Given that one phenomenon may feature in more than one of these quadrants, it is necessary to consider the essays in the light of the model and to discuss the main possibilities that they throw up. For the purposes of the discussion seven will be highlighted: three sets of areas that cross quadrant boundaries and four that fall within them. These possibilities to be analysed are identified on the model as follows:

Analysing the data against the model

1. Maintenance of Civic Capital

Each of the writers of the essays is involved in the teaching of undergraduates. Each year about 145,000 students graduate from undergraduate programmes in arts and humanities in the UK. About half of the academic staff teaching them are research active academics (14,000 in number). Normally we give very little thought to this, but it is instructive to imagine what the UK would be like if it did not have this supply of talented and educated arts and humanities graduates, taught by people familiar with and contributing to the latest research. Whole areas of recruitment would be decimated, including the creative arts and design into which some 45,000 arts and humanities undergraduates proceed each year, and the teaching profession, and the economy would suffer. That is to say, we need all of these graduates and their tacit knowledge to keep the economy turning, just to maintain it in its present state.

Many of the areas of value pointed to by the essay writers are necessary for the maintenance of society itself. Speaking of archaeological research, but making a point that applies to the entirety of our attempts to understand our historical legacy, Mike Parker Pearson writes: 'The remains of the past can act as powerful symbols that build and strengthen community and local identities, especially in times of rapid change'.

A model of the Impact of Art & Humanities Research on UK Society & Economy



As Coleridge pointed out, successful life as a nation requires that citizens understand their rights and duties. Arts and humanities research allows us to understand more fully critical issues like 'England', 'Briton', 'citizenship', 'patriotism', the precise meaning of our rights and duties and the key features of our democratic constitution. They explain to us 'how we have come to be who we are and what we might come to be as a community in the future' (Jonathan Bate). Medieval studies, Bettina Bildhauer demonstrates, give us access in historical depth to these issues and fosters the collective memory on which they are based. Knowledge of the medieval period helps us to understand the present and many aspects of it in important ways. We understand notions of modern identity and modes of being human by contrast with the position in medieval times. To ignore anything that occurred before 1500 risks 'mnemonic decapitation', a loss of vital memory of how we came to be who we are. This is an illustration of the general role of history in understanding current phenomena: 'There is a line from Germaine Greer to equal pay ... and from post-colonialism to the amendments of the Race Relations Act' (Bettina Bildhauer).

Arts and humanities research also enables us to understand the fundamental links between identities and symbols (like Britannia on our coinage). 'Identities, whether of an individual or of a community, are not a given. They have to be forged—created, transmitted, reproduced, performed—textually and semiotically'. Our understanding of this 'is the product of decades of work by hundreds of researchers in the arts and humanities.' (John Joseph). Some of these symbols help to hold communities and nations together. The way texts (understood in a broad sense) are interpreted can have profound consequences in terms of social cohesion, community stability and ethnic and religious tolerance. Without research into the processes of textual interpretation (a key humanities interest) we risk a deterioration of all of these areas (Muslim reactions to the Danish cartoons of Muhammad reveal some of the issues).

Linguistics research brings out very powerfully the way in which the UK is made up of many local and regional identities that are reflected in their own distinctive modes of speech or even languages (April McMahon *et al.*). Popular pressure to ensure the preservation languages of minority languages like Welsh and Gaelic shows how keenly these languages are linked with national and regional identities.

One capacity that any society requires is that its citizens possess capacity for critical thinking, for being able to understand the elements of a problem and to choose between a number of options. A number of the contributors pointed out that humanities research fosters critical thinking of this sort. Literary research offers 'apt models of responsible intellectual activity in a liberal society. It proposes breadth of mind and the dangers of certainty, it speaks up for open-mindedness' (Francis O'Gorman). 'Literary research

reminds a reader of how hard reading is ... It poses new ways of thinking ... such analytical openness is foundational to tolerance, justice and understanding' (Francis O'Gorman).

Another contributor (Richard Howells) noted that arts and humanities research is essential to exploring the meaning of the cultural products we have produced (right across their entire range). In addition, the maintenance and contestation of values and vigorous debate as to what is ethical and what is not are foundational for a functioning democracy. Humanities researchers are central to this process: 'All the values our society holds dear are not timeless, absolute or innate, but rather gestate within the processes of human civilization, generated by culture. The university humanities are the arena where these values can be reflected upon, analysed and debated' (Rónán McDonald).

The need for a society to be able to protect itself and its values emerges most sharply when it is threatened by invasion from outside or by murderous violence from within, such as when genocide occurs. In his essay on Genocide Studies Jürgen Zimmerer shows how humanities research has analysed the roots of genocide as located in a clash of group identities. These identities develop over time, involve collective memory, ethnicities and identity, and can only be properly understood if historical analysis is employed in the process. By exploring how genocide occurred we can prevent it happening again. Without such understanding, we will struggle to devise the right policy that will prevent the extreme social disintegration that genocide represents, or indeed other forms of such disintegration of which it is the most extreme form.

Finally, national identity is maintained through national pride and part of this comes about when arts and humanities researchers are world acknowledged experts, the 'Olympians' of their fields (Jonathan Bate).

2. Maintenance of Economic Capital

Arts and humanities research underpins vast sweeps of the publishing industry (Jonathan Bate) and, we might add, quality radio (as can be seen from the number of arts and humanities researchers who appear on programmes like Radio 4). Without their input into these arenas there would be a diminution of economic capital.

One particularly interesting and innovative area of arts and humanities research that will allow money to be saved on future capital projects in the arts is that described by Alan Short. This relates to a specific AHRC large grant ('Designing Dynamic Environments for the Performing Arts') for a project investigating six capital arts projects from £4.5 million to £68 million. The research provided an in-depth understanding of why the projects did not go as planned and often over-ran. Valuable lessons have been learned for the future and hence for the likelihood of cost savings in relation to projects such as these.

“Unless we understand the empire and its history (including the slave-trade) we cannot understand big issues like multicultural Britain, the troubles in the Middle East and globalisation”

3. *Growth of Civic Capital*

In a particular project that brought together architectural historians, musicologists and acousticians, one AHRC funded project studied the character of musical performances by a leading UK HE choir in a variety of historical buildings in Venice and even in a now lost building that was re-created virtually for this purpose (Deborah Howard). This inspiringly innovative project has not only generated ground-breaking technology, but also stimulated new research projects and provided fresh opportunities for performance and the appreciation of performance in the wider community.

AHRC researchers brought creative writers (children and adults) into dynamic contacts with various landscapes, thus renewing their sources of inspiration and increasing their creativity (Catherine Brace). Speaking of the role of the Victoria and Albert Museum, but making a point that applies to many British museums, Christopher Breward notes that it 'has made a demonstrable and positive impact on both specialist knowledge and the quality of visitor experience, stimulating debate on past and present cultures, and encouraging new approaches to scholarship and the dissemination of expertise in the UK and beyond.' Research in museums represents a major growth-source for civic capital.

Other AHRC researchers in art history induced among a group of non-specialists a strong interest in using church funeral monuments in East Sussex to bring to life important features of regional and British history. They demonstrated that research that encourages a stronger connection with our material heritage in public places 'can provide a powerful means of sharpening our historical awareness, refining our sense of identity and clarifying our understanding of our own behaviour and that of others' (Nigel Llewellyn).

4. *Growth of Economic Capital*

An analysis of a number of successful Knowledge Transfer Partnerships focusing on design has shown a clear link between arts and humanities research in this area and increase in corporate turnover and profitability. Design research 'offers a systematic way of harnessing intuitive or random creative thoughts into a new unified perspective' (Nick Stanley).

Mary Beard has demonstrated that UK research into Greek and Latin literature and the classical world has fed directly into a vibrant group of plays that deal with classical themes and which have enjoyed great commercial success, initially in the UK and then around the world. Her view that the 'success of ancient drama on the modern stage depends on a dynamic collaboration between the theatre and the academy' could also be said of the success of many performances of modern drama that are also fertilised with academic inputs.

5. *Maintenance and Growth of Civic Capital*

Unless we understand the empire and its history (including the slave-trade) we cannot understand big issues like multicultural Britain, the

troubles in the Middle East and globalisation (Andrew Thompson with Guy Dixon). Such understanding alone represents the maintenance of civic capital, but by using it to help foster citizenship, build cohesive communities and a more equitable society, we are increasing civic capital.

The research of W. G. Hoskins (*The Making of the English Landscape*, 1955; rev ed 1977), as explored by Matthew Johnson, made the English landscape accessible in new ways and greatly encouraged engagement with it. Especially for those who began 'reading the landscape' on foot, this enhanced the sense of what it meant to be English. The movement into this landscape fired up by humanities research embraced people of different ethnic and cultural backgrounds and thus generated a sense of their belonging to England and being English. Research into the English landscape, that valorises change, diversity and plurality, has assisted in making the landscape accessible to and inclusive of the poor, the marginalised and people of different faiths and cultures. Engagement by a population with the countryside informed by this research generates a more informed, more liberal, more inclusive and ultimately more humane understanding of what it means to be English or British in the world today. It is central to notions of British citizenship. The contribution of landscape research to social inclusion maintains and builds civic capital.

Literary criticism is a branch of cultural criticism, 'a tool for better understanding how we live now' (Francis O'Gorman). Learning to read properly, as in an English degree, involves entering the world of someone else, of grappling with the incomplete and the difficult, of thinking in new ways of things we thought we knew. 'Such analytical openness is foundational to tolerance, justice, and understanding'. It is interesting to imagine what the UK would be like if we were not continually refreshing such insights in the population. We would be decreasing the resources available to counter pressures towards intolerance and injustice. In other words, English studies are helping us to preserve what we have now and what, for good reason, we value. They help us stop deterioration in our civic capital and our collective instincts for tolerance. 'Literary research in its widest sense proposes ... apt models of responsible intellectual activity in a liberal society.' It forms part of the foundations of a working liberal state. It proposes breadth of mind, warns of the dangers of certainty and speaks up for open-mindedness. In trying to understand what another has left behind it inculcates characteristics of humanity and generosity. It 'serves to make human culture richer by opening up the richness of what has been written.' This relates to the maintenance of civic capital, but literary criticism also produces growth: 'as a source of growth, creativity, human achievement, and the deepening of thought, literary knowledge plays its part in the development of human societies'. Similar views find expression in the essay by Robert Hampson: 'The wealth of literature is both a cultural asset of considerable value and an unparalleled resource for future cultural work'.

Awareness of the complexity of our religious past derived from work by historians of religion is a valuable corrective to simplistic and short-term solutions to present-day religious problems and also provides a context without which British identity cannot be properly understood. Such knowledge also helps to bridge divides between religious and ethnic communities and thus promotes a stronger sense of community (John Wolffe).

For Nicholas Davey, philosophical research provides a challenge to social and cultural norms, bringing unexpected and unpredicted benefits. Through its encouragement of critical analysis and informed reflection, it addresses contemporary anxieties, particularly during times of crisis and change: 'the skills philosophers and their research bring to the social economy are highly relevant and have, in previous crises, been proven to be so. Intellectual flexibility and an innovative capacity for creative analysis and judgement are primary assets for any community whose material and spiritual resources are put to the test.'

Architectural history, as described by Deborah Howard, makes important contributions to understanding what results in a successful building or city, while an ordered society and a well-designed townscape are inseparable.

The re-discovery and editing of the Mitchell and Kenyon film archive from Blackburn brought alive to millions of viewers around the world a hitherto lost working-class, Edwardian world and enabled a powerful sense of re-connection with that time in ways that supported and enhanced local, regional and national identities (Vanessa Toulmin).

6. Growth of Civic Capital and Economic Capital

Architecture increases the value of building (Iain Borden). It helps to raise productivity, profitability and competitiveness and makes safe environments. It leads to increases in process value in architecture, construction and the creative industries. By creating opportunities for positive interaction it builds identity and pride. Architectural research feeding into architecture encourages social health, neighbourly behaviour, safety and security, and the production of environmental value (e.g. increasing concern for inter-generational equity). In other words it augments civic capital.

Design research has led not only to commercial success in the form of new products and services, but in some cases has led to fundamental breakthroughs in understanding phenomena and hence generates new knowledge (Mike Press).

Creative and performing arts research, including in design, throws down a challenge for policy makers 'to reflect the highly distributed, self-organising, post-industrial ecology of the creative industries' (Rita Marcella *et al.*).

7. Maintenance and Growth of Civic Capital and Economic Capital

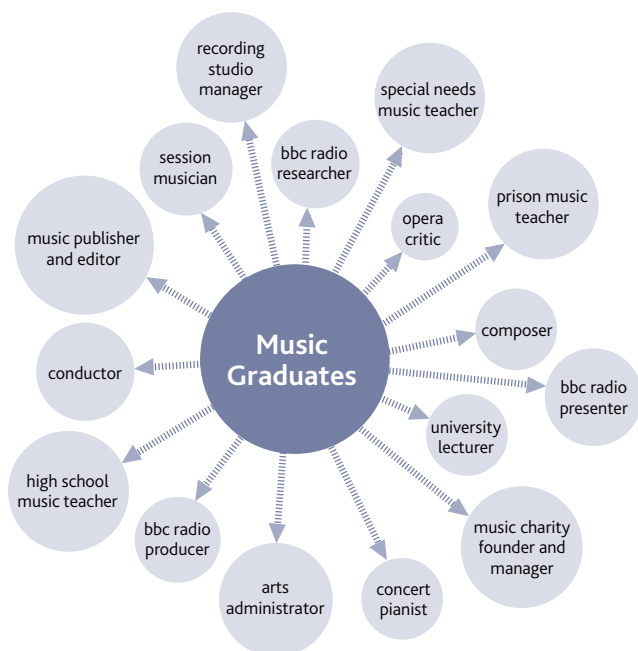
Some areas of arts and humanities research produce impacts specified in all four quadrants. Information Studies (John Feather) is a humanities discipline, not simply a technological one, since it is concerned with how people interact with systems and how systems can be improved to meet the needs of users. It is vital in areas like modernising the NHS, in life-long learning and in businesses from pharmaceuticals to publishing, across the board both in maintaining what we have now and in increasing it.

According to Katie Overy, interdisciplinary music research has the potential to provide insights into 'human perception, communication, intelligence, memory, emotion, perception, society, culture, and even consciousness'. This is in addition to the extraordinary value of core music scholarship in the UK that has been graphically illustrated in two of the diagrams that Katie Overy has provided for her essay. The first of them provides examples of the numerous ways in which music researchers at the University of Edinburgh engage in knowledge transfer and dissemination activities:



“Design research has led not only to commercial success in the form of new products and services, but in some cases has led to fundamental breakthroughs in understanding phenomena and hence generates new knowledge”

Given that probably the most powerful economic impact of arts and humanities research arises from the careers followed by our graduates, her second diagram highlights the wide range of employment of University of Edinburgh music graduates.



This huge array of outcomes, and from just one British HEI, is a striking testament to the economic impact that is being achieved by just one area of arts and humanities research.

Linguistics research (April McMahon *et al.*) can help people 'navigate the complexities of modern society.' For example, it has helped children overcome speech difficulties (maintenance of Civic Capital). It has also reduced prejudice that used to be directed at those who spoke in non-standard accents and generated the important area of forensic linguistics since the 1980s (growth of Civic Capital). But voice-recognition software that builds on linguistics research has also contributed to the improved efficiency and contributed to the profitability of many businesses (maintenance and growth of Economic Capital).

One development has been forensic archaeology (growth of Civic Capital). Archaeology also does a lot to support tourist industries, media communications and museums and heritage centres (maintenance of Economic Capital). More interestingly, in two areas we see archaeology clearly producing a growth of Economic Capital: some archaeological digs lead to the understanding and then rebuilding of ancient irrigation systems, and hence generate new and direct economic benefit, while science-fantasy projections of imagined futures (as in books and computer games) draw heavily on archaeologically researched pasts.

Research into modern languages produces large numbers of graduates and postgraduates who, by in-depth familiarity with other cultures via their languages (plus the comparative insights this gives them into their own), are valuable resources for the processes of social inclusion, both maintaining what we have and also augmenting it. Linguists also contribute to the maintenance and growth of economic prosperity by their role in commercial transactions with trading partners abroad, as shown by the high employability rates (Michael Kelly).

'Tracking-Back' studies: Particular examples of economic impact

Another way to demonstrate the value of the taxpayer's investment in arts and humanities research is by 'back-tracking' from known and valued features of our society that would not exist without such research. The following are examples of research carried out by AHRC, and its predecessor the AHRB and other projects of the type that would have been funded if either had been in existence at the relevant time.

Forensic Archaeology

Over the last 20 years forensic archaeology has played a significant role in the criminal justice system. Evidence from forensic archaeological investigation has proved decisive in many trials and in a number of UK cases, successful prosecutions would not have been obtained without the submission of archaeological evidence. Archaeological evidence was first used in a UK Crown Court in 1988 and has since been recognised in War Crime Tribunals and at the International Criminal Court (ICC) at The Hague. Recent high profile cases include investigations at the former Children's Home in Jersey, and at a house fire in Shropshire where archaeologists were deployed to recover evidence. The importance of forensic archaeology also lies in the investigation and recovery of mass grave sites from massacres, genocides and war crimes. Many NGOs and international organisations employ forensic archaeologists in the recovery of missing persons. This type of work plays an important role in the peace process in post-conflict, transitional societies where reconciliation is aided by resolving the uncertainty regarding the fate of the 'disappeared'. This type of investigation is also increasingly developing a role in disaster victim identification (DVI). These methods are applied to recover the bodies of victims of natural disasters such as the tsunami in South East Asia in 2004, and hurricane Katrina that devastated the US state of Louisiana in 2005.

Forensic linguistics

The term 'forensic linguistics' was coined by Professor Jan Svartvik in 1968. This is the application of the scientific knowledge of language to criminal and civil law. Research in this area has contributed to our understanding of justice. For example, it has led to new ways of communicating rights to suspects in police custody and has challenged the norms of persuasive language in cross examination. Forensic

AHRC-funded research team undertaking geophysical survey in the grounds of Harewood House estate near Leeds

Image courtesy of Timur Tatlioglu, Harewood House Estate and the University of York



linguists have also been called upon to give expert testimony in court cases and are increasingly used to solve crimes. In the high-profile murder case of Danielle Jones, for example, linguistics was used to decode relevant text messages, which assisted in getting a conviction. Advances in this subject led to the German Federal Criminal Police Office setting up a linguistics unit in the 1988. In the UK forensic linguistics took serious root in the early 1990s. However, as the police have not developed a special unit, the university-based forensic linguists continue to remain vital in improving court cases in this country. The increasing demand for forensic linguistic skills has led to the establishment of the Centre for Forensic Linguistics at Aston University.

Evidence-based medicine

Prior to the advent of evidence-based medicine, doctors risked using ineffective or inferior interventions due to an overload of information from scientific studies, difficulty generalising studies to individual patients and lack of time and necessary skills to search and review literature. To help solve these problems, information studies have formed standardised criteria for evaluating the quality of individual scientific studies produced guidance for using these criteria to aid medical professionals in using the evidence base to answer clinical questions. Information specialists or 'Team Knowledge Officers' also work in clinical teams performing searches, filtering and processing results, and aiding appraisal of results. The UK is one of the pioneering users of evidence-based medicine to the extent that it is now also used in system level decision making. Information specialists contribute to the systematic reviews performed for Health Technology Assessments produced by the National Institute for Health and Clinical Excellence (NICE), which inform national policy making. The success of evidence-based medicine is reflected in the spread of evidence-based practice to other professional fields such as social care and education, where practitioners benefit from ongoing professional development and regularly updated practice.

Human rights research

The incorporation of the *European Convention on Human Rights* into domestic UK law in 1998 led to an even greater judicial reliance on academic commentary. The research base is a valuable asset, providing advice for Government, judges, lawyers and public authorities. Today, academic research into law and ethics is having a profound impact on human rights.

Cultural heritage conservation

This is a wide-ranging field with a remit that includes the care of paintings, drawings, prints, sculptures, objects of decorative art and architecture. It bridges the arts and sciences, with conservators coming from a range of backgrounds including the fine arts, art history and archaeology, chemistry, biology and materials science. The Victoria and Albert Museum asserts that there are two sides to conservation, the 'how' of choosing appropriate materials and techniques and the 'why'

of understanding 'what is valued about an object so that, when conservation is finished, the underlying significance of the object is enhanced rather than diminished'. Research helps to develop methods for the conservation and display of objects, maximising opportunities for public engagement with our cultural heritage. The aims, methods and approaches of conservation are constantly evolving to address changing priorities and policy requirements. Engagement with the public is vital to develop awareness of the importance of conservation in preserving our cultural capital. Arts and humanities research has a key role to play in establishing an understanding of the cultural and historical significance of a conserved object: for example, research into the cultural and social context of an object within its time can also help to communicate it to the public.

Archaeology of Neolithic Sites in Britain

Archaeological research into important Neolithic sites in Britain over many years has brought them into great public prominence and helped to enrich our sense of national identity and also to foster tourism. Thus the Avebury site in Wiltshire, a UNESCO World Heritage Site, contains a significant group of major Neolithic and Early Bronze Age ceremonial monuments, which together represent one of the most impressive complexes of prehistoric monuments in Europe. Over the years, research at the site has highlighted Avebury's importance, helping to generate interest in preserving it, and providing a better understanding of its significance. Without the research carried out, it is likely that the site may have experienced greater deterioration and even slipped into decay. Avebury has a local site museum, with exhibits informed or produced by research projects at the site. The learning value of the site is reflected in the large numbers of educational groups that use the museum.

In addition, the Longstones project, which built on the existing body of Avebury research, involved academics from the Universities of Leicester, Bristol and Southampton undertaking research to present new information about the remarkable group of structures, revealing wholly new prehistoric monuments, such as the Longstones enclosure, and confirming the existence of others. Describing the 'rediscovery' of Beckhampton Avenue in *British Archaeology Magazine*, the Longstones team commented that it 'must rank as one of the most dramatic developments in British prehistoric archaeology' providing a sense of the 'megalithic scale of Avebury'.

Arts and Humanities Research in the UK's Innovation System

Arts and humanities research also helps to improve the economic performance of the UK through its contribution to the national innovation system. While innovation policy has traditionally focused on science and technology, arts and humanities subjects make direct contributions to producing innovative goods, services and policies, while also nourishing the nation's cultural existence and inspiring creative behaviour.



Great Norwich Hospital online

Image copyright Great Norwich Hospital online

The arts and humanities seek to understand human experience, agency, identity and expression, as constructed through language, literature, artefacts and performance. They frequently revisit sources of evidence that are often ambiguous and fragmentary, since social phenomena and human behaviour are more nuanced and complex than the operation of physical artefacts, such as the motion of colliding billiard balls.³³ This gives rise to distinctive modes of knowledge in the arts and humanities.

Arts and humanities knowledge tends to be more particularistic, more tacit and less easy to communicate formally. This has implications for how this knowledge is created and shared with others. Yet, because they are less amenable to codification, the arts and humanities are better placed to disrupt and challenge standardised practices and conventional wisdoms.³⁴ The inclination to codify everything can have the perverse effect of leading research towards areas that are easy to codify, rather than areas that are crucial.³⁵

The arts and humanities add to the overall diversification of knowledge creation. They offer distinctive approaches to the understanding of human experience and activity. If innovation is to thrive, it must exploit the knowledge from the entire spectrum of an integrated research base.

Innovation is essential if the UK is to address urgent social issues and is to remain competitive in global markets.³⁶ And it has become even more vital in the new economic climate.³⁷ In the face of the recession, the arts and humanities can offer distinctive contributions to stimulating innovation in sectors with high potential growth, such as in the digital industries.

The AHRC is a key supporter of innovation. It funds research projects, often involving large collaborative teams that investigate complex, multifaceted problems. It also helps to create the highly-skilled people who are vital if innovation is to thrive. The AHRC further inspires a culture of innovation by supporting knowledge transfer activities, bringing researchers and other sectors of the economy together for their mutual benefit.

The *Arts and Humanities Research and Innovation* report, a joint AHRC/NESTA publication, offers a new perspective on how arts and humanities research and the AHRC participate in the UK

innovation system.³⁸ It moves beyond the traditional, out-dated understandings of innovation that only emphasise the science and technology dimensions and goes on to demonstrate the varied and significant ways in which arts and humanities research is important to innovation.

Arts and humanities knowledge is at the heart of innovation

Knowledge forms the base for the innovation process and arts and humanities researchers are adept at creating new ways of looking at and doing things. In the sciences, researchers typically solve a problem and then move on with that experimentally repeatable discovery becoming part of the foundation for further explorations. Arts and humanities research is different. While at times pushing off in new directions, it also often revisits ambiguous and fragmentary sources of evidence, reflecting the complexity of social phenomena and human behaviour. This research has its own models and paradigms as much as any other subject domain; but these tend to be less final. This means that new knowledge in the arts and humanities is rarely sequential but develops and re-evaluates earlier ideas and sources of evidence, viewing them from new perspectives and new contexts. Examples of this work include:

Human rights law. Human rights are integral to modern life and are constantly evolving. Terrorism and changes to the global economy have a profound influence on both the development of the concept and the evolution of legal instruments to protect our human rights in the future. Due to its comparative newness, international human rights law does not have the same degree of judicial precedent as other areas of the law, and as such is heavily reliant upon academic interpretation and commentary. Here arts and humanities research gives us the context and knowledge that allow us to understand the complex effects of change on society.

Computer imaging. John McGhee, an AHRC-funded doctoral researcher at the University of Dundee, has undertaken research to show how 3-D digital visualisations drawn from animation and computer imaging in the film, TV and games industries can enhance medical scans, and so help communicate the processes of disease to patients.

In the new economics growth literature, knowledge is seen as the key input with labour and capital in determining output.³⁹ The strength of the innovation system depends on the effectiveness of institutions in disseminating this knowledge to others who

³³ Kline, S. (1995) *Conceptual Foundations of Multidisciplinary Thinking*. Palo Alto: Stanford University Press

³⁴ Kenway, J., Bullen, E. and Robb, S. (2004) 'Global Knowledge Politics and "Exploitable Knowledge"' in Kenway, J., Bullen, E. and Robb, S. (eds) *Innovation and tradition: the arts, humanities and the knowledge economy*. New York: Peter Lang

³⁵ Lester, R. and Piore M., (2005) *Innovation: The Missing Dimension*. Cambridge, Mass: Harvard University Press

³⁶ Department for Innovation, Universities and Skills (2008) *Innovation Nation*. London: DIUS.

³⁷ Leadbeater, C. and Meadway, J (2008) *Attacking the Recession: How Innovation Can Fight the Downturn*. London: NESTA.

³⁸ Bakhshi, H., Schneider, P. and Walker, C. (2008) *Arts and Humanities Research and Innovation*. Bristol: AHRC & NESTA.

³⁹ Romer, P. (1986) 'Increasing Returns and Long Run Growth', *Journal of Political Economy*, 94, 1002-37; Lucas, R.E (1988) 'On the Mechanics of Development', *Journal of Monetary Economics*, 22, 3-42; Aghion, P. and Howitt, P (1998) 'Capital Accumulation and Innovation as Complementary Factors in Long-Run Growth', *Journal of Economic Growth*, 3/2, 111-130.

have the capacity to use it.⁴⁰ Higher education teaching is also a significant source of knowledge transmission, and the nexus between research and teaching is central to providing students and society with the skills needed to engage with the growing complexities of the world.

Further examples of AHRC funded projects are given in Chapter 3.

Five generations of innovation

Some economists have delineated five generations of innovation and have proposed that an advanced knowledge-based economy is now in the fifth generation.⁴¹ The following chart, from a recent paper by Jason Potts and Kate Morrison entitled 'Nudging Innovation' and sponsored by NESTA, sets out the five generations of innovation:⁴²

Table 1. Five Generations of Innovation Process⁴³

Generation	Description
1st: Supply push	<ul style="list-style-type: none"> ■ Science ■ Technology ■ Applications by firms to market
2nd: Market pull	<ul style="list-style-type: none"> ■ Market demand ■ R&D ■ technology & manufacture ■ sales
3rd: Coupling model	<ul style="list-style-type: none"> ■ Science and technology ■ interactions between R&D, design, operations, marketing, etc (all within the firm) ■ Markets
4th: Collaborative model	<ul style="list-style-type: none"> ■ Science and technology ■ interactions between R&D, design, operations, marketing, etc (collaboration with customers, suppliers, research alliances) ■ Markets
5th: Strategic, integrated & open	<ul style="list-style-type: none"> ■ Systematic interactions with all sources of knowledge

According to Potts and Morrison, 5G innovation denotes, 'the frontier' of business innovation, the current best-practice in relation to new digital technologies of production, communication and innovation, business networks and the rise of 'co-opetition' (a notion developed by Brandenburger and Nalebuff in 1996). It leads to increasing interaction with suppliers and consumers, adaptation of business

⁴⁰ Furman, J. and Stern S. (2004) 'Climbing Atop the Shoulders of Giants: The Impact of Institutions on Cumulative Research' *NBER Working Papers* 12523

⁴¹ This section on the five generations of innovation represents a development of what appeared in *Arts and Humanities Research and Innovation*.

⁴² Potts, J. and Morrison, K (forthcoming 2009) *Nudging Innovation*. London: NESTA

⁴³ Rothwell, R. (1994) 'Towards the Fifth-generation Innovation Process' *International Marketing Review*, Volume 11, Issue 1, pp 7-31.

models to take advantage of the increasingly distributed and open nature of knowledge production and the 'intensification of innovation'. They identify five key aspects of 5G innovation process (see Table 2).

Table 2: Aspects of 5G Innovation

5G dimension	examples
business networks	Consortia and joint venture formation, social and professional networks, 'co-opetition'
innovation technologies	Multi-agent simulations of new product uptake, visualisation and virtual world technologies, rapid prototyping
multiple sources of ideas/novelty	Increasing importance of lead users and beta testing, marketing focus on bidirectional dialogue, rise of consumer co-creation
role of brokers	Innovation marketplaces e.g. yet2.com, nine sigma, innocentive, commercial value of brokering e.g. Innovation Xchange
importance of business models	Value realization through connecting assets and knowledge

How arts and humanities research fosters innovation

Arts and humanities research offers new and innovative approaches that have profound impacts on society. It also allows us to understand the complex effects of change on society, and illuminates the ethical foundations of the innovation system as a whole. The critical capacity of the arts and humanities to challenge conventional assumptions is an essential asset if innovation is to thrive. This is combined with the ability to provide a sense of the historical context, traditions and cultural setting in which society and the economy function.

■ Innovations also occur at a faster rate when technical feasibility is allied with cultural acceptance.⁴⁴ A good example of this is that the possibilities opened up by biotechnology – such as stem-cell research and cloning – are not necessarily the same as those that are acceptable to society.

■ The languages created by the arts and humanities can also communicate complexity in comprehensible ways. The great policy breakthroughs of the nineteenth century that led to the provision of healthcare and education - and which ultimately led to the welfare state occurred partly through changes in people's sensibilities to the poor. The catalyst was not merely empirical discoveries or new arguments but imaginative literature, such as the works of Charles Dickens.

⁴⁴ Hargrave, T. And Van de Ven, A. H. (2006) 'A collective action model of institutional change', *Academy of Management Review*, 31(4), 864-888

“The critical capacity of the arts and humanities to challenge conventional assumptions is an essential asset if innovation is to thrive.”

- There is also a strong affiliation with the creative industries, which stimulate and support wider innovation in the UK.⁴⁵ The video games sector, for example, uses art, drama, non-linear narratives and music to produce innovative games. These developments also act as an impetus to the technological innovations that enable them to occur.⁴⁶
- An AHRC Knowledge Catalyst project brought a researcher from the University of the West of England and Licorice Films Ltd together to implement an award-winning experimental new form of Alternative Reality Game, using multi-platform media.⁴⁷ Working outside the established route of studio sponsorship demonstrates the potential for developing further interactive narratives.
- Arts and humanities research also feeds into many other sectors. For example, an AHRC Research Grant is supporting an interdisciplinary project based at the University of Ulster, which is creating strong materials that could help to transform the construction industry. The research is focusing on the development of structural materials using natural yarns and resins from renewable sources to create a new class of eco-composite material. The project aims to redirect technical expertise, which has been put to use in aerospace engineering, with a creative impetus that will produce contemporary, dynamic, patterned composite surfaces for use in seating, wall partitions and fascias. This will help the UK woven textile industry to complete globally by producing radical, new high-quality products.
- Arts and humanities researchers are increasingly taking a larger role in innovation. They work in collaborative teams inside and outside academia, especially to investigate large and multifaceted problems. They also join with scientists to tackle complex societal issues. And they are involved in practice-led research, such as in design and the performing arts, where costs can be just as high as in many science settings.

Conclusion

In this chapter we have sought to answer Question 2 ‘Why should the taxpayer pay for arts and humanities research?’ We have, firstly, set out evidence for the UK’s arts and humanities researchers being the world leaders. Secondly, we have proposed a new model for asserting the economic impact of arts and humanities research by modelling the evidence culled from over thirty essays by leading arts and humanities researchers representing a large cross-section of our disciplines. Thirdly, we have provided a number of ‘tracking-back’ studies that show how arts and humanities research has contributed to a number of valued features in our society. Finally, we have outlined the role that arts and humanities research has in improving the economic performance of the UK through its input into the national innovation system, especially by summarising new work undertaken jointly with NESTA in 2008.

⁴⁵ Bakhshi, H., McVittie, E. and Simmie, J. (2008) *Creating Innovation: Do the creative industries support innovation in the wider economy?* London: NESTA.

⁴⁶ Miles, I. and Green, L. (2008) *Hidden Innovation in the Creative Industries*. London: NESTA.

⁴⁷ Dr Tom Abba, University of the West of England, EVA - *Alternate Reality Game*, AHRC Knowledge Catalyst, Ref No: 128959, Amount awarded: £13,042, Project duration: 1/3/2007 – 30/9/2007.

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The outer circle of Avebury stones.

Image courtesy Dr Mark Gillings - University of Leicester



Why fund arts & humanities research through the AHRC?

The UK's Research Funding Landscape

Government in the UK funds research through a dual support system: a core grant for teaching and research infrastructure by the four national Funding Councils, and project grants from the seven UK-wide Research Councils. The Funding Councils allocate Quality-Related (QR) Funds for research infrastructure to individual Higher Education Institutions (HEIs), based on the result of the recurring Research Assessment Exercise (RAE). The Research Councils in contrast provide a competitive stream for research project specific funds.



“A well-functioning dual support system allows for a diversity of judgements and decision points, which has a clear benefit to the innovation system.”

There is a crucial interface between the two sides of the dual support system. QR funding, allocated by formula, brings continuity and predictability to research infrastructure and so supports forward planning. It also sees institutions as autonomous bodies and allows institutions to develop local strategies. Research Councils, meanwhile, as well as strongly supporting blue-skies research, provide guided strategic support that more directly takes account of wider policy requirements, and can react to cross-institutional and UK-wide priorities for the research base. They also provide a focal point for their research communities, supplying a national voice and strategic leadership.

A well-functioning dual support system allows for a diversity of judgements and decision points, which has a clear benefit to the innovation system. This plurality and flexibility represent the major advantages of dual support, as both local and national perspectives are sustained.

Apart from the dual support system, there are other sources of research funding for the arts and humanities. These include the British Academy, charitable trusts, the European Union and other international bodies. The AHRC works within this broader landscape, and provides a strategic, UK-wide focal point, as well as providing project funding across the full subject domain of arts and humanities research.

It is, however, striking how in the arts and humanities, AHRC funding accounts for only 23% of the dual support funding for the arts and humanities, compared with the natural and physical sciences, where Research Council support is in the region of 65-70% (based on 2006/07 figures). And overall, only 2.8% of total Research Council expenditure (provided through the Science and Research Budget) on research and postgraduate funding is allocated to the arts and humanities, despite these disciplines representing 27% of all UK research-active academics. The proportionally low Research Council funding relative to the sciences does not adequately resource the increasing strategic importance of arts and humanities research to innovation, especially as a knowledge-based nation like the UK moves further and further away from the linear, technology-fixated innovation processes of first generation innovation.

The AHRC and the HE Funding Councils

The research funding for arts and humanities that comes from the four national HE Funding Councils allocated on the basis of the previous QR totalled £296 million in 2008-09. The research funding provided by AHRC totalled £60 million in 2008-09.

These data show that QR is five times as large as the AHRC's research support, whereas in the sciences the position is very different. This means that the AHRC has to ensure that it derives value from its investment by maintaining distinctiveness in

relation to QR (as well as to other funders, such as the British Academy and the Leverhulme Trust). Here we set out the main ways such distinctiveness is achieved, especially through large-scale collaborative research, postgraduate training and knowledge transfer (the AHRC's first three Strategic Aims).

The distinctive ways the AHRC produces economic impact

Large-Scale Collaborative Research with Impact

The principal reason for funding arts and humanities research through the AHRC is that it is the only funding body in the UK that supports large-scale collaborative research, from workshops and networks on the one hand to £1 million research grants on the other. These are the new AHRC Awards across all Research Schemes in 2007/08:

	Awards Made	%	Amount Awarded (£)	%
Collaborative Awards	234	51	49,994,041	85
Individual Awards	228	49	8,709,532	15
Total	462		58,703,573	

The AHRC devotes about 85% of its research budget in monetary terms to collaborative awards and 15% to individual awards. Secondly, considering that many collaborative awards run for several, typically three, years, it follows that at any one time there are a large number of researchers working on them. As at 1st January 2008, for example, we were supporting 2013 people in the research area and of those about 1,800 were working in collaborative projects.

Collaborative Research within a Single Discipline

Much of this research, even occurring within the boundaries of one discipline, can have dramatic impacts as these examples of AHRC-funded projects show:

- A project which has made important advances in reducing the likelihood of torture around the world has resulted in NGOs in this area receiving a right of audience to an important UN Committee and has led to its researchers gaining an international profile, so that they are consulted by the UK and foreign Governments⁴⁸ The Project concerns the Optional Protocol to the UN Convention against Torture, Inhuman and Degrading Treatment and provides for a system of visits to places of detention to be carried out by independent national and international bodies with the aim of combating torture and preventing it from occurring.

⁴⁸ Professor Rachel Murray, University of Bristol, *Evaluating the effectiveness of the national institutions under the optional protocol to the UN convention on torture* AHRC Research Grant, Ref No. 119221, Amount awarded: £281,553, Project duration: 1/6/2006 – 31/5/2009.

Portrait of Min Chin from the collection of photographer Fu Bing Chong
Image Courtesy of Picturing China, Bristol University



■ A project on the History of the Chinese Maritime Customs Service (1854-1949), whose researchers supplied information to the British Foreign Office that enabled them to develop a response to individual claims for compensation from relatives of former Chinese employees who had lost pension rights after 1940, and who were mistakenly attempting to lodge claims with the British government. The aim of this project was to advance understandings of the modern Chinese state and of imperial history by focusing on the extensive Chinese Maritime Customs Service archive at the Second Historical Archives of China, Nanjing. The project aimed to make this material fully accessible to scholars and to pioneer its analysis in relation to the history of modern China and of colonial administration. The project has led to further research and activities for the project team, including collaboration with the Meteorological Office's climate change research unit, the Hadley Centre at Exeter, leading to a Knowledge Catalyst award considered later in this chapter. This project shows the dramatic impact that can arise from a curiosity-driven research grant.

■ A project which uses the Royal Shakespeare Company's Complete Works Festival to explore the potential of the English literary

heritage to meet the diverse, and possibly conflicting, social and commercial demands made of it.⁴⁹ The project team is investigating the different ways of talking about the value of 'Shakespeare' in literary criticism, educational and cultural policy, and theatre practice. This will inform future cultural and educational policy in this area, and builds on the heritage of the UK. The research looks at the historical origins in the emergent commercial culture of early modern theatre and their reiteration in the changing economic relations of theatre in the twentieth century. It draws on the Royal Shakespeare Company archive to research the traditions of performance in the Company and their changing relationship to public expectations. The project, by combining different strands of research, and by including a Post-Doctoral Research Fellow and two Doctoral Students, includes collaborative learning and provides a much more comprehensive account of the relationships between the artistic, educational, economic and commercial dimensions of the cultural value of Shakespeare than could be provided by any one or more researchers working independently.

■ A project that assesses the process and legitimacy in the nomination, election and appointment of international judges.⁵⁰ The project has attracted a high degree of interest and support amongst government representatives, judges of international courts and other international experts. At the International Criminal Court (ICC), Assembly of State Parties (ASP) and in New York, a number of government representatives indicated that the research is necessary and will make a practical contribution. The Presidents of the International Court of Justice (ICJ) and the ICC have indicated their interest in the project, and have expressed willingness to meet with the project team. The research will provide the first empirically based analysis of the selection process at the international court level; data and analysis that is currently lacking in academic and policy literature in this area.

■ A project that is working towards a new practice of 'care for creation' and a new, non-anthropocentric eco-theology, by bringing the Bible into fruitful conversation with contemporary environmental issues and ecological theology. This will foster research interaction across sub disciplinary boundaries, in order to consider what type of interpretation is justifiable and appropriate to allow the biblical texts to function constructively in the formulation of an ecological theology.⁵¹

⁴⁹ Professor Kathleen McLuskie, *Interrogating cultural value in the 21st Century: The Case of 'Shakespeare'*, AHRC Research Grant, Ref No.120474, Amount awarded: £358,435, Project duration: 1/10/2006 – 30/09/2010. ,

⁵⁰ Professor Philippe Sands, University College London, *Process and legitimacy in the nomination, election and appointment of international judges*, AHRC Research Grant, Ref No. 119189, Amount awarded: £260,445, Project duration 01/03/06 – 28/02/09.

⁵¹ Professor David Horrell, University of Exeter, *Uses of the Bible in Environmental Ethics*, AHRC Research Grant, Ref No. 120398, Amount awarded: £196,333, Project duration: 1/9/2006 -30/9/2009.



Allen Lane, founder of Penguin Books.
Courtesy of Bristol University Special Collections – Penguin Archive

Collaborative Research across Arts and Humanities Disciplines

The AHRC is the only arts and humanities funding body in the UK that supports large-scale collaborative research across disciplinary boundaries.

One example is the AHRC Research Grant that is investigating the Penguin Archive, based at the University of Bristol. This is a vast collection of the publishing company's papers.⁵² The Archive offers an insight into the history of the book and publishing, and on Penguin's significant contribution to British culture. Realising the full value of the archive requires a multifaceted, multidisciplinary approach, one brought about by the bringing together of the Departments of English, Historical Studies and Classics at the University of Bristol.

The AHRC leads on the Religion and Society programme, funded jointly with the ESRC. This has produced a number of projects that are addressing major issues of ethnic and religious tension and violence that bear directly on our security.

A collaborative project in the AHRC/ESRC Religion and Society Programme which has brought a criminologist and a theologian together to bring a new perspective on religio-political extremism.⁵³ It has explored how Muslim groups work through partnerships with the police to engage their communities in challenging religiously-endorsed violence. In particular, the study has looked at discourses of 'extremism', how they are constructed and used, and the structures and processes of Muslim/police partnerships. As well as the wider social and political factors that impact upon these engagement processes, the researchers have also investigated other issues, such as the impact of British foreign policy.

An AHRC Research Grant is using audience research and neuroscience to explore responses to dance and the context in which it is seen by spectators with different levels of expertise to widen access and to enrich the cultural experience and quality of life for many people.⁵⁴ The project is investigating how dance spectators respond to and identify with movement. Neurophysiological research has shown that kinesthetic response (the sensation of movement and position) is more likely to be activated if spectators have acquired the necessary skills to execute the observed action. Yet this research on its own cannot investigate the social context or the lived experience of spectators. And so this project is multidisciplinary and employs innovative audience research techniques in interaction with the neurophysiological research.

⁵² Dr John Lyon, University of Bristol, Penguin Archive Project, AHRC Research Grant, Ref No. 136237, Amount awarded: £554,461, Project duration: 1/3/08 – 29/2/12.

⁵³ Dr Basia Spalek, University of Birmingham, *An Examination of Partnership Approaches to Challenging Religiously-Endorsed Violence involving Muslim Groups and Police*, AHRC Small Research Grant – Religion & Society, Ref No. 130105, Amount awarded: £83,211, Project duration: 1/10/07 – 30/9/08.

⁵⁴ Professor Deirdre Reynolds, University of Manchester, *Watching Dance: Kinesthetic Empathy*, AHRC Research Grant, Ref No. 136262, Amount awarded £526,493, Project duration: 1/4/08 – 31/3/11

Other AHRC-funded strategic programmes also regularly fund research that cuts across disciplinary boundaries.

One project in our Landscape and Environment programme is investigating environmental change in the Lower Omo valley in Ethiopia.⁵⁵ Over the past 200 years it has undergone large-scale physical changes, due to falling rainfall, which have affected, and been affected by, patterns of human movement, settlement and use. The multidisciplinary team is investigating the sequence of environmental changes over this period, and whether recent trends have been unprecedented or within the normal range of variability. This includes the ways that these changes have influenced, and have been influenced by, the land-use, migratory and seasonal movements, social institutions and cultural values of the local population

Another project with AHRC funding is for the Women, Ageing and Media research group to run a series of workshops and an international conference to conduct an investigation into print and screen representations of older women.⁵⁶ This linked academics from different cultural and intellectual backgrounds and positioned emerging research on 'older women' in media and cultural studies alongside established research in healthcare policy, gerontology, economics, social care and sociology that currently dominates existing knowledge. In addition to the interrogation of current trends in representation, the project also addresses the historical invisibility of the material and social experience of older women within the media.

The Four AHRC Research Centres

The AHRC also provides support for large-scale collaborative research in particular areas through the four centres that are currently being funded.

The AHRC Centre for Studies in Intellectual Property and Technology Law

The Centre was established at the University of Edinburgh in 2002.⁵⁷ Its research themes examine the synergies between intellectual property law and information technology law, together with work on media law, medical law and ethics, and forensic evidence. Its remit is to consider the relationship between law, policy and technologies in the broadest sense. This includes biotechnology, law and artificial intelligence, regulation of electronic commerce and the internet, and the effect of the law on information management and cultural production and archiving

⁵⁵ Professor David Anderson, *Landscape people, and parks: environmental change in the Lower Omo valley, southwestern Ethiopia*, AHRC Research Grant (Landscape and Environment), Ref No. 127978, Amount awarded: £504,642, Project duration: 1/6/07-31/5/10.

⁵⁶ Dr Ros Jenings, University of Gloucestershire, *Women, Ageing and Media*, AHRC Research Workshops, Ref No. 136585, Amount awarded: £24,358, Project duration: 1/2/08 – 31/7/08.

⁵⁷ Professor Hector MacQueen, University of Edinburgh, *The AHRB/C Research Centre for Studies in Intellectual Property and Technology Law*, AHRC Research Centre, Ref No: 12832, Amount awarded: £936,300, Project duration: 1/1/2002 – 31/12/2007; Professor Graeme Laurie, University of Edinburgh, *The AHRC Research Centre for Studies in Intellectual Property and Technology Law*, AHRC Research Centre Phase 2, Ref No. 120176, Amount awarded: £1,647,187, Project duration: 1/4/2007 – 31/3/2012.

“As a world leader in its field, the AHRC CECD is advancing the understanding of human cultural diversity. It is a collaborative institution involving a large national and international network.”

AHRC Research Centre for Musical Performance as Creative Practice

The Centre will be launched in October 2009. It developed out of the former AHRC Research Centre for the History and Analysis of Recorded Music (CHARM), which was established in April 2004.⁵⁸ The new Centre builds on CHARM's research achievements, and will focus on live musical performance and creative music-making in a range of contexts and conditions. It aims to generate new capacity and capability in the discipline by developing new understandings of musical performance's creative dimension as manifested in live music-making. The Centre will be based at Royal Holloway, University of London, the University of Oxford and the University of Cambridge. One of the research projects will take place at the Royal College of Music.

The AHRC Research Centre for Law, Gender and Sexuality

Founded in 2004, this is an interdisciplinary, international research centre, with a focus on the relationship between gender and sexuality, on the one hand, and law, governance and normativity, on the other.⁵⁹ It addresses different forms of inequality, and employs new methodologies that intersect and reconnect the humanities and social sciences. This involves bringing together criss-crossing themes and changing modes of regulation. It also engages with policymakers, NGOs and lawyers over current legal developments and policy reform. The centre is based at the University of Kent, in collaboration with the Universities of Keele and Westminster.

The AHRC Centre for the Evolution of Cultural Diversity [CECD]

CECD is a Phase Two AHRC Research Centre (2006–2010), building on the earlier work of the AHRB Centre for the Evolutionary Analysis of Cultural Behaviour ('CEACB').⁶⁰ CECD is exploiting the CEACB's established position as a world leader to accelerate the development of the new discipline of cultural evolutionary studies. This is emerging in the interstices of several existing fields, including archaeology, anthropology, linguistics, human genetics and mathematical modelling, with the aim of understanding the evolution of human cultural diversity. As a world leader in its field,

⁵⁸ Professor Nicholas Cook, Royal Holloway, University of London, *The AHRB/C Research Centre for the History and Analysis of Recorded Music*, AHRC Research Centre, Ref No. 15675, Amount awarded: £958,440, Project duration: 1/4/2004 – 31/3/2009; Professor John Rink, Royal Holloway, University of London, *The AHRC Research Centre for Musical Performance as Creative Practice*, AHRC Research Centre Phase 2, Ref No. 120177, Amount awarded: £1,714,259, Project duration: 1/4/2009 – 31/3/2014.

⁵⁹ Professor Davina Cooper, University of Kent at Canterbury, *The AHRB/C Research Centre for Law, Gender and Sexuality*, AHRC Research Centre, Ref No. 15705, Amount awarded £881,686, Project duration: 1/5/2004 – 30/4/2009.

⁶⁰ Professor Stephen Shennan, University College London, *The AHRB/C Centre for the Evolutionary Analysis of Cultural Behaviour*, AHRC Research Centre, Ref No. 11166, Amount awarded: £792,527, Project duration: 1/1/2000 – 31/12/2005; Dr James Steele, University College London, *The AHRB/C Research Centre for the Evolution of Cultural Diversity*, AHRC Research Centre, Ref No. 111956, Amount awarded: £1,201,270, Project duration: 1/1/2006 – 31/12/2010.

the AHRC CECD is advancing the understanding of human cultural diversity. It is a collaborative institution involving a large national and international network. Its research programme focuses on the relation between cultural and linguistic diversity. It is focusing on three big themes: (a) What has been the role of demographic expansions and contractions in accounting for major cultural changes in the past? (b) What are the links between the processes producing cultural and linguistic diversity and how do patterns in the two relate to one another? (c) How do innovations arise and diffuse in complex social networks? The Centre is undertaking a major outreach programme to convey the importance of this work to academic and non-academic audiences.

Cross-Council Programmes

The AHRC also funds researchers in cross-research Council programmes in areas that address the big questions of national and global significance, as in the programmes Global Uncertainties, the New Dynamics of Ageing, Living with Environmental Change and Digital Economy. Examples include:

- A £5.5 million investment from the AHRC and Economic and Social Research Council (ESRC) in 14 new fellowships under the Research Councils' Global Uncertainties programme is anticipated to have significant impact both within the academic community and, where appropriate, on policy and practice. Exploring how individuals, communities and nation states form their ideas and beliefs about security and insecurity will form the basis for the fellowships which will also look at why some ideas and beliefs can lead to conflict, violence or criminal activity. The Fellowships will also investigate how language, images and symbolism are used and perceived by different groups.
- A team at Keele University is working in close collaboration with Manchester City Council and other local agencies to increase understanding of the social, health and psychological processes involved in promoting independence and social engagement among older people in disadvantaged urban communities.⁶¹ The research is funded through the New Dynamics of Ageing programme, a multidisciplinary research initiative involving the AHRC and five other Research Councils, with the ultimate aim of improving the quality of life of older people. The participatory research design will examine four different forms of community initiative in deprived neighbourhoods of Manchester. A central feature will be the involvement of local communities, especially of diverse groups of older people, in clearly defining the research questions. The research will have community, policy and theoretical implications, and the team will work closely with partners to encourage the design of policies and practices that can improve the quality of older people's lives.

⁶¹ Promoting independence and social engagement among older people in disadvantaged communities, New Dynamics of Ageing programme

“At any one time the AHRC supports some 2,500 students on Doctoral and Masters Awards, representing around 10% of the entire arts and humanities postgraduate population and some 30% of doctoral students..”

Specific knowledge transfer activities

The AHRC is the only arts and humanities funding body that is driving forward a knowledge transfer and economic impact agenda (in unison with the other six Research Councils), especially by brokering relationships between academic and non-academic partners in the public and private sector, for the benefit of industry, public policy and the quality of life.

Knowledge Transfer Fellowships

The AHRC-designed Knowledge Transfer Fellowship allows an arts or humanities researcher to work with a non-academic partner on a project that is likely to have a high economic impact.

- One example is the AHRC Knowledge Transfer Fellowship that has brought together historians at the Open University and staff at the Metropolitan Police Historical Collection with the aim of bringing issues of policing in a democratic society down to an everyday, non-sensational level.⁶² Academics at the Open University, well-known for their work on the history and development of policing, will provide advice and expertise to museum staff, in order to develop the museum and to make its resources widely available to the general public, to schools and to academics. The project will present teaching packages and an exhibition to schoolchildren and the impact will lie in better relations between the police and the community.

Knowledge Catalyst

This is a programme devised by the AHRC as a form of mini-Knowledge Transfer Partnership ('KTP'), allowing our researchers to work with a company on a particular business-related project for as short a period as three months. This is very suitable for companies in the creative industries which tend to be SMEs or smaller and do not have the resources to devote to three year projects typical of KTPs.

- A team at the University of Bristol worked with the Met Office's Hadley Centre and the Atmospheric Circulation Reconstructions over the Earth initiative (ACRE) on a project that aimed to take advantage of a unique opportunity to use humanities research to inform scientific climate change research.⁶³ The main objective was to identify records of climate conditions in 19th century East and South East Asia, in order to support the Met Office's Hadley Centre in Exeter, one of Britain's major centres for climate change research. The project resulted in the most comprehensive inventory to date covering historical Chinese instrumental weather observations. It also highlighted the need to bring the China Meteorological Administration and

other Chinese institutions into a collaboration to extract the full extent of material this inventory has uncovered – an interaction that ACRE has been working to achieve for some time. The impact here concerns the ability to understand global climate and climate change better and to formulate necessary policy.

AHRC/BBC Pilot Knowledge Exchange

In a unique collaboration, the AHRC and the BBC have joined forces to fund eight pilot projects in areas of specific business need to the BBC where arts and humanities researchers have an indispensable contribution to make.

- A project funded through this programme has brought together academics at the University of Glamorgan and staff at BBC Cymru Wales.⁶⁴ The project aimed to show the richness of life in Wales through displaying online Digital Stories made by the public. These stories are 'mini-movies' created and edited using cameras, computers, scanners and photo-albums. Digital storytelling is a new creative form, amalgamating new technology, filmmaking, photography, music, story and social purpose. These activities cut across boundaries in the arts, democratising the process of media making and establishing an anti-heroic position for the artist/storyteller. This project will develop new understandings of how digital storytelling has developed to this point and ways it could progress in future.

Postgraduate activities

Mainstream Postgraduate Funding

The AHRC is by far the largest funder of postgraduate awards in the UK. At any one time it supports some 2,500 students on Doctoral and Masters Awards, representing around 10% of the entire arts and humanities postgraduate population and some 30% of doctoral students.

In 2006 the AHRC commissioned a study by DTZ of recent award holders in order to examine the career pathways of postgraduates in the arts and humanities.⁶⁵ The findings from the study demonstrate that there is a high demand for well-trained arts and humanities postgraduates in our universities and education institutions, in the public sector and across the creative and financial industries.

- The study reported that 74% of doctoral graduates were employed in an HEI, thus going a long way to ensuring the sustainability of the arts and humanities research base, with arts and humanities academics at any time teaching about one quarter of all students in HEIs. 7% of the doctoral graduates in other employment were

⁶² Professor Clive Emsley, The Open University, *Policing and Citizenship: Resourcing a better understanding*, AHRC Knowledge Transfer Fellowship, Ref No. 133520, Amount awarded: £114,148, Project duration: 10/03/2008 - 09/04/2009.

⁶³ Professor Robert Bickers, University of Bristol, *Identification of historic meteorological records to support research into climate change*, AHRC Knowledge Catalyst, Amount awarded: £8,600. Project duration: 1/05/2008 - 31/8/2008

⁶⁴ Professor Hamish Fyfe, University of Glamorgan, *A Public Voice - Access, Digital Story and Interactive Narrative*, AHRC/BBC Knowledge Exchange Programme Award, Ref No. 129949, Amount awarded: £74,154, Project duration: 01/9/07 - 31/8/08.

⁶⁵ AHRC (2007) *On the Right Track*. Bristol: AHRC

working in private business and 8% in an independent organisation, with 11% in a public organisation. Of the doctoral graduates who went into private business, 37% were working in the Creative Industries and 33% in Business Services.⁶⁶ 18% of the former Professional Preparation Master's award-holders in employment went on to work in the private sector (also 9% were employed in the independent sector, 48% public sector, 25% University).⁶⁷ There was very little unemployment amongst the sample and most of it was attributable to people being between jobs.

Collaborative Doctoral Awards

The AHRC also funds an increasing number of Collaborative Doctoral Awards ('CDAs') each year, with 74 funded in 2007/08. These awards are intended to encourage and develop collaboration between HEI departments and non-academic organisations and businesses and they have powerful KT and economic impact dimensions. They involve a student who is supervised at an HEI but has a strong connection with and presence in another organisation. Initially the focus was on museums and galleries but now a much wider range of organisations is involved. The studentships provide opportunities for doctoral students to gain first hand experience of work outside an academic environment. These awards also encourage and establish links that can have benefits for both collaborating partners, providing access to resources and materials, knowledge and expertise, that may not otherwise have been available and also provide social, cultural and economic benefits to wider society.

■ A CDA at the University of Cardiff and the British Museum is enabling a student to work on a project relating to the conservation of archaeological iron, with the research anticipated to benefit the British Museum and other institutions.⁶⁸ This collaboration will enable both organisations to access a greater range of research facilities and to exchange knowledge and experiences. The student will be able to access objects and specialist equipment at the British Museum and will have the expert knowledge of both an academic supervisor and a non-academic supervisor. Working with a large national Museum the student will gain practical experience in a heritage sector workplace whilst developing subject specific knowledge and skills.

■ Another CDA involves the design of community buildings and landscapes as sustainability learning spaces that encourage sustainable behaviour.⁶⁹ There are two key threads which will be

explored. The first is the investigation of sustainable building and landscape design in the context of the River Centre and how to ensure that the building is an exemplar of sustainable design. The second is an investigation into how to design the building and landscape to be an educational tool demonstrating sustainability in the wider context to the local community and to visitors. This project is a collaboration between the Architectural Science and Technology Laboratory at Kingston University and the Environment Trust for Richmond upon Thames.

AHRC-funded research in innovation

The innovation system is constantly evolving as new connections and new possibilities are generated. A medieval historian from the University of Glasgow used an AHRC *Knowledge Transfer Fellowship* to bring his research on medieval heresy and the early Inquisition to enhance social network models with Volterra, a consulting firm.⁷⁰ The medieval Cathar heresy displayed the characteristics of a scale-free network, and the Inquisition was able to recognise the features of the heretics' social structures and to tailor its strategy accordingly. This insight can inform our understanding of contemporary issues. A scale-free network consists of a few very well connected hubs amid a number of less connected nodes. These kinds of network are robust against random attacks but are much more vulnerable to assaults which target the vital hubs. This is particularly applicable to the understanding of the loosely connected terrorist organisations of the twenty-first century, such as Al-Qaida.

Arts and humanities research-led innovation is helping to reduce theft in our cities. AHRC-funded projects at the Design Against Crime Research Centre at Central St Martins, University of the Arts London, have led to the design and development of 'grippa' devices to stop the theft of bags in restaurants and of secure cycling stands that have now been installed in Camden, York, Shoreditch and Brighton & Hove.⁷¹

These projects use a practice-led research process that tests out designs to tackle crime in the 'real' world. The Centre collaborates with manufacturers, connects directly with users, and works with policymakers at the Home Office and the Metropolitan Police to develop new methods of crime prevention. Its research feeds into new, vibrant designs that engage with society's needs.

⁶⁶ AHRC (2006) *Career Path Study of PhD Students, DTZ Final Report December 2006*. Bristol: AHRC.

⁶⁷ AHRC (2006) *Career Path Study of Professional Preparation Masters Students, DTZ Final Report December 2006*. Bristol: AHRC.

⁶⁸ Miss Melanie B Rimmer, Cardiff University, *Developing and testing a model for the treatment and storage of archaeological iron*, AHRC Collaborative Doctoral Award, Ref No. 136517. Project Duration: 01/10/2007 - 30/09/2010

⁶⁹ Mr John Clarke, Kingston University, *The design of community buildings and landscapes as sustainability learning spaces that encourage sustainable behaviour*, AHRC Collaborative Doctoral Award, Ref No. 143379. Project duration: 01/10/2008- 30/09/2011.

⁷⁰ Dr Andrew Roach, University of Glasgow, *Exploring networks: the contribution historical evidence for social networks can make to the modern use of network theory*, AHRC KT Fellowship, Ref No: 128651, Amount awarded: £38,673, Project duration: 1/9/2007 – 31/5/2008.

⁷¹ Professor Lorraine Gammam, CSM, University of the Arts London, *Grippa - concept proofing and testing of anti-theft furniture accessories and design process documentation*, AHRC Innovation Award, Ref No: 17678, Amount awarded: £52,476, Project duration: 1/4/2004 – 31/3/05; Professor Paul Ekblom, CSM, University of the Arts London, *Turning the tables on crime: Boosting evidence of impact design against crime and the strategic capacity to deliver practical design solutions*, AHRC Research Grant, Ref No: 120340, Amount awarded: £366,060, Project duration: 4/6/2006 - 3/9/2009; Mr Adam Thorpe, CSM, University of the Arts London, *Design review and visual documentation of bicycle parking provision to catalyse future crime prevention design*, AHRC Small Grant, Ref No: 18534, Amount awarded: £5,000, Project Duration: 10/5/2004 – 15/5/2005; and *Bike Off 2 - Catalysing anti theft bike, bike parking and information design for the 21st century*, AHRC/EPSRC 'Design for the 21st century' Research Grant, Ref No: 121508, Amount awarded: £323,918, Project duration: 1/11/2006 – 31/10/2008.

'M-stand on the street'

Image courtesy Design Against Crime Research Centre, Central St Martins College of Art and Design



Grippa bag holding clip

Design Against Crime Research Centre



The AHRC Centre for Studies in Intellectual Property and Technology Law, based at the University of Edinburgh explores the synergies between intellectual property law and information technology law, together with research on media law, and medical law and ethics.⁷² One of its areas of interest comprises the changes brought about by new digital technologies that create new forms of content, new types of producer, and new kinds of consumer. The Centre's research feeds into the framework conditions that allow private firms, for instance, to accrue benefits from their Intellectual Property in the face of rapid technological change.

The AHRC directly supports networking activities and also brokers relationships between researchers and other sectors of the economy. AHRC knowledge transfer schemes act as an impetus for encouraging more formal collaborations.

Estimating the value of the impacts produced by the AHRC

Quantifying the wide and varying impacts of the AHRC's work is challenging. Indicative estimates from PwC suggest that for every £1 spent on research by the AHRC, the nation may derive as much as £10 of immediate benefit and another £15-£20 of long-term benefit. Thus in 2006-7, the AHRC invested £60.3 million in new research, which implies immediate returns of over £616.9 million and a possible additional return over 25 years of around £1 billion.

⁷² Professor Hector MacQueen, University of Edinburgh, *The AHRB/C Research Centre for Studies in Intellectual Property and Technology Law*, AHRC Research Centre, Ref No: 12832, Amount awarded: £936,300, Project duration: 1/1/2002 – 31/12/2007; Professor Graeme Laurie, University of Edinburgh, *The AHRC Research Centre for Studies in Intellectual Property and Technology Law*, AHRC Research Centre Phase 2, Ref No. 120176, Amount awarded: £1,647,187, Project duration: 1/4/2007 – 31/3/2012.

Quantifying the impact of AHRC's work presents difficulties. A great deal more research on methodology needs to be done if the full economic and civic impacts are to be captured. We have some indicative estimates based on project-based impact assessments conducted by PwC; however assessing the cumulative impact of funding is fundamentally different from articulating the expected future impact of new funding.

Here is one possible model. Using calculations of the economic impact of AHRC awards conducted by PwC it is possible to derive a scaled-up baseline for the economic impact of AHRC investment in arts and humanities research. This can be achieved using three different approaches, which by their nature provide different estimates.

■ Method One involves scaling based on outputs in relation to exhibitions.⁷³ The economic impact of two exhibitions of Polynesian artefacts, held at the Sainsbury Centre (UEA) and the British Museum was estimated by PwC to be £8.1 million on the UK economy.⁷⁴ The AHRC invested £220k in the research grant that led to this exhibition. For every £1 AHRC investment the return to the UK economy was £36.8. The economic impact of the recent V&A 'At Home in Renaissance Italy' exhibition, culmination of the AHRC's Research Centre for the Domestic Interior, was estimated to be £1.33million.⁷⁵ The AHRC invested £846,208 in the Centre, which produced a wide range of additional outputs. For every £1 AHRC investment in the Centre the return to the UK economy in this exhibition was £1.57.

■ Based on these three exhibitions it is possible to calculate a baseline for the economic impact of AHRC investments in research activities in the arts and humanities that lead to exhibitions. The AHRC funded awards leading to 67 exhibitions in 2006/7. Total economic impact of exhibitions arising from AHRC awards for 2006/7 could be as much as **£210.6million**.

■ Method Two involves scaling based on awards. The economic impact of four research grant awards⁷⁶ funded by the AHRC was

⁷³ It is only possible to make this assessment for exhibitions at present.

⁷⁴ Dr Steven Hooper, University of East Anglia, *Polynesian visual arts: meanings and histories in Pacific and European cultural contexts*, AHRC Research Grant. Ref No. 16516. Amount awarded: £248,244, Project duration: 1/10/2003 – 30/9/2006.

⁷⁵ Professor Jeremy Aynsley, Royal College of Art, *The AHRB/C Centre for the Study of the Domestic Interior*, AHRC Research Centre, Ref No. 11161, Amount awarded: £846,208, Project duration: 5/1/2001 – 4/1/2006

⁷⁶ Case studies:

TTURA: James Roddis, Sheffield Hallam, *Open loop solutions for recycled glass from the consumer, construction and automotive streams*. AHRC Research Grant, Ref No. 8295. Amount awarded: £41,644, Project duration: 1/2/1999 – 31/1/2000; and *Are translucent/transparent architectural structures possible?* AHRC Research Grant, Ref No. 14307, Amount awarded: £119,387, Project duration: 9/9/2002 – 8/9/2004.

Polynesian exhibitions: Dr Steven Hooper, University of East Anglia, *Polynesian visual arts: meanings and histories in Pacific and European cultural contexts*, AHRC Research Grant. Ref No. 16516. Amount awarded £248,244, Project duration: 1/10/2003 – 30/9/2006.

Flexible Housing: Professor Jeremy Till, University of Sheffield, *The past, present and future of flexible housing*, AHRC Research Grant, ref No. 17408, Amount awarded: £122,992, Project duration: 1/7/2004 – 30/6/2006

“As part of an integrated research funding environment, the AHRC is in a strong position to support innovation in the arts and humanities.”

calculated by PwC to be £13.5million, with an additional £2.9-4.1 million over 25 years. In 2006/7 the AHRC funded 94 new standard research grants. The economic impact derived from the AHRC's investment in research grants alone could be up to **£317 million**, with an additional **£68-96 million** over 25 years. In 2006/7 the AHRC's investment in new standard research grants was £30.8million. Calculations suggest that for every £1 investment in research grants in the arts and humanities the immediate return could be as much as £10.²⁹ Over 25 years the return on every £1 AHRC investment could be an added £2.21-3.12.

Method Three involves scaling based on investment. The economic impact of four case study awards⁷⁷ funded by the AHRC and just mentioned was calculated by PwC to be £13.5 million, with an additional £19.8–26.4 million over 25 years. The AHRC investment in these awards was £1,317,889. This suggests that for every £1 AHRC investment in arts and humanities research the immediate return could be as much as £10.²³ Over 25 years the return on every £1 AHRC investment could be an added £15.00-20.00. In 2006/7 the AHRC invested £60.3million in new research. Calculations suggest that immediate returns of **£616.9 million** on this investment in research could be realised, while over 25 years there could be an added **£904-1,206 million** return.

Are these methods robust? It is difficult to assess the extent to which the awards used as case studies for economic impact analysis by PwC were typical or representative of AHRC awards or overall investment. The most robust estimates can be derived from research grants, as we have economic impact assessments of four case studies – from theology, design and architecture. If we assume that 20%⁷⁸ of our research grant awards are of a similar nature in their economic impact a return of £2.05 on every £1 of AHRC investment could be possible. On that basis the economic impact of AHRC investment in new research grants would be £63million for 2006/7. As the AHRC is able to conduct further case studies to assess the economic impact of AHRC funding it will be possible to derive more robust estimates from the methods outlined above.

The AHRC and innovation

As part of an integrated research funding environment, the AHRC is in a strong position to support innovation in the arts and humanities. It does this by supporting team-based collaboration, by encouraging different disciplines to work together, by helping to create highly-skilled people, and by facilitating a culture of knowledge transfer that generates powerful societal and economic impacts.

⁷⁷ Grant awards: TTURA, Polynesian exhibitions, flexible housing; Research Centre: AHRC Research Centre for Studies in Intellectual Property and Technology Law

⁷⁸ The 20% estimate is from analysis conducted on 46 AHRC research grant awards, which suggests that 18.75% of this sample have characteristics in common with our case studies such that they have the potential to deliver similar economic impacts.

AHRC-funded collaborative projects are able to address large, multifaceted problems over a number of years, and which in many cases involve multidisciplinary and interdisciplinary research.⁷⁹ In 2007/08, 61% of completed research awards included elements of interdisciplinarity, while 43% included multidisciplinary research. This is beneficial as the recombinations and new approaches inherent in these types of research breed the diversity that is vital for the innovation system.

Stimulating multidisciplinary and interdisciplinary research is also important in the joint strategic initiatives with other Research Councils. These include the *Global Uncertainties* programme, which brings together all seven Research Councils to advance understanding of conflict, crime, environmental degradation, poverty and terrorism. It is through an integrated research base that urgent and complex social challenges can be addressed.

The AHRC also helps to create the highly-skilled people who are vital if innovation is to thrive. In 2007/08, a total of 1,624 new postgraduate awards were made. Support for doctoral students includes specific support for transferable skills, such as project management, communication and team-working, as well as the skills that are central to arts and humanities research. Masters programmes include both research and professional preparation strands.

Even at the postgraduate level, collaborations are forged between arts and humanities researchers and other sectors of the economy. For example, the Collaborative Doctoral Award scheme provides opportunities for doctoral students to gain first-hand experience outside of an academic environment. As well as giving students employment-related skills and training, the studentships also help to establish links between collaborating partners, providing access to resources, knowledge and expertise that might not otherwise be available.

The AHRC also gives increasing support to knowledge transfer activities, as just mentioned. This is of the utmost importance as knowledge transfer is fundamental to the innovation system. It is through interactions and the exploitation of knowledge that innovation happens. This is reflected in the AHRC's growing support for knowledge transfer projects: from less than £200,000 for new projects in 2005/06 to over £3.3 million in 2007/08.

AHRC's support for knowledge transfer has been developed to address specific perceived barriers in the arts and humanities and the non-academic sectors they underpin. For example, the Knowledge Catalyst scheme supports partnerships between the research community and non-academic partners that do not have the capacity to participate in the larger Knowledge Transfer

⁷⁹ Multidisciplinary research involves the coming together of two or more separate disciplines or fields of study to conduct joint research. Interdisciplinary research combines the methods and approaches of several disciplines to effectively produce a new discipline or field of study.

Partnerships by allowing shorter project durations. This responds to the particular challenges faced by many of the small firms in the creative industries that lack formal in-house capabilities to utilise research.⁸⁰

The AHRC, in collaboration with ESRC, HEFCE and SFC, has established five Language-Based Area Studies Centres to sustain and encourage research in the strategically important areas of the Arabic speaking world, China, Japan, and Eastern Europe, including parts of the former Soviet Union. The Centres are:

- The British Inter-University China Centre (BICC): Oxford, Bristol and Manchester Universities
- The Centre for the Advanced Study of the Arab World (CASAW) – Universities of Edinburgh, Manchester and Durham
- The Centre for East European Language-Based Area Studies (CEELBAS): Universities of Oxford and Birmingham, with partner universities of Bath, Cambridge, Kent, Manchester, Sheffield, Warwick and SOAS
- The Centre for Russian, Central and East European Studies (CRCEES): Universities of: Glasgow, Aberdeen, Edinburgh, Newcastle, Nottingham, West of Scotland, Strathclyde, St Andrews
- The White Rose East Asia Centre (WREAC): Universities of Leeds and Sheffield (White Rose Universities)

The overarching aim of this new initiative is to create a world class cadre of researchers who have the language skills to undertake contextually informed research that will ultimately enhance the UK's understanding of and ability to operate effectively in these areas. All of these Centres are having a significant influence in policy, knowledge transfer and public engagement across key priority areas. To take the example of CASAW, it advises UK Government and European departments, hosts events in the Middle East with local partners, works to introduce Arabic into school curricula, engages with the private sector (for example, in relation to advice on investment), sponsors showings of Middle Eastern films in the UK and holds Career Workshops that bring together students of Middle Eastern subjects from across the UK and potential employers in public and private sectors.

A full understanding of innovation, coupled with the growing importance of creative production and cultural consumption in the economy, leads to a greater awareness of the role of arts and humanities research. The AHRC has a strategic leadership role in ensuring that policy takes account of the significant contribution that arts and humanities research makes to innovation, society and the economy in the UK. The AHRC's funding of collaborative,

team-based research, its joint strategic initiatives with other Research Councils and its experience-based approach to knowledge transfer provide a distinctive and increasingly effective approach to supporting innovation in the arts and humanities. Its funding of these activities also goes beyond the accomplishments of the individual projects it supports, and creates a broader culture of innovation in the arts and humanities by demonstrating what can be achieved through collaboration.

Conclusion

There is a case for addressing the proportionally lower funding that the AHRC receives in comparison with Research Councils that support the sciences. If the UK is to increase its innovative capacity, it must harness the full capabilities of the research community. The solutions to social problems and to creating high-quality goods and services are to be found in the exploitation of knowledge from the entire spectrum of an integrated research base. Given the vital role of the AHRC and the research community it supports in relation to the more recent generations of innovation that are now upon us, especially 5G innovation, the allocation of a mere 2.8% of the Science and Research Budget to cover the 27% of active researchers who are working in the arts and humanities is difficult to defend.

Ultimately, the success of the AHRC and other intermediaries will depend on their impact on academic culture and the appetite for arts and humanities research more generally. As the benefits arising from connections between researchers, businesses, other organisations and government become more established, increasingly consistent expectations within those communities should emerge. This will lead to an even greater role for the arts and humanities in the innovation system and to the subsequent growth of the British economy in ways that are unimaginable were we unwisely to seek to revert to older modes of innovation than those we are currently experiencing.

⁸⁰ Bougrain, F. And Haudeville, B. (2002) 'Innovation collaboration and SMEs internal research capacities'. *Research Policy*, 31, 735-747

Appendix

Schedule of authors of essays on the value of arts and humanities research

Early in 2008 the AHRC asked a number of arts and humanities researchers in the UK to write a 5000 word essay that set out the value in non-academic contexts of some area of arts and humanities research. The word 'value' was deliberately chosen in place of 'impact' because it is arguably closer to the instincts and interests of these researchers. There was a very positive reaction to this initiative and we accepted 33 essays. Professor Jonathan Bate FBA is editing them for publication.



Author	Department	HEI	Essay Title
Professor Jonathan Bate	English and Comparative Literary Studies	University of Warwick	The Long View
Professor Mary Beard	Faculty of Classics	University of Cambridge	Fram, Trackers and Classics
Dr Bettina Bildhauer	School of Modern Languages	University of St Andrews	Last rites and equal rights: Why medieval studies matter in contemporary life
Professor Iain Borden	Bartlett School of Architecture	University College London	The Value of Arts and Humanities Research to Life in the UK: Architecture
Professor Catherine Brace	Department of Geography	University of Exeter	Accidental Haiku, or Encouragement, Enlightenment and Raising Aspiration: Why the Arts and Humanities Matter.
Professor Christopher Breward	Research Department	Victoria and Albert Museum	The Value of Arts and Humanities Research to Life in the UK: A Museum Perspective
Dr Sara Cohen	Institute of Popular Music, School of Music	University of Liverpool	The Value of Arts and Humanities Research to Life in the UK: Popular Music
Dr Trudi Darby	Centre for Computing in the Humanities	King's College London	All the World's a Stage: the value of research in theatre for life in the UK
Professor Nicholas Davey	School of Humanities	University of Dundee	Philosophy Research and the Quest for the Unpredictable
Professor Maria Delgado	School of English and Drama	Queen Mary, University of London	Four Interviews
Professor John Feather	Department of Information Science	Loughborough University	The Value of Arts and Humanities Research to Life in the UK: Information Studies
Professor Chris Gosden	School of Archaeology	University of Oxford	'And your point is...?'
Professor Robert Hampson	Department of English	Royal Holloway, University of London	The Value of Arts and Humanities Research to Life in the UK
Professor Deborah Howard	Faculty of Architecture and History of Art	University of Cambridge	The Value of Architectural History for the wider community
Dr Richard Howells	Centre for Cultural, Media and Creative Industries Research	King's College London	'Sorting the Sheep from the Sheep'
Professor Matthew Johnson	Archaeology, School of Humanities	University of Southampton	Making a Home: English Culture and English Landscape
Professor John Joseph	Department of Linguistics & English Language	University of Edinburgh	Communication and Community: What research on languages and texts contributes to national identity, social cohesion and racial and religious tolerance?
Professor Michael Kelly	School of Humanities	University of Southampton	The value of research in languages for UK society
Professor Nigel Llewellyn	Research Department	Tate	Impact and Insight: Broadening Access to Art-Historical Research

Author	Department	HEI	Essay Title
Professor Rita Marcella, Professor Stuart MacDonald and Graeme Baxter	Aberdeen Business School and Gray's School of Art	The Robert Gordon University, Aberdeen	Measure for Measure: the Economic and Social Value of Creative and Performing Arts Research in the UK
Dr Rónán McDonald	School of English and American Literature	University of Reading	The Value of Arts and the Art of Evaluation: English Studies and Literary Criticism
Professor April McMahon, Will Barras, Lynn Clark, Remco Knooihuizen, Amanda Patten and Jennifer Sullivan	Linguistics and English Language	University of Edinburgh	The Value of Research on Linguistics to Life in the UK
Dr Becky Munford	Cardiff School of English, Communication and Philosophy	Cardiff University	The value of feminist criticism to contemporary life in the UK; Or, practicing feminist criticism in a 'post-feminist' era
Professor Francis O'Gorman	School of English	University of Leeds	Advanced Literary Research in Twenty-first Century Great Britain
Dr Katie Overy	School of Arts, Culture & Environment	University of Edinburgh	The Value of Music Research to Life in the UK
Professor Mike Parker Pearson	Department of Archaeology	University of Sheffield	The value of archaeological research
Professor Mike Press	School of Design, Duncan of Jordanstone College of Art and Design	University of Dundee	All This Useless Beauty: The hidden value of research in art and design
Professor Alan Short	Department of Architecture	University of Cambridge	Geometry and Atmosphere: the conundrum of building for the Performing Arts
Professor Nick Stanley	Birmingham City University Institute of Art and Design	Birmingham City University	Making a difference by design: creating wealth through the creative industries.
Professor Peter Stockwell	School of English Studies	University of Nottingham	Faultlines: The Value of English Studies
Professor Andrew Thompson with Guy Dixon	School of History	University of Leeds	The Empire Strikes Back, Again
Professor Vanessa Toulmin	National Fairground Archive, University of Sheffield Library	University of Sheffield	"This is a Local Film": The Cultural and Social Impact of the Mitchell & Kenyon Film Collection
Professor John Wolffe	Department of Religious Studies	The Open University	Why Religious History Matters
Dr Jürgen Zimmerer	Centre for the Study of Genocide and Mass Violence	University of Sheffield	The Value of Genocide Studies

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