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Appendix A

Discussion topics for some of *the* Digital Picture seminars.

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Response to *the* Digital Picture survey from the Association of Art Historians.



the Digital Picture: a future for digital images in UK arts education

1. Introduction

This report presents the results that emerged from ***the Digital Picture*** project. Proposed and run by AHDS Visual Arts (the visual arts centre for the Arts and Humanities Data Service), the project was commissioned by the Images Working Group¹ of the JISC (Joint Information Systems Committee) to establish a national overview of issues, and potential solutions, relating to the use and impact of digital images within visual arts, higher education institutes and associated organizations.

1.1. Background to the project

The rise of digital images and their supporting technologies within arts education brings, without doubt, one of the biggest and most profound changes that the sector has ever seen. Everything, from teaching in the classroom to finding images in the library, is having to adapt to the new model.

the Digital Picture has grown directly from a desire within arts education communities to explore these changes. By giving a voice to everyone in our art colleges and university departments, in all parts of the UK and at every level, the project was created to identify clear ways for the community, as a whole, to erase the problems with, and embrace the strengths of, images in the digital age.

Statement on the *raison d'être* of ***the Digital Picture***:

“The Digital Picture has been established to explore issues relating to the effects of the digital revolution on our use of images. It will identify problems and develop practical solutions; liaise with stakeholders and interested parties; and offer guidance to teaching, learning and research communities.”

Initiated in 2004, the project was proposed in a paper entitled: The National Digital Image Initiative.² The paper emerged as a result of AHDS Visual Arts' close connections with the arts education community and a corresponding awareness of a number of common fears and worries across that community, relating to the ubiquitous rise of digital technologies. In order to collate a clear picture of the issues and, most importantly, to establish which were genuine causes for concern and which were unfounded, the JISC Images Working Group agreed that it was important to conduct structured research. It also acknowledged that, if genuine problems could be clarified in a meaningful way, potential solutions would be easier to identify or develop.

2. Report summary

It is clear, from the results of ***the Digital Picture***, that there are serious concerns within the arts education community relating to the impact of digital technologies on arts education and, in some ways, on the arts in general. Although the central focus of the Digital Picture was on digital images, it soon became apparent during the consultation with the community that discussion of the problems could not be constrained by such a label: the real fears relating to digital images are as much to do with educational processes and pedagogical values as with the quality of JPGs or the latest imaging software. The vast majority of respondents to this survey feel that the increase of digital images in arts education has had an impact on them. For an extremely heartening three quarters of people, this impact materialises as an improvement in the learning and teaching environment, with two thirds believing that the rise in digital images helps them to be more

¹ http://www.jisc.ac.uk/index.cfm?name=wg_images_home

² <http://www.thedigitalpicture.ac.uk/documents/index.html>

computer literate. However, less than a third of the community remains unconcerned at the corresponding loss of traditional products, skills or knowledge.

Much of the fear lies in the speed with which change is happening, and in concerns that there is a lack of forethought and consideration for any negative impact that such change brings. Furthermore, the new technology seems to threaten livelihoods and the essential qualities of 'human' skills, with an apparent shift away from traditional expertise and resources towards increased 'virtual learning' and reliance on online materials with all attendant problems: the community has difficulties finding the right images for study; problems of reliable provenance and image quality; problems of ownership and licensing costs; and problems relating to educational agendas being led by technological advances. And, for tutors and students alike, there is a perceived lack of support and investment for the new technologies across the sector. In particular, there are fears that, although a balance of old and new is to be desired, financial and strategic imperatives mean that this is unlikely to happen. Institutes will not, the community believes, maintain 'out-of-date' equipment and practices because of issues with cost, space, expertise and, increasingly, health & safety.

Despite such concerns, the consultation has clearly demonstrated that, overall, the community is keen to embrace the new technology, but in a measured and informed way, and in a manner that would complement, rather than replace, traditional art teaching and practice. Sculptor Antony Gormley, when asked about digital imaging by AHDS Visual Arts Director Mike Pringle, at the Association of Art Historians' conference in April, perhaps sums up the art education community's feelings about digital media. He stated that his studio practice now made use of digital technologies and that "the Angel of the North could not have been made without digital space", but also emphasised the importance to him of taking his work "out of the virtual and into the real".

2.1. Main findings

2.1.1. The core problem

The findings of **the Digital Picture** confirm that the arts education's most pressing problem (relating to digital images) is generally perceived as how lecturers, students, librarians et al will be able to access the images they need in light of the potential demise of the traditional slide library. As expected, much of the recent increase in concern was prompted by well-known slide projector manufacturer, Kodak, announcing that production and sales of their machines would end in June 2004, with service and support ceasing in 2011, in light of the fact that: "in recent years, slide projectors have declined in usage, replaced by alternative projection technologies."³ By referring to the observations made by Jenny Godfrey, in her keynote speech at the ARLIS Slide Study Day in March 2004⁴, the core problem can be broken down into a number of specific issues that the community feels need to be addressed in order to meet its needs:

- There is a serious lack of appropriate images (e.g. subject specific) in the digital domain;
- legal, IPR and copyright restrictions are stifling the ability to create/use digital images;
- there is no usable, helpful structure for finding and obtaining images;
- there is no structure for facilitating or managing 'loans' of digital images;
- formats, and pixel quality, are not necessarily appropriate for use;
- it is difficult to share/pool digital image resources;
- there is a lack of use of common standards (or of standards at all);
- appropriate safeguards and provenance are not available;
- there is a lack of resource and support for the use of digital images.

2.1.2. Moving towards a solution

"The best option must surely be a global, subscription based image library."

The view expressed in this statement, taken from a questionnaire response, came up a number of times during **the Digital Picture** seminars. However, according to the total results of the project's

³ <http://www.kodak.com/US/en/corp/pressReleases/pr20030926-01.shtml>

⁴ Godfrey, J., 2004, A digital future for slide libraries? Art Libraries Journal, Vol. 29, No. 1, pp. 10-22

survey, nearly half of the community disagrees with such a proposal. Seventy two percent of respondents feel that they should have the training, time and tools to create digital images themselves; while forty seven percent believe that their institution should deal with the issue, perhaps via an intranet, institutional repository, Virtual Learning Environment, or through the library. A compromise view, that met with widespread support, was that of a one-stop shop (subject-based) augmented by local facilities:

“Ideally a core collection of images should be available from online resources accessible via a one-stop-shop, but this should be supplemented by an archive produced in-house, tailor made for the courses taught in each institution.”

“A central resource for core images from Art & Design History, freely available, plus more specialised images made in the institution would be the ideal.”

However, although many people believe that the solution (to provision of digital images) should involve some sort of easily accessible online facility, there are a huge range of differing opinions as to how this could be achieved. Indeed, some are sceptical enough to doubt that it can happen at all, because of the depth and *human* complexity of the issues surrounding such a venture: *“I can’t imagine that a one-stop shop is a realistic aspiration.”* Nonetheless, an answer must be found; the arts education community needs images, and digital is here to stay.

If a one-stop shop was to be attempted, what sort of thinking would need to go into the building of such a resource? In his stimulating review of systems development, *The Inmates Are Running The Asylum*,⁵ Alan Cooper observes that “Ironically, the thing that will likely make the least improvement in the ease of use of software-based products is new technology....The problem is one of culture, training, and attitude of the people who make them, more than it is one of chips and programming languages.” And, if we go back to the list of issues given above (§2.1.1.), we can see why an aim to create a single, online system will not work in isolation: the construction of a website/portal/gateway will not resolve the complex human issues that lie behind the paucity of digital image access.

Perhaps a more fluid, evolutionary approach is required. Community members may be better served through a series of diverse components and methods which, through working together with common aims, could gradually move towards a future where digital image needs will be met. After all, many of the images that are required are already available in digital form (or soon will be) and a huge proportion of them are, theoretically at least, already in the public domain or ‘free’ for educational use. The solution to providing the arts education community with easy access to the images it needs may be about *process* not *product*; the priority, not to build a one-stop website, but to figure out how we can share information.

But there are two fundamental obstacles to such an idea: the users and the providers!

The problem with users...

Consider the breadth of different users of digital images within an ‘arts education community’. As well as the obvious, simplistic, definitions, such as users from vastly different subject domains (graphics, fine art, art history, ceramics etc.) or those with fundamentally different roles (e.g. students, practitioners, lecturers or librarians), there are a multitude of other ways that users can differ from one another. For example, there are users from different areas of education (non-vocational, lifelong learning, bachelor’s degree, post doctoral research etc.), or users with different learning needs (dyslexia, physical impairment, English as a second language etc.). Furthermore, we need to consider: how users of born digital images may differ from users of digitised images; distinctions between ‘digital natives’ – those who have grown up in the digital environment, and ‘digital immigrants’ – those for whom the digital environment has been a relatively recent introduction⁶; and users of different types of images (e.g. bitmap and vector). And, of course, there is the use of the image itself: does it need to be very high quality so that the subject can be studied in detail, or will a low-resolution version do just to make a visual point?

⁵ Cooper, A., *The Inmates Are Running The Asylum*, 1999, SAMS (A Division of Macmillan Computer Publishing), Indiana, USA

⁶ ‘Digital Natives, Digital Immigrants’, Marc Prensky, from *On the Horizon* (NCB University Press, Vol. 9 No. 5, October 2001) <http://www.marcprensky.com/writing/default.asp>

The implications of such a wide ranging user community, and the varied perspectives that this brings, are made more complex by the fact that a user can be made up of any combination of the definitions above, and can be different things at different times. Also, if we are to really understand the users, we need to accept that within each person's day-to-day life, decisions and actions are governed, not by altruistic notions of idealised image access, but by the weight of job descriptions, local politics, inter-staff relationships, trivial tasks and the simple, pragmatic need to get things done. It is also important to remember that not everyone in education wants to be an 'expert' in digital images – a ceramics tutor may want to present an illustrated lecture, making use of the facilities that are available, but he/she does not necessarily want to have to understand the intricacies of capture, cataloguing, manipulation, storage and dissemination of digital images. Add to all this the fact that the combined power of the Internet, intranet, VLE and/or institutional repository presents a mind-boggling, murky multitude of 'solutions' to finding images, and the net result is that most digital image users will respond to image provision in the simplest and most appropriate way for them at the time. Usually this means Google; it won't necessarily give you the ideal answer, but it will give you *an* answer and, for many users in many cases, that will do.

The problem with providers...

As mentioned in the previous paragraph, there are countless solutions to the provision of images via the internet. A sample list of websites commonly used by arts education institutes is included in section 5.1. Its depth, variety and diversity instantly and clearly demonstrate the problem that faces most users of images: how are they expected to know which one will provide the image they need (particularly given the range of different user perspectives as outlined above)? It is patently unreasonable to expect everyone who wants an image, for whatever reason, to have to visit, subscribe and search each of these sites in turn until they happen to stumble on what they want. The opacity of just what is available is compounded by the different types of collections (e.g. JISC/AHRC funded, National Institutions, HE providers, private); the apparent need for owners to 'brand' their own collections; multiple, different authentication procedures; frequent lack of provenance; the range of costing models; poor or vastly differing search/navigation mechanisms; inconsistent metadata standards, when applied at all; protection of ownership rights; and the blurring of just what can be used, by whom and for what purpose.

Essentially, image providers, be they on the Internet or via a local system, each offer part of the solution to providing *all* the images needed by the arts education community; a partial solution often more influenced, quite understandably, by the immovable drivers behind the scenes (e.g. funding bodies, limited collections, marketing needs, management directives or software developers), rather than the fluid and infinitely variable needs of an entire community.

Perhaps none of this would matter, if each different user could find a provider perfectly suited to him/her, giving access to all the images he/she might need in the appropriate manner and at the right time. However, even a solution like this would be far from ideal, at a broader level. Ironically, despite the differing perspectives of users across the arts education community, there is a huge overlap in the images that they need. Different providers for different users would, and indeed does, lead to massive duplication of effort, a confusion of different image versions and a corresponding waste of financial and human resources.

Nonetheless, most people would now agree that, if a solution is to be found, it will need to be led by the needs of the users, no matter how complex such a resulting 'system' may seem. This view is already strongly recognised across the education sector, both within JISC and on a broader scale. For example, when considering repositories, the JISC-funded Digital Repositories Review states that "it is vital that repositories *meet the needs of users*; there is a need to explore *user requirements* and prioritise them in the development of repositories; the process needs to engage the *user community* in a real way."⁷ And, on a bigger scale, the House of Commons' Education & Skills Committee report following the low uptake of the £50m UK e-University noted that it "failed largely because it took a supply-driven rather than *demand-led* approach"⁸.

⁷ Anderson, S. and Heery, R., 2005, Digital Repositories Review (para. 4.1; pg 15).

⁸ House of Commons' Education & Skills Committee, 2004-2005, 'UK e-University': 3rd Report (summary pg 3).

The briefest of forays into the established methods for specifying requirements for a complex system, will reveal that it will only ever work for its user if the needs of that user are considered to be paramount. Potter et al⁹, discussing formal specifications, explain why: “An airline will express its need for a new airliner in terms of desired range, carrying capacity, operating cost and so forth, rather than an expression of the size of wing and number of engines and choice of materials to be used during construction. Nearer home, perhaps, most of us will choose a car on the basis of the number of doors and seats, speed, acceleration and fuel consumption figures, along with subjective measures of comfort, style and colour. Undue concern for the kind of metal from which the engine block has been cast is not usual for the average buyer.” In short, if we want to solve the community’s digital image needs, we must first think about *what* those needs are before trying to prescribe *how* they might be met.

Yet the users’ requirements seem clear (they are listed above in § 2.1.1.). But still no model has been implemented for providing access to *all* the images that the arts education community needs. And, whilst user terminology is everywhere – all new online projects seem to discuss ‘user needs’, ‘user-led development’ or ‘user-driven requirements’ – we still see web-based resources failing to achieve the kind of uptake that might be hoped for. Only 37% of respondents to the Digital Picture questionnaire feel that the internet is the best place to find images, and a mere 17% believe that existing digital image resources are sufficient for research purposes. Despite the determined efforts of providers of online resources, there often seems to be a gaping chasm between what they produce and the needs of the user community.

One major causal factor for this situation is the fact that very few people are working together towards a solution; as mentioned before, most providers are governed by their own, individual drivers rather than the broader needs of the community. They are trying to meet known user needs, but only for their own target users, or in line with constraints of funding, politics, branding or available images. This is indicative of an underlying, much broader issue in education culture – essentially, everyone who should be part of the solution is in competition with everyone else. For a solution to emerge, the culture itself needs to change.

And, over the time that **the Digital Picture** project has been running, it has become clear that the culture has already started to change. Most importantly, one avenue towards a solution has already emerged. Rather than attempting to pull everything together; dealing with all the IPR problems of all images; sorting out all the quality issues; etc., the JISC Images Working Group (IWG) is proposing a more pragmatic, and much simpler approach: let’s start collating the images that the community needs and make them available!

The IWG, which is dedicated to the image needs of the education community, has, *“after considering the results of image collection activity over the past 11 years concluded that a radical rethink was necessary”*. Consequently, the group has outlined a vision for the future of access to digital images in UK education. The main drivers of the vision are paraphrased thus:

- To provide the JISC education community with a long term digital image asset that is easy to use, free at the point of use, complies with common open standards, covers the broadest possible subject areas, is copyright cleared, is sustainable and supports the maximum manipulation by the user in support of fulfilling teaching and learning requirements.
- To create a fully operational managed service within the JISC Information Environment that supports a national image ‘virtual reservoir’. The reservoir will provide the education community with the means to deposit and share their own images. Such a process will also enable the forging of alliances with non-education sector (e.g. galleries and museums) or commercial providers of image collections.
- Art and cultural heritage have a long-standing tradition of effectively using (and providing) image material for teaching, learning and research. The IWG believes the most immediate way to ensure the success of this proposal is through meeting the specific image requirements of these communities first, whilst exploiting the extensive images already available in parts of

⁹ Potter, B., Sinclair, J. and Till, D., (1991) An Introduction to Formal Specification and Z, Prentice Hall International Series in Computer Science, Prentice Hall, London

these communities. This might be done by funding institutions to digitise their copyright-cleared holdings, on the condition they provide copies of these images to the JISC National Art Digital Slide Library, and by forging alliances with such organisations as the Tate.

In principle, the proposal is to *enable* or *facilitate*, a process whereby the images that are needed within education are made available, via whichever access point a given user chooses to use. Whilst a 'portal' to the images may be inevitable, it is through permitting different services to bolt themselves onto the collections that is key; for example, institutional repositories, VLEs or subject-specific services should be able to develop interfaces (based on the needs of their own users) to the entire collection, or to whichever part of it is appropriate. After all, another stand-alone online service, added to the list of already existing services, will only be creating another layer of complexity and another competitor to the image provider arena.

Utilising the extensive technological expertise available within the JISC's infrastructure the proposal also includes:

- **server space** to enable people to add images to the 'reservoir' where they do not have the facilities to store the images themselves. This space will also, importantly, permit the JISC, or other sections of the community, to store images that have been commissioned, purchased, or donated for the express use of the community.
- **metadata harvesting** to facilitate access to collections that are stored and serviced elsewhere. Such facilities will also be fully interoperable (i.e. allow seamless two-way traffic) enabling multiple access points to provide access to all or some of the available images.

In parallel to the proposal, and partially informing it, the IWG commissioned four studies¹⁰ (including **the Digital Picture**) to explore the needs and possibilities associated with provision of digital images within a broadly defined UK educational community. These studies are all led by a requirement to understand user needs so, rather than being sidetracked by trying to resolve specific issues, a process can develop that will, eventually, meet those needs. The idea is to stop worrying about the windows and carpets (for the moment) and start laying some solid foundations for the house itself. Furthermore, by adherence to best practice and use of widely accepted standards, such an approach will almost certainly lead to resolution of the specific issues too.

However, some caution needs to be exercised. Making images available is exactly what many image providers already do, and many of them do this very well. The IWG's proposal will only work if it can win the hearts and minds of a huge number of differing stakeholders; it will need to work extremely hard to be seen to meet the explicit needs of all the different users in its communities, and it will need to gain sufficient support from all the institutions, organisations and individuals who can supply the raw products, the images. In the words of someone from one of the major galleries, *"there is a frustrating lack of connection between sectors, concerning remarkably similar and synergetic projects"*. Nonetheless, the same person added, *"I'd like to help bridge this gap, if I can"*.

And there are other things that can be done to bridge the gap. Initially, a corpus of images could be identified, perhaps with expert involvement, user surveys of image needs, desk-top audits and analyses of commonly used images/slides. But the corpus would come with an expressed understanding that it is just a starting point, and with assurances and mechanisms in place to involve user communities in its initial development and its continuing growth. Once the community can see that the process involves them and responds genuinely to its needs, buy-in will become organic and slowly, but very surely, the 'gaps' in the collection will start to fill and new directions will be discovered. Furthermore, such involvement will help to foster a culture of sharing and trust, thereby encouraging more and more people to proffer their idiosyncratic resources to their peers and colleagues across the UK.

The following list presents just a few of the avenues, for building up a base corpus, or reservoir that are already perfectly feasible:

¹⁰A study to research and define a suitable technical and organisational model to support the deposit and sharing of community image collections within Further and Higher Education – http://www.jisc.ac.uk/funding_imagecollections.html; A study to define a possible framework for the deposit of sensitive and clinical (medical, dental and health-related) recordings – http://www.jisc.ac.uk/funding_medicalimages.html; JISC Image Portal Demonstrator Project (Phase 2) – <http://www.edina.ac.uk/>; The Digital Picture – <http://thedigitalpicture.ac.uk/home.html>

- The JISC is already at the forefront of enabling digitisation of images for education – many JISC-funded collections could be made available to the reservoir;
- Ongoing monies could be made available for the commissioning of specific photographs for known use in educational practice;
- Continuing funding could be made available for the digitising of important collections;
- Negotiations could take place with major National institutions to make their collections available through the reservoir, perhaps via OAI harvesting;
- HE Institutions could be encouraged to provide access to local collections;
- The reservoir could be capable of harvesting from institutional repositories
- Deals could be negotiated with commercial providers for nationwide access to images that are required;
- Funding could be made available for the outright purchasing of specific images/collections;
- Those who create images as part of their educational practice could be enabled to add their images to the reservoir;
- Funding for digitisation could always come with a proviso that the results be made available (where feasible) to the reservoir – this notion could be encouraged within other funding bodies;
- Digitisation bureaus could be established to scan or photograph image collections, either at specified places or as a 'mobile' service.

In all cases, of course, some level of standards would have to be met, but these too would have to be developed in accordance with the needs of the users. In many cases, the raising of quality and increase in the use of agreed standards is more about education of users and providers; it is about the development of visual literacy within the community. Accordingly, beyond the collection of images, a number of other initiatives could be run in parallel, particularly: awareness raising of good digital image practice (e.g. quality, metadata standards, copyright); encouragement for image creators to make use of extended ownership mechanisms (e.g. Creative Commons); and ongoing negotiations with CLA and DACS to increase the potential provision of scanned images. The approach proposed by the IWG has another important advantage: it could manage, and hopefully reduce, the need for payment of subscriptions. For example, the service could negotiate, at a National level, for access to images that are already in the public domain (many of which are currently only available via subscription services).

Also, such a resource is not limited by National boundaries, it would almost certainly benefit from the experiences of, or indeed from integration/partnership with, international projects (e.g. the University of Washington Image Bank, The Museum Educational Site Licensing Project (MESL Project) or the German, Prometheus model). It should also consider other initiatives that are going on in the UK; organisations like Museums, Libraries and Archives Council (MLA), and indeed the JISC, with projects like the Common Information Environment (CIE), are already pushing towards a future where public domain material will be made available on much wider scale.

the Digital Picture project has enabled the arts education community to articulate many of its concerns, doubts and fears about the increasing dependence on digital media for access to the most essential of its resource needs. But the project has also allowed the community to explore ways that those needs could be met. The proposal that has emerged from the IWG does, in many important and fundamental ways, seem to offer a path towards fulfilment of those needs. In a relatively short space of time a facilitating process could exist that, in the words of the IWG's vision document: allow institutions to house their own digital image collections; allow teachers and academics to deposit images created for educational purposes; allow institutions to share image

collections and provide users with online access 24/7; provide the scaffolding for other public sector image collection owners to add their collections; allow sustainability as a national service within a secure environment; create a critical mass of images with high relevance to education; be an open access service and therefore engender a great sense of ownership; comply with JISC Information Environment standards ensuring interoperability and ease of access.

3. *the Digital Picture* method

The primary aim of *the Digital Picture* was to identify tangible problems relating to digital images, within the visual arts education community, and to then outline feasible solutions to those problems. To achieve this, the project set out to meet the following objectives:

1. National consultation of the affected community and all associated parties;
2. creation of a consortium to represent the community via seminars and online conferencing;
3. establishment of working parties/seminars to discuss a number of specified issues;
4. literature/peer project review;
5. documentation of subsequent analysis and resultant recommendations.

This report highlights the findings of the first and most significant of these objectives, the National consultation of the affected community and associated parties. It also draws on the findings of the remaining objectives to date, though they are ongoing and a final report, containing more comprehensive details, will be available later on in the year.

3.1. National consultation

Because the intention of *the Digital Picture* was to elicit a view that would be representative of an entire community, and in order that all members of that community could feel that they had an opportunity to contribute, the project decided to hold a broad, open consultation rather than, for example, questioning a small representative subsection of the arts education community. To facilitate this approach, a questionnaire was devised that enabled respondents to answer simple questions on a range of digital image subjects that were considered to be important. There were ten general questions with a total of thirty seven associated statements to respond to. To assist and prompt response, each question was accompanied by general information about each subject area. However, the questionnaire was also devised to elicit more subjective information through a blank area for written responses. This permitted respondents to discuss their thoughts on any given subject in an unrestricted way and, importantly, inform the project of issues not covered by the questions themselves (1 in 5 respondents used this facility, giving 912 comments).

Two thousand printed A5 booklets containing the questionnaire, associated information and a postage-paid reply envelope were sent out to art colleges/schools and university art subject departments, as well as to a number of institutions and organisations associated with art education. Ten thousand double-sided A4 leaflets promoting an online version of the questionnaire were also sent out, as well as messages to twelve art education email lists. Respondents were able to complete the questionnaire online, or download a Word or PDF version of the complete document.

Results indicated that over 150 institutions took part in the consultation, including some forty universities and over thirty associated organisations, including Tate, Victoria and Albert Museum, Imperial War Museum, National Museums & Galleries of Wales and Scotland, National Portrait Gallery and English Heritage.

In order to engender further, more in-depth debate, a number of free-to-attend seminars/workshops were arranged across the UK. A pre-launch workshop was organised and hosted by the University of St. Andrew's, Scotland where the format for the National consultation and accompanying debate was established. The consultation and questionnaire were formally launched in April 2005, at the annual conference of the Association of Art Historians, hosted by the University of Bristol.

Eight further events, encompassing England, Wales, Northern Ireland and Scotland, were carried out through April, May and June 2005 and the consultation part of the project ends with a workshop at the annual conference of the UK and Ireland Art Libraries Society, to be held at Aston University, Birmingham on Saturday 8th July. Workshops were hosted by University of Wales; Manchester

Metropolitan University; Surrey Institute of Art & Design, University College; University of Ulster; Plymouth School of Art and Design; Courtauld Institute of Art; University of Northumbria at Newcastle; and, Glasgow School of Art.

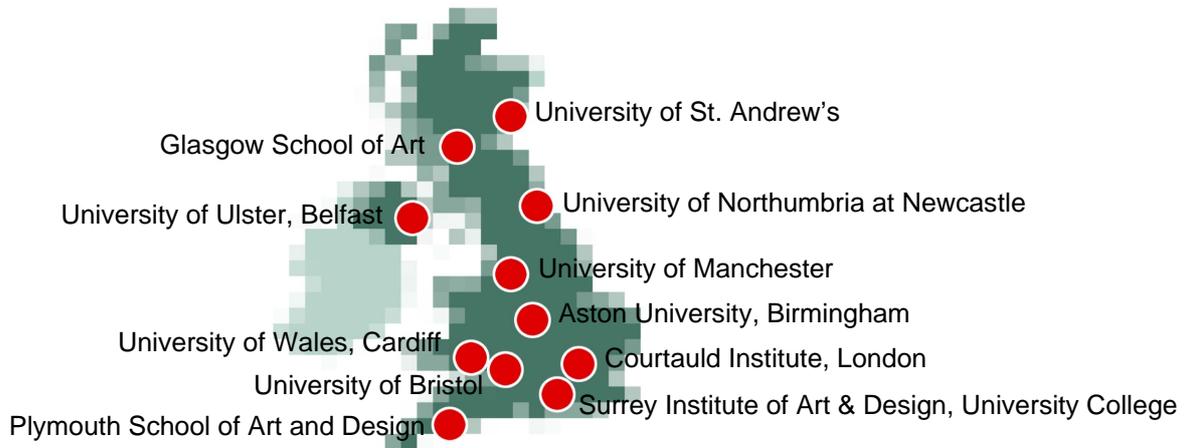


Figure 1. Workshop/seminar venues.

4. What the community says

This section presents the results of the consultation.

4.1. Respondent data

Respondent breakdown was as follows: 502 people completed questionnaires and 257 signed up for workshops/seminars. The website received 128,743 hits (5,814 visitor sessions) and 458 people signed up to the Digital Picture email list. Data regarding role of respondent, educational level which he/she is involved with, and age, were also collected.

The data is given in the following table.

Role	%	Involvement in	%	Age	%
Student	15	Further education	17	Under 18	1
Support staff	8	Higher education	40	18 – 30	21
Artist	8	Masters	17	31 – 50	45
Lecturer	28	PhD study	13	Over 50	32
Managerial	9	Post doctoral	7	Blank	1
Researcher	10	Other	6		
Librarian	12				
Art historian	5				
Other	5				

Table 1. Role, involvement and age of respondents.

4.2. Questionnaire data

At the outset of the project, potential issues were divided into ten broad areas and, for each of these areas, responses were elicited. The following subsections (4.2.1 to 4.2.10) include: the text that accompanied each area in the questionnaire document; the statistical results of the questionnaire; and a summary discussion of results, subjective responses and workshop/online debates.

N.B. All figures given in the following subsections are a percentage of responses.

4.2.1. Increase in digital images

Supporting information

Arts education, like everywhere else, has felt the rapid growth of computer-based, digital technologies in recent years. The benefits of these new technologies can usually be clearly seen; for example, we all recognise the increased opportunities for sharing information (including images). This applies not only within our teaching and learning environments, but also across other parts of the country, and even other continents. However, inevitably, there is another, less positive side to the steady advance of new technologies; one obvious effect being that many technologies that have been used successfully for years disappear as a result. In September 2003, well-known slide projector manufacturer, Kodak, announced that production and sales of their machines would end in June 2004, with service and support ceasing in 2011. Slides have been a mainstay of arts education for a very long time and a change to new image formats is clearly a significant occurrence.

“..in recent years, slide projectors have declined in usage, replaced by alternative projection technologies.”

www.kodak.com/US/en/corp/pressReleases/pr20030926-01.shtml

Nonetheless, the rise of digital images will certainly continue (especially with constant improvements in digital cameras and projectors) and, for many in arts education, the fact that they are rapidly becoming a core part of the educational toolset is a clear demonstration of, and reason for embracing, the practical value of the digital revolution.

Response statistics

Question: Digital images are on the increase in arts education. What overall impact does this increase have on you?

	Strongly agree	Agree	Strongly disagree	Disagree	Not sure
It improves things for me in the learning and teaching environment	49	25	2	2	22
I worry about the loss of traditional products, skills or knowledge	23	23	14	15	25
It helps me to be more computer literate	38	28	6	5	23
It has no impact on me	3	3	76	10	8

Summary

86% of respondents feel that the increase of digital images in arts education has had an impact on them. For an extremely heartening 74% this impact materialises as an improvement in the learning and teaching environment, with 66% believing that the rise in digital images helps them to be more computer literate. However, the advantages come with provisos. Only 29% of respondents are unconcerned at the corresponding loss of traditional products, skills or knowledge. It is clear, from seminar debates, that much of the fear lies in the speed with which change is occurring, and that lack of forethought and consideration for any negative impact. Also, the new technology seems to threaten livelihoods and the essential qualities of ‘human’ skills, with an apparent shift away from traditional expertise and resources towards increased ‘virtual learning’ and online materials.

Selected quotes from respondents

On the positive impact of digital images:

"I have found my increasing confidence and experience in using new technologies creatively and as an educational tool both invigorating and illuminating!"

"Learning to use digital images has invigorated my teaching and as a 50 years + lecturer this has really benefited me."

"The freedom to carry around my own library of images and slideshows and create lecture slideshows on the hoof has made me much more productive and flexible, plus the ease of constructing composite images and text."

On the improvement of the learning and teaching environment:

"There can be little doubt that digital images ARE the future of visual culture education. They are more flexible, user-friendly, easy to produce and reproduce and more accessible than slides."

"It certainly helps with the 'hooking' of students into photography as the results are more easily seen quickly. It is therefore faster to give critical analysis and progress made."

"The switch from slides to digital images does require additional work but the up side to it is amazing, and worth the effort, as many more images are available all the time on the web and students expect more computer literacy in the classroom, in my experience. I teach design history and the history of technology/material culture and have been pleased by how much broader the image base I have is now than my slide collection."

Warnings on the loss of traditional processes:

"Can result in a loss of understanding of the physical nature of things. Digital images need to be used in conjunction with an understanding of the artefacts themselves."

"Digital technology provides alternative learning materials to improve variety within teaching. But should not replace face to face methods. Technology is replacing traditional more 'costly' techniques such as printmaking in many colleges. This is short-sighted - rather new technologies should be integrated with traditional methods."

"We have a large investment in traditional slides that is threatening to become redundant; this worries many."

"As more images are made available online I worry about the increasingly common presumption that traditional forms of research become less necessary. In particular I worry about the loss of 'research skills'."

"We recently subsumed our discrete BA in Photography into a digital multi-media BA in Media Arts. This enables students to specialise or become multi-practitioners. However, the loss of traditional, alternative analogue processes, that could be quite explicable in the digital age, means that we lose many of those qualities that drew us in in the first place."

"Our users are very reluctant to use digital images and LCD projectors - we have the equipment but no one wants to use it despite offers of technical support. It can be quite frustrating."

Other worries:

"The downside is that it is so much easier for the students to produce a large quantity of sub standard images."

"Concern that the new image formats have longevity - will they be overtaken by new technologies and become redundant. Issues of investment by my institutions - will it be 'format wars' all over again?"

"Digital imagery could make a much more significant impact in the learning environment if we had sufficient hardware and software resources."

"It can provide our students with a far wider visual resource upon which to draw. BUT whilst for students with developed and sound critical faculties this is very useful, for those without those skills, the plethora of unedited imagery can be a handicap, unless viewed through a portal which offers guidance."

"Staff development and quality of training are key issues. There is no standardisation as yet."

"The boom in digital technologies is a phenomena that has yet to be of proven value to the educational community. This may sound extreme, but it is never-the-less true in many obvious ways."

"The point is that impacts and effects cannot yet be judged."

A balanced view:

“However it does offer the opportunity for fusion between digital and traditional methods/techniques, allowing each to inform the other. The argument exists that the loss of traditional methods adds kudos to them, think the underground vinyl revolution after 'the death of vinyl' with the advent of compact discs.”

“The loss of traditional products, skills or knowledge is not an automatic result of digital technology. Change and the advancement of new skills and knowledge may be.”

“The loss of traditional products, skills or knowledge is not an automatic result of digital technology. Change and the advancement of new skills and knowledge may be.”

“Good practice should ensure a healthy balanced diet of traditional products, skills and knowledge and computer-related products, skills, techniques and knowledge.”

4.2.2. Fit for the purpose

Supporting information

There is much debate within art and photographic communities about the quality of digital images, especially when compared to photography and traditional printing media. Although digital imaging technologies and projectors have improved immensely over recent years, there is still a perception that the image quality does not match that of traditional slides in terms of colour, contrast, clarity and depth of detail (resolution), especially where fine details need to be examined; for example, in the study of art history. It may well be true that the level of affordable digital media has not attained a high enough quality for certain purposes but this may not be the case throughout the art education sector. It is quite feasible for a lecturer to simply want an image (perhaps a photograph of a particular building) for illustrating a point in a presentation. To him/her, the depth of detail or precise colour balances may not be important, as long as the educational point is made.

“Then there’s image quality. The images produced by most consumers are dire... this will improve in time... but it still has a long way to go before it overtakes analogue photography. An average 35mm colour negative holds the equivalent of several gigabits of data.”

John Naughton, Sunday Observer
February 2nd 2003

Response statistics

Question: Digital images can be used in a number of ways, but are they better at some things than they are at others?

	Strongly agree	Agree	Strongly disagree	Disagree	Not sure
They are excellent for illustrating talks and lectures	62	25	3	2	8
They are only good for web or intranet pages	5	5	52	22	16
They are never good enough quality for studying closely or printing out	8	14	33	22	23
They are useful for creating new artwork	43	26	4	4	23

Summary

Overall, the community accepts the use of digital images as of a sufficient quality for use in their professions: 87% feel that they are excellent for talks and lectures; 74% consider them suitable for uses beyond web or intranet pages; 69% have no doubts about their usefulness for creating new artwork; and, only 22% are concerned about their quality for close examination or printing purposes. Nonetheless, heated discussions have been had about just what ‘fit for purpose’ means: to an art history lecturer, high resolution may be essential to make a particular point, whereas, for an FE student illustrating an essay, the subject matter may be more important than the quality of the image itself. The broad needs of such a diverse community create something of a tension when trying to identify the desirable qualities of digital images, and this in turn can impact on the way that art is taught.

Selected quotes from respondents

In support of digital images:

“High quality digital pictures are invaluable media for illustrating presentations. They can not only reside on the screen, but if handled properly can produce high quality printouts that match and even exceed manual prints.”

"A good quality image is an excellent teaching tool."

"Digital images can be used with a level of flexibility, immediacy and efficiency which photographic transparencies or high quality printed materials cannot provide."

"Digital images can be used in any teaching environment and for any teaching activity."

"Most of the slides I have been using are a joke - washed out colour, warped, falling out of the mounts. The digital images are a huge step forward."

On issues of image quality:

"The issue here is quality and size of image, and the display capabilities of the hardware. A good digital image - 48-bit & 600 ppi - should be better than a well-taken 35mm slide; a poor scan at screen resolution is significantly worse. The resolution available on an original or first-generation copy slide, well-taken from the original and well-projected, continues to be better than that of most data-projectors (particularly if more than one image is being shown at a time). Quality IS a significant issue for art historians - but the tools are improving, and a more widespread understanding of acceptable digitisation standards is (slowly) developing."

"The availability of digital images for the support of teaching, and the ability to use them in flexible ways far outweighs the (diminishing) limitations of definition. With cameras easily available at 8.5 megapixels, and reaching 17 megapixels+, quality of images is a choice."

"Digital images, in the sense that they have now reached the critical quality/affordability threshold, will most likely be the form of choice for most applications for the foreseeable future. There are some issues over their permanence and the seemingly endless revisions of the supporting technologies."

"The quality issue is only relevant if you try and download pictures from the web, or if you don't have a good enough understanding of resolution and colour management when taking and saving or archiving your own images."

"I tend not to use these images for the level of detailed scrutiny needed in e.g. Art History, but I know the image quality is at present unsatisfactory - though no more than that of a bad slide."

Warnings on the use of digital images:

"Unfortunately, too many people and establishments view them as a cheap and faster option for working with no consideration for the broader educational picture."

"The new artwork usage is obviously subject to copyright issues."

"Currently students disregard any copyright or IPR issues connected to specific artworks when creating new artworks from old artworks. The BIG issue for me is how to strike a balance between encouraging their creativity and respecting the original artwork and artist."

"The real deficiency is that too few museums and image sources provide images of high enough resolution, or detail."

"Useful for creating new artwork but only on the basis that digital technology does NOT entirely take over - which IS happening on some courses."

"As always, it depends on the quality of the photography."

"Superficially good looks can be easily produced - but is this progress?"

4.2.3. Effect on traditional education

Supporting information

As digital images and associated technologies become the norm, there are, naturally, elements of doubt and concern in some areas, particularly in relation to threatened changes in working practices and associated cultural shifts. Fear of change is often justified to some extent and any new media must be considered very carefully in terms of its broader impact. In 1936, Walter Benjamin discussed both the negative and the positive impact of mechanisation on art, in his book 'The Work of Art in the Age of Mechanical Reproduction'. In today's digital revolution, people in arts education might want to know things like whether there will be a decline in those arts that require large working environments, as more space is devoted to the much smaller computer terminal. Also, will librarians and tutors be made redundant as their contribution is replaced by much cheaper digital resources?

"Technology is not a teacher: its use cannot and should not replace interactions with responsive adults."

Digital images can play a useful role to support active learning, in Learning & Leading with Technology, May 2004 v31 i8 p34(3)

Some of these things will happen but digital images do, of course, offer huge benefits such as increasing access to art in terms of volume and scope. They also create opportunities for interacting with art that is otherwise inaccessible; for example, the prehistoric cave paintings at Lascaux, which have been closed to the public since 1963. Furthermore, other advantages of digital imagery, like the increased capacity to manipulate images and to share them amongst art students and staff, both internally and across the wider community, are obviously extremely valuable assets to arts education.

Response statistics

Question: What effect do digital images have on more traditional aspects of art education?

	Strongly agree	Agree	Strongly disagree	Disagree	Not sure
Using images on-screen reduces face-to-face contact with other arts people	13	14	24	20	29
Access to many digital images is better than just visits to galleries	18	19	27	15	21
We must not lose traditional media and approaches	51	25	2	8	14
Arts education is much improved by digital images	37	34	3	2	24

Summary

76% of respondents are adamant that traditional media and approaches should not be lost as a result of digital images, with less than half (44%) convinced that digital on-screen activity is not having an adverse effect on face-to-face contact. 37% believe that increased access to digital images is an improvement on the limitations of gallery visits but, as some of the quotes below illustrate, most feel that, ideally, students should have both. Despite these concerns, 71% feel that arts education is improved by digital images. Seminar debates on this topic revealed many other issues, relating to but not covered by the questionnaire. In particular, there were fears that, although a balance of old and new was to be desired, financial and strategic imperatives meant that this was unlikely to happen. Institutes are unlikely to maintain 'out-of-date' equipment and practices because of issues with cost, space, expertise and, increasingly, health & safety.

Selected quotes from respondents

On concerns about the loss of the traditional:

"Traditional media (i.e. the analogue photograph) does have qualities that digital images do not. Similarly, there are older styles of photography that possess qualities that are hard to replicate exactly using digital techniques."

"A balance must be struck between traditional and digital methods as both have a major role to play."

"Both digital and traditional technologies are a must! They work together and are not mutually exclusive."

"There are pros and cons to both digital media and traditional crafts. There are aspects of an image that simply cannot be appreciated by digital imaging and can only be respected when seeing the piece for real in a gallery."

"Viewing artwork in the 'flesh' cannot be replaced by digital reproduction. Artworks also need to be experienced in 'real' space to fully appreciate surface/physical qualities. traditional media must not be replaced - arts education not improved - just different."

"Students increasingly expect to find images 'on tap' and make fewer visits to galleries/major exhibitions to experience original works of art."

"It's too early to say yet - digital technology is not up to speed. Also it is hard to create some of the effects that make photographs special, the small flaws etc digitally. I think sometimes digital images can be stale and we should not lose touch with the old as they have their own things to offer."

"Improved access to images via digital means is undoubtedly an improvement in this information age. However, traditional slide quality is far better for art history lectures, if there is a need for a detailed analysis of a painting for example. Visits to galleries should still be an important part of arts education as there is nothing to compete with viewing a work of art in the flesh."

Face-to-face contact:

"Poor teachers will always use a/v aids as a substitute for face-to-face interaction."

"From personal experience of teaching computing such as Photoshop, student-to-student interaction is radically altered when compared to studio based teaching. A balance needs to be retained between the two."

"Technology is not a teacher. Nowhere is this truer than in digital media. Just because access to sophisticated imaging tools is easier and more affordable this does not negate the need for relevant face to face education in this area."

The benefits to arts education:

"Whilst there is no substitute for examining an original artwork, increasing access to digital copies can only help our understanding of the topic. Imagine how 'in the dark' most people were in the days before photography and the wider dissemination of artworks."

"In an ideal world it would be great to physically see EVERYTHING. That, of course, is not possible so it must be an advantage to be able to see those we cannot physically stand looking at in some way or other. I would not suggest that digital images can in any way replace a physical presence but is a wonderful alternative to not seeing them at all."

"A sound educational process will use digital facilities to enrich and complement rather than displace the physical experience of objects, materials and other people."

"Arts education is different because of digital images, but not necessarily better. However, digital images available for viewing on the web are generally accessed more easily/readily by students."

"Contact with reality is still essential for students to have a full contextual understanding. Traditional media and methods help students to understand and explore a wider range of creative possibility."

"Nothing can replace standing in front of the actual picture that an artist painted in a gallery. There is an extra dimension to this experience that cannot be reproduced by even the highest quality art print, let alone a digital version of it. But digital images will reach such a wide audience that may then be inspired to seek out the original."

"If one lived in the Hebrides access to digital images may be the only alternative to visiting galleries in person, but nothing can ever entirely compensate for seeing an original."

"On issues of accessibility for the slightly less privileged I would say arts education is improved by digital images."

4.2.4. Finding digital images

Supporting information

Some institutes will doubtlessly find the resources necessary for making available many digital images to their staff and students, even if this takes place over a long time. Such images could be made available via an intranet or Virtual Learning Environment or, if political and financial restraints allow, made accessible to the wider community through a co-ordinated, joining-up of resources from different places on the Internet. But this sort of approach wouldn't prevent people from scanning in or creating their own images, though quality and copyright issues might have to be explored in these cases, and would not negate the use of other ways to access images. Already, there are a number of companies who offer images to educational users (Bridgeman Art Library, ARTstor and Saskia) and several online services specifically set up within the education community (AHDS Visual Arts, EDINA and Artifact). It is also important to remember that a huge majority of people prefer to discover resources through commonly used Internet search engines (such as Google) and, although this brings many potential pitfalls, this approach will no doubt grow as the search engine companies mature and further recognise the needs of communities like arts education.

Response statistics

Question: If you wanted a particular image in digital format, what would be the ideal way to obtain it?

	Strongly agree	Agree	Strongly disagree	Disagree	Not sure
I would like my institute to provide all the images that I need	26	21	18	14	21
There should be an online 'one-stop-shop' for arts images	32	25	11	9	23
Browsing via internet search engines is the best way	16	21	13	21	29
I would like to have the resources to scan it in or create it myself	46	26	5	6	17

Summary

Finding the right digital images for use in education is a problem, particularly given quality and ownership issues, and only 37% of respondents feel that the Internet currently offers the best solution to this problem. 72% feel that they should have the training, time and tools to create digital images themselves; 57% would like some sort of one-stop-shop on the Internet; while 47% feel that their institution should deal with the issue. However, the community recognises that these issues are complex: most understand that it is unrealistic to expect everyone to have expertise in digitisation; and, more significantly, there is widespread concern that no single person, institute or organisation can possibly provide all the images that all students/staff will require.

Selected quotes from respondents

On problems with the Internet:

"Internet search engines produce the most rote images, work looks a bit standard."

"There is a problem with the quality of images sourced via the internet. Usually they are not high resolution and can't be used by students in their artwork (and if they can there are all the copyright implications)."

"The third (Browsing the Internet) is fine but there are copyright problems."

"Hundreds of 'self-scans' populating the web is very dangerous in so many ways."

Do it yourself:

"Although browsing for images is sometimes the best and quickest method to find a digital image, the results are never the same as when you find, compose and take a picture for yourself. That way you are sure to get exactly the picture that you need."

"We generate all of our own digital artwork."

"Most academic staff would not have the facilities or expertise to create digital images of a good enough quality. This work is best left to experts in the field."

"I have unique images in my slide library. I would like to be able to scan them to increase usage/availability. (perhaps a DACS license to make it legal?)"

"I do already scan images, but original artwork larger than A4 is impossible."

An online one-stop-shop:

"Ideally a core collection of images should be available from online resources accessible via a one-stop-shop, but this should be supplemented by an archive produced in-house, tailor made for the courses taught in each institution."

"A central resource for core images from Art & Design History, freely available, plus more specialised images made in the institution would be the ideal."

"The best option must surely be a global, subscription based image library."

"I already use copious examples from existing online sources for illustrative material for background material, such as historical perspectives on digital media and new developments. A 'one-stop-shop' implies a new development with a cost attached. Why reinvent the wheel? Search engines are the de facto standard and whatever may be set up would not change custom and practice in this area. Users would still go to a search engine to look for images, simply because there is the chance that a better image might exist somewhere else on the internet (for free)."

"I can't imagine that a one-stop shop is a realistic aspiration."

"I was at the Manchester seminar yesterday and in the group that proposed government lobbying to make national galleries provide their images online (hosted in a way to keep them secure of course). We all agreed that an online register of where images were held would be the best way forward."

"Ideally one centralised resource giving subscribing institutes all their images would be the most efficient. This is unlikely to happen now (I thought at one time it would, rather than all of us producing digitised collections of our own) because we all have differing needs and the emphasis tends to be on the biggest common denominators i.e. traditional fine art material which is not what an institute like mine needs."

Limitations of institutional approaches:

"Colleges are notoriously bad at providing the imagery required for teaching effectively, even though they insist on staff providing teaching excellence."

"If an institute provides all images then the serendipity is lost - and that's a CRUCIAL aspect of digital process. It's not first about format, it's about METHOD as well!"

"Dangerous assumption on the part of any institution that they are in position either to source or know the requirements of a learner or educator."

"In a sense I would like my institution to provide everything on a plate for me but there is much to be gained in (researching?) my (art?)/teaching myself!"

"No single institute could provide all the images one might need."

4.2.5. Technological resources

Supporting information

Whilst most arts lecturers and tutors will acknowledge the fact that tools such as Microsoft's PowerPoint are commonly used, there can be a mismatch between the apparent functionality of such tools and their own needs. One example of this is the common arts practice of using dual projectors to illustrate differences/comparisons between two or more images, something that would be difficult to achieve with many current digital tools. However, it should be acknowledged that new tools and advanced versions of current software are coming onto the market all the time.

"In the seemingly inexorable rise of technology in schools, the data projector has recently been demonstrated to be the piece of equipment whose popularity is growing fastest."

The Guardian, Tuesday September 23rd 2003

Many arts institutes now have sophisticated display hardware, advanced computer suites and fully integrated networks and associated facilities though, in some users' minds there can still be uncertainty about plugging one machine into another or about things working at all. Also, new equipment does cost money, and needs constant support and upgrading, and this can have a major impact on the availability of digital images or the tools to make the most of them. But, prices are constantly dropping and, as institutes improve their basic infrastructure, continuity and availability of technological resources should improve and, to those who have discovered tangible uses of such technology, the issues relating to a slow adaptation process are far outweighed by the positive benefits.

Response statistics

Question: The successful use of digital images depends on technology. What issues does this raise?

	Strongly agree	Agree	Strongly disagree	Disagree	Not sure
The benefits of new technologies will far outweigh any problems	24	31	7	9	29
I have no confidence in the reliability of technology	4	9	34	34	19
Our institute is fully kitted out with the latest technology	10	24	20	21	25
I cannot get the tools I need	11	20	18	22	29
New technology costs too much	23	24	12	14	27

Summary

Just over half of respondents (55%) are confident that technological benefits will outweigh the related problems – the rest are not so convinced, particularly when it comes to the financial burden of technology, with only 26% believing that costs are reasonable. In many cases, also relating to costs, it appears that the arts education community is frustrated at the levels of available technological resources: only 34% feel that their institute is fully up to date, and only 40% have the tools that they require. Nonetheless, the technology does seem to have turned a corner where most people now accept it as part of their normal working day rather than as something new; the main issues, as with so many things, are to do with money, priorities and alternative agendas.

Selected quotes from respondents

On the balance between benefits and problems:

"The use of new imaging technologies is a 'costs/benefits' issue, and different organisations will put themselves at different points in a scale, but sectoral infrastructures need to anticipate wide and imaginative use of digital images."

"Problems, particularly related to student learning and psychological effect are only just being considered. There are real benefits, but there are also numerous problems and frustrations."

"Initial expenditure will far outweigh the savings in the future. Technology enables me to contact someone in say, India, have a reply the same day and even send the image within a few hours."

"Cost is a relative term. Efficiency can outweigh notional cost."

"The amazing rate at which technology improves is quite scary. It's a balancing game to wait for something to come down to the right price whilst also keeping up with new technology."

"Funding has always been a problem!"

"There is clearly a cost issue with technology but if funds are found it is often only a temporary solution as even newer technology is made available and demands higher specifications of software and accessories."

"New technology doesn't necessarily cost too much but we don't have the budget in our university to invest as much as we would like in it."

"New technology does create stress as the timeframe shrinks & expectations are raised beyond realistic targets."

"I regularly act as a problem-solver with new technology and, whilst my services have been called upon more times than I care to remember, in not one instance has the problem been the fault of the equipment. In EVERY CASE it has been the failure of the user to know how to use the equipment. I do recognise, of course, that this does indicate a significant lack of training."

Inadequate technological resources:

"New technology is expensive and budgets reduce each year."

"My institution seems prepared to pay for new technology but not for the extra staff time to set up and run the project."

"Institutions are more likely to support direct and narrowly focused requests from successful academics than the huge task of providing a shared, carefully managed service."

"Institutions would like to make good quality images available for educational use, but are unable to do so because of technical, budgetary and resource limitations."

"Most ICT support staff do not have the pedagogic understanding to properly support the use of digital images."

"In my last job, the institution did not have adequate equipment in the class room, nor did they provide the training or motivation to enhance the shift to digital images. I often used my own laptop, because I knew I could rely on it over the computers in the classroom but on several occasions, there were problems with the LCD projectors."

"The hardware for digital technology is relatively easy to get a hold of if there is a real need. However, the software that readily edits and complements the pictures is not. These programs are very expensive, and not readily available except to a select few. The only way to feasibly obtain editing packages is to acquire pirate copies."

"As a lecturer (and formerly as a teacher) and arts practitioner I've always had to invest in the technology I need, especially software, but also hardware. At least I can get it with education discounts, but there is a resentment that to keep abreast of new developments, iterations etc. there is no institutional funding and if PAYE no tax relief available."

"It is not only technology but training to use it & to keep those skills current given the pace of technological change."

4.2.6. Usefulness

Supporting information

A MORI survey published in February 2005 looked at issues relating to the Internet (www.common-info.org.uk/audienceresearch.shtml). It discovered that 92% of users believe that reliability of information is an important factor in accessing websites. This fact comes as no surprise to the education sector where students or lecturers using any image resource, digital or not, need to be sure that what they are using has a sufficient degree of integrity. Also, whilst it may not matter to some users if colours are not calibrated to a very specific standard, it is likely that poor searching or browsing facilities will directly impact on their usage of resources on web, intranet or Virtual Learning Environment. Ignoring the needs of those for whom a resource is developed can be an expensive mistake: in the House of Commons' 3rd report on the recent £50m failure of the UK e-University (published 21st Feb 2005) it was noted that 'the UK e-University failed largely because it took a supply-driven rather than demand led approach'. Focusing on user demands is particularly important for the many users who have difficulties with badly thought out websites; for example, those with learning or physical impairments. In this respect, images pose a number of problems since, often, their information value cannot necessarily be accessed by those with visual impairments or less sophisticated technology. It may be that good descriptions or structured metadata can help with this sort of problem, and with searching for digital images in general, but the creation of such extra information can be quite a burden for those creating resources.

Response statistics

Question: Are there particular aspects of digital images that improve or reduce their usefulness?

	Strongly agree	Agree	Strongly disagree	Disagree	Not sure
I need to know they come from a reliable source	53	25	5	4	13
Things like colour, contrast and clarity are unimportant	8	4	67	15	6
Browsing and searching for images should be easy for all users	75	16	1	2	6
Added information or metadata is not essential to my work	5	8	38	24	25

Summary

Issues relating to the usefulness of digital images are of great concern to the arts education community: 91% think that finding images should be straightforward (unsurprisingly), and in seminar discussions it was clear that many do not believe this to currently be the case; 78% recognise the importance of an image's provenance; 82% place great importance on the inherent qualities of the image itself; and 62% believe that it is imperative that images come with associated information. These factors are fundamental to pedagogical practice and the community fears that the abundance of 'free' images now available to students (and lecturers), and the increased emphasis on unrestricted use of the Internet, are setting misguided and sometimes dangerous precedents for arts education.

Selected quotes from respondents

On the provenance and metadata of digital images:

"I need to know the origin and provenance of an image. Knowing the date, place and originator of an image is usually essential. This is so I can tackle issues of IPR and copyright, but also so that students and staff can put an image into context."

"I need the metadata and need students to pay attention to it."

"Some images of relatively well known works of art/design are reproduced in reverse. Taking images at face value from a popular search engine can be disastrous for students final dissertations/essays without the fall back position of academic, verified sources."

"Reliability in terms of academic accreditation and referencing is vital."

"Good, imaginative metadata is vital if the authority of an artwork is to be taken seriously."

"Added information is always good."

"Copyright is a major issue for libraries. Students need reliable and accurate metadata for referencing & citing sources."

"Metadata and interoperability are key aspects of digital data; this is especially true in digital imaging."

"Metadata is nice but not essential. If one is talking about composition or subject matter the extra information is not required."

"Lack of metadata is what stops you from finding images."

"Standard metadata essential for images on web to be useful."

On image quality:

"Image quality is sometimes important, sometimes not."

"Colour, contrast and clarity are, of course, important for any image. Frankly, anyone who thinks otherwise has peculiar ambitions, or is a fool."

"On this subject I know that lecturers will use the scrappiest image imaginable from the most questionable source if that is all they can get hold of (and to be honest some of them don't look very hard)."

"All that matters is the quality, accuracy and size of the image."

"The variety of sources and variability of quality will become increasingly significant as we come to depend more and more on digital images only."

"My experience of helping students in that generally resolution on digital images is ok for sketches, draft ideas - but there is often a need for good resolution and good printing quality."

Ease of access:

"There are obvious issues to do with accessibility and using images (digital or otherwise), but bodies such as the R.N.I.B. encourage the use of images and multimedia in learning resources as long as an alternative is made available for those who cannot use the images supplied (e.g. correctly produced metadata)."

"Browsing and searching for images should be easy for all users' - I am glad to finally hear this debate being raised."

"No, it should be as hard as possible? What kind of question is that?!?!?"

"Access should be easy. Images need to be authorised and information on usage/IPR holder supplied in metadata tags."

"The new accessibility legislation and good practice for websites requires some effort to update existing sites, but the effort is worth it; while new sites can be designed with accessibility in mind from the start."

"I have seen digital presentations by MAJOR national repositories that - from a visual viewpoint - were dreadful. Ease of access is one thing, but again, quality is a vital component of this argument."

"Training and support is vital for teachers and students to make it possible to access and use the available facilities with confidence."

4.2.7. Ownership

Supporting information

One of the strengths of digital images lies in the fact that they can be shared, re-used and manipulated in ways that were impossible before the advent of computers. However, this also means that they can be mistreated with the same ease, i.e. it is now straightforward to produce perfect copies of digital images without regard to copyright or intellectual property rights (IPR), and broadcast or publish them without due reward, or credit, to the rightful owner of the material. However, such issues, which are often ignored or misunderstood can be extremely complex, and the ramifications of misuse are wide-reaching and potentially disastrous in both terms of legality and image usage. Nonetheless, many people in education, especially within libraries and legal departments, are very aware of the problems of ownership rights.

“Take away from English authors their copyrights, and you would very soon take away from England her authors.”

Anthony Trollope, 1815-82, taken from his autobiography (1883), ch 6.

Constant debates and discussions, to try to find ways of resolving some of the ownership issues, take place within arts education and also with organisations like the Copyright Licensing Authority (<http://www.cla.co.uk/>) and the Design and Artists Copyright Society (<http://www.dacs.org.uk/>).

Response statistics

Question: Digital images can be shared and re-used very easily. Should we worry about ownership?

	Strongly agree	Agree	Strongly disagree	Disagree	Not sure
I don't want other people to make money from using my image	50	18	7	4	21
Most images on the web are free for anyone to use	13	15	33	18	20
Using images for educational purposes should not be illegal	59	16	8	5	12
My institute should take care of legal issues relating to digital images	61	18	3	5	13

Summary

Copyright and IPR associated with digital images are extremely difficult areas for the arts education community. Illustrating the contradiction of a community made up of both creators and users of images, 68% acknowledge the need to protect the financial rights of image creators whilst 75% believe the use of images should be free within education. Perhaps surprisingly, nearly half of respondents (48%) do not seem to appreciate the legal issues of downloading images from the Internet. Most, it would seem, would rather have someone else sort out the problems: 79% believe their institution should take care of legal issues. Copyright will continue to be a major crippling factor in the advance of digital image use within arts education, partly because of the dilemma of creators vs. users, but more fundamentally because of a much wider 'lack of control', or 'freedom', depending on your viewpoint, with the way images can be created and shared via information communication technologies.

Selected quotes from respondents

On creators and users of copyrighted materials:

"Intellectual property rights should never be infringed. Particularly in an educational environment where the ownership of ideas and images is a central issue."

"My husband is a photographer so issues of ownership are of primary importance. His livelihood is undermined by people stealing his images online - it has happened - and also the possibility of them using them badly which damages his reputation."

"Just because they are on the web does not mean that they are free to use. It would surprise me if 5% of the images on websites are there with the permission of their photographers."

"I don't want people to make money out of my images but I do not mind if they are used by other people for educational purposes."

"Some people sell their work as web-based art and should not be financially threatened by educators' desire for 'free' materials. Nevertheless the opportunities to find and use copyright free images has been very useful to me & my students."

"The lively hood of digital, all artists, must be protected."

"Maximum levels of sector wide support, similar to the photocopying agreements will reduce complications, reward producers of imagery appropriately and encourage use."

"Legality and copyright are the heart of the matter. It seems to me morally reprehensible that anyone should claim money from image use in education. Those who do, or seek to do so, should be named and shamed publicly."

"We have our own assets which I would not wish to be exploited by others for financial gain; additionally we may have a duty to the person giving permission for the photography."

"The idea that others may make money from my images doesn't worry me. I have contributed many images to art 'how-to-do-it' books without any money changing hands at all. But I would be upset if my images were used by others without acknowledgement."

"People think that if its on the web its fair game. How it got on the web is another matter. You would not steal book from a bookshop, so you should not steal an image from the web."

"There are ethical issues on image use which I have not resolved in my own head. The distortion or manipulation of digital images, which is so readily achieved, raises all sorts of issues."

"An understanding of ownership issues is very important, as matters of rights are involved. I want to be able to trade in digital images. The recording of rights information in relation to particular images, the storage of this information in a useable way, and access to this store of information, are all useful aims in assisting this activity to develop maturely."

The legalities of using digital images in education:

"The government has the opportunity at any time to exempt education from copyright law and if it is serious about education it should do so. Students should be free to download images & manipulate them within the college environment. If they publish or make money from those images, sue them."

"Academic staff should be made fully aware of the implications of copyright and the legal use of images that they might download, scan or photocopy. Most lecturers seem to believe that if it's for educational use they can help themselves to anything they find."

"There needs to be some type of licence/agreement whereby students can be creative without worrying about copyright/IPR issues."

"Non-commercial educational use should be on a cost-recovery basis only. Galleries and museums - especially those with Access & Learning departments - should be included in the legislative exceptions granted to 'educational establishments' as defined by the UK Copyright Act. At present only schools, colleges and universities are 'educational establishments'."

"Educational use of copyright images should be free!"

"Institutions need to accept responsibility for appropriate use of images and be sensitive to IPR and copyright issues."

"Define 'educational purposes'. Multiple copying for HE course packs is different to single use in a lecture. I would expect to be paid for the former but not the latter, nor for low-res use in school projects."

Institutions and legal issues:

"I think copyright issues are very important and we should teach students to respect copyright. I don't think institutions should hide copyright issues by 'taking' care of them. I think we should be made aware of them at source."

"Each individual should be responsible for/ aware of the legal issues otherwise it would be impossible for the institute to police their staff."

"Copyright should be understood and respected by all who use images in an institutional context. Clear guidance on this is lacking!"

"Unfair to expect individuals to be experts on IPR, so institutions should have clear policy on image use."

"I believe that any exposure is better than none at all. Our institution is very up to the beat on copyright."

"To teach budding art professionals they need to learn about copyright and intellectual property, as well as the ethics behind it."

"Legal issues need to be sorted out a NATIONAL, rather than institutional, level, with a strong presumption in favour of 'fair dealing' for educational and research purposes."

4.2.8. Support in using digital images

Supporting information

Many of those concerned with preserving or promoting the use of images do not have the time and/or appropriate training to achieve all that they would like to achieve in respect of digital images, nor to instigate such work by others. The lengthy time commitments, skills, knowledge, hardware and resources necessary for digitization on any significant scale are usually found in the ICT departments of colleges or universities, rather than in arts faculties. Also, although many arts education institutes now have substantial systems set up, the whole language and procedural side of utilising digital resources can be confusing or daunting to someone who is not used to them. However, as the new technology matures and its place in our environment is better understood, there is a natural increase in our knowledge about it. This soon filters out to more and more people, either through new skills being taught, an increase in understanding through regular usage or through improved access to those people with the appropriate knowledge. Gradually, many of the problems will get smoothed out and, as a consequence, budgets, procedures and training programmes will begin to evolve in much more positive directions.

“It is obvious that the art school must come to terms with the new environment. In order to digest the unfamiliar codes and relationships created by our new electronic faculties, they must be normalised as a part of the working environment.”

Stroud Cornock, from ‘Media Handling’ report to Fine Art Board of Ipswich Civic College, 1965-66 session

Response statistics

Question: What considerations need to be made to help you get the most out of digital images in art education?

	Strongly agree	Agree	Strongly disagree	Disagree	Not sure
I feel that I can always turn to an expert when I need advice or support	26	24	14	14	22
More money should be made available for digital images	39	32	3	3	23
My institute's procedures for digital issues are clear and easy to understand	11	12	23	24	30
I cannot get the training I need	12	18	17	20	33

Summary

Support for the arts education community, in using digital images, has a way to go before the community feels that it is satisfactory, with 71% believing that more money needs to be spent. Only half of respondents (50%) already feel that they can get help when needed, and a mere 23% understand their own institute's procedures for matters relating to digital images. However, 37% feel that they can get the training they need, compared with only 30% who feel that they cannot. Part of the problem here, is that the community is unsure about just what it needs training in. More importantly, there are concerns that digital matters are taking over at such a pace that many people in the arts are being forced to become experts in areas that simply should not be part of their job.

Selected quotes from respondents

On the issues of support and training:

"Not all courses are at my level. I need cross over courses where digital images are used in conjunction with traditional media."

"Far too much useless 'training' already! Give me the money to buy myself a new computer and some software updates, I'll figure it out fine, thanks."

"Training on this issue has not been offered at my institution."

"There are more experts around such as TASI and AHDS, which are invaluable. But in my institution there are not. Training should take priority when considering digitisation."

"Training is often available but not affordable."

"Sometimes particular people understand things in different ways. So I do feel intimidated sometimes to ask simple questions about computer imaging and the ways they work."

"Good technicians are essential but you should take responsibility for your own learning."

"We as an institution are fairly well equipped and the technicians are good but we could do with more training."

"It is not more money that is needed but better targeted money."

"Do the ""experts"" know all the issues? An expert in say Photoshop, may have come understanding of IT but maybe not copyright issues."

"Training is always available - it's the funding for training that isn't. If you're prepared to pay for it yourself, you can easily find tailor made training."

"Support for new technology is still chasing demand. Finding time for training is a problem."

"Training is a difficult one. It is available but you do have to be able to clearly identify (and justify) what it is that you need when you don't always know exactly what would be of most use or indeed if it is available."

"I haven't the time to take all the training I would like to do. I can't always get the expert help I would like to although I do have access to a lot. I tend to learn by my mistakes and therefore improve a little all the time."

"Ongoing training in new technology/software is essential for staff & students."

"I work in a Learning Technology Support team. We are trying to get across the message about using digital images correctly, but there are certainly training issues for both academic and support staff that need to be addressed urgently."

Money and institutional procedures:

"My department in the Institution has a large and well-catalogued slide library. There are several academics who are keen to use it as the basis of a digital collection available on our intranet. The problems arise with the cost of resources needed to convert the slides - and the project is shelved again and again. The feeling of senior department managers is that images are freely available on the Web and that to scan, catalogue and store thousands of images from slides is a waste of resources. Also, instead of student work being archived on slide as it used to be, tutors make digital records on CD which become part of their own archive."

"Finding images is incredibly time-consuming which adds considerably to one's workload - this is nowhere acknowledged."

"Educational establishments use of digital technologies is too often motivated by economics rather than the quality of the educational experience."

"We have a good budget for slides which I am already directing more and more to digital images. The infrastructure to deliver them is not there yet, but awareness is growing of what might be required."

"We are fortunate at the Sainsbury Centre as we have a very forward looking team. Money in the Art world is increasingly difficult to obtain but where possible we push forward as a team to develop this side of things. We are in the process of developing our own guidelines."

"I'm not sure we actually HAVE a policy yet - it's all too early and policy would need to be continually updated, leading to an erosion of confidence."

"Digital imaging is a tool for learning in Art, Media and Cultural Studies and the decisions about the required hardware and software should be in the hands of the teachers in these areas, not the ICT 'experts'. Digital imaging is often held back by IT management decisions that are more to do with maintaining their own status quo than creating collaborative systems."

"Our policy towards digitisation, use of digital images, use of visitors cameras etc is very unclear as yet. there is a high degree of suspicion which had hindered any more towards full digitisation. I do have good contacts with other institutions and they have given me some excellent advice."

4.2.9. Digital images in research

Supporting information

For many people in education, digital image research will mean finding pictures to illustrate presentations, lectures or essays. For these purposes, digital images, if made accessible in the right numbers, formats and subjects, obviously serve a very useful purpose. However, research relating to digital images obviously does not stop there. As well as the dissemination of high-quality image collections for researchers to make use of, there is also plenty of scope in the development of new ways of using images, and, of course, research into advanced imaging systems; for example, virtual reality or content based image retrieval.

As technologies and processes are understood and exploited further, digital images may also have a significant role to play in research that focuses on the creation of the image itself: practice-based research. What is certain is that the use of digital images in the arts will be an increasingly important part of research across the UK.

“At the heart of research across all disciplines is the determination to understand the world which we make and inhabit. The arts and humanities bring to that search approaches and understandings that are unique to our disciplines, and it is on these that we must build the heart of our case.”

Geoffrey Crossick, The Guardian, 2003

Response statistics

Question: Digital images have a role in research, but are there issues surrounding their use in this area?

	Strongly agree	Agree	Strongly disagree	Disagree	Not sure
They offer great opportunities for practice-based research	46	30	1	1	22
Existing online image resources are not sufficient for my research	28	25	6	11	30
Digital images are an essential part of publishing research online	45	28	2	4	21
We need more research relating to digital images	47	29	2	3	19

Summary

Only 17% of respondents believe that existing digital image resources are sufficient for research purposes, and 76% think more digital image-related research should be carried out. The reasons why are clear: 76% think that digital images offer great opportunities for research founded on practical work; and 73% feel that they are an essential part of publishing research online.

Selected quotes from respondents

On the lack of research resources:

“On behalf of lecturers I can say that most cannot find all the images they need in digital form.”

“Existing online image resources are a huge step forward from even a decade ago and, as such, a great enhancement to research activity. However, it is simply legal restrictions, not technological ones, that prevent these resources from being even better.”

“Existing online image resources are too fine art based.”

"The demand for full-text online art journals is now huge, but very few database companies provide this facility. I'm told that this is in part due to the cost of clearing the copyright/IPR of images used in journals for their use in full-text online journal databases. Hence, journals that don't contain original artworks are readily available online in full-text (e.g. Business, Health, Education subject areas), but only a limited number of full-text art journals are online (e.g. via Wilson Web Full Text). This is holding art students back."

"You can have too much of a good thing."

"More money should be made available for digital images"

"There is a wealth of material available on line – finding precisely what you want can be an issue. There is also a vast amount of research relating to digital images."

Digital images in research and research into digital images:

"As in all fields, the use of digital images for research is bound to increase, but within the visual arts field there is even more potential, providing it is given the right support."

"Digitisation has made my experience of accompanying my published research with relevant images easier. I am surprised still that so much visually-energetic work in culture studies does not feature images more centrally."

"They offer a potential resource base for research into art, design and architecture history."

"In dealing with research in the purest sense, images should have the same qualitative values of text based research, i.e. be innovative and novel."

"They are a further addition to research. Some students have forgotten about books."

"What KIND of research? WHY do we need it? WHEN do we need it? On the other hand, it's an area that needs exploring and mapping, but NOT colonising."

"There is insufficient research on digital images and their production or on using digital imagery in creative learning or other learning."

"Yes! Much more research please!"

"Using online images to support research papers is essential."

"Digital imaging is making some research active practitioners lazy and complacent, leading to a weak research base in the creative arts lacking in depth, substance, purpose and meaning. We are entering a world of microwave impatience. To allow this to continue will eventually – and very soon - lead to an environment where research in the creative arts will add nothing of value to the furtherance of human knowledge and understanding."

4.2.10. How important?

Supporting information

This question asked respondents to rate the importance of each of the issues covered in the previous nine questions. The question was accompanied a note: please feel free to tick as many of the boxes as you like, but it might give us a clearer picture of what you consider to be particularly important if you restrict your selections to a smaller number.

Response statistics

Question: Of the nine subjects outlined in the previous questions, which are the most important for you?

Impact of digital technology	10
Fit for purpose	13
Effect on traditional education	10
Finding digital images	13
Technological resources	11
Usefulness	11
Ownership	14
Support in using digital images	11
Digital images in research	7

Summary

As the figures above suggest, the responses to this question balanced out quite evenly over the nine subject areas: no single subject stands out as being particularly more important than any other. This is to be expected and is indicative of the fact that a large variety of different respondents were included with varying perspectives and priorities. The subject given least importance was the issue of 'digital images in research' but this almost certainly reflects a lower proportion of researchers against the overall make-up of respondents.

Selected quotes from respondents

"At different times I'm an institutional manager, an arts manager, an educationalist, a staff developer, a writer, a researcher, a curator, a presenter and a photographer - all of these questions are important!"

"As a graphics lecturer, i find increasingly difficult to get my students to take their own images, for use in their work. They think that it is ok to rely on an image from the internet, which are never of a good enough quality or resolution to be used for print purposes."

"Assuming we are talking about the use of digital technologies generally, rather than the very particular question of 2D digital images on screen, the biggest concern is how to retain and support valuable traditional technologies while meeting the demand for escalating and recurrent investment in both standard and high-end digital technologies."

"Support for heterogeneous networks that allow teachers and researchers access to the hardware and software tools that are most suited to our needs, not those of the IT managers."

"All of these issues are important."

"A real issue is that of authenticity."

"Used wisely, digital imagery etc and traditional materials, skills, techniques, should embrace and enhance each other, not hinder."

"Because technologies are changing soooo fast, I think there is a massive need for artists, staff (in educational establishments) and students to have more understanding of how their media works, from the camera to viewing and grabbing from internet, to print."

"Digitisation is often seen in a (invited?) and depressingly techno-led way as 'fun with computers' and a kind of geeky pastime for SOME students. It needs to be presented as a different, and collaborative (broadly), way of LEARNING."

"None of these are burning issues for me - develop the CONFIDENCE to use what is available is for me far more crucial. I feel that this relates to major structural issues within Higher Education. I am very conscious of the urgency of the situation."

"I think this research is tremendously important and would be very interested in the results and outcomes from the consultation."

"Assuming that digital imagery will not be replaced immediately with something else we need financial and technical help to obtain good-quality images to replace slides as soon as possible."

"For me, the most significant problem area is ownership; the most important advantage is the flexible access to images; the areas with greatest potential are the use of technology to enhance images for study, and the possibility of image search by content (via metadata at first, possibly through AI methods in the future)."

4.2.11. General comments

Beyond the questions themselves, the questionnaire and website permitted respondents to add general, or additional, comments. A representative selection is given here:

"My area, graphic design is now mac/PC based, this has led students to feel all creativity is computer based, which it is not. I feel the concepts and creativity can be fogged by this tool!"

"As an art student i find that digital images are very important in the learning process, research, developing, manipulating and for final out comes it allows us to explore another medium and express our work in various ways."

"I like digital images but only for certain things I would not like to see it take over the traditional way of photography."

"The whole concept of digital imaging in education should NOT be seen or judged in isolation to traditional skills and learning in the creative arts, but MUST be evaluated as part of the whole To do otherwise would FURTHER UNDERMINE the UK's once very proud and respected tradition and track-record in the teaching and learning of the creative arts For example, and in the wider context of where digital imaging 'sits', there are now no educational institutions in the UK where traditional 'academic' painting is taught; where perspective is taught ;where sciagraphy is taught, or where drawing and sketchbooks remains the fundamental foundation to all that follows."

"In many cases the students are leading the way; It is their expectation that material of all kinds should be available digitally."

"The move to a digitised image world must be a process of reflection and strategic decision making, we must not be too hasty to skip the traditional practices before there are clear concise standards for digital imaging across all areas of the world giving some one an SLR camera is still the best way for a student to understand the fundamentals and magic of photography."

"I'm pleased by your demand-driven, rather than supply-driven approach, since other initiatives don't seem to have learnt from the UKeUniversity mistakes."

"What is entirely missing here is the dimension of analysis/modelling through using digital procedures."

"I think this is a vital project and I thank you for embarking upon it."

"This study is much needed and I look forward to seeing the results of this work."

"My main issue is that students work is lacking in basic structures and substance due to the quick capabilities of digital media. It is imperative that we do not lose touch with our basic insights for light and form."

"I don't know how I managed without them."

"It is much harder to teach photography using digital cameras Students use the computer to iron out problems rather than think things through properly at the ideas stage."

"The most crucial aspect of this survey should be to establish the legal copyright side of image use so that it is clear for all, and not prohibitive to the use of the new technologies."

"Watch this space - with advances in tech. quality, social change and use and increasing access for everyone - its going to get exciting and interesting."

"The Digital Image has a very revolutionary affect on art in many aspects concerning aesthetics, which needs to be looked at."

"What a blessing it is to have two eyes that work!"

"It will be interesting to see if in 200 years time whether there will be real galleries containing both digital and traditional art from our times I hope so and believe that there will be, as art history is littered with new experimental techniques which overtime have been assimilated into the larger world of art."

"Such a wealth at our fingertips!"

"The internet gives us the greatest ever opportunity to provide public access at many levels to our visual heritage."

4.3. Expert seminars

In addition to the '10 Questions', the National consultation held a number of seminars (details in section 3.1) across the UK, which helped the project to engage more directly with the community, in order to *fully* understand all the issues surrounding digital images in arts education. Librarians, Academics, Lecturers, Artists, Art Historians, Learning Support Workers, Managers and Students all came along to discuss the issues with their peers, raise their concerns, express how they felt and offer ideas and potential solutions to the issues raised by *the Digital Picture*.

Each seminar resulted in a unique discussion with different flavours or emphasis though, overall, the same issues came up time and time again and, while details differed, the conclusions drawn from each seminar were remarkably similar across the UK. For instance, in Bristol, at the AAH Conference, the discussion very much revolved around the provenance of digital images, as might be expected from an event so focused on the art history perspective; in Glasgow, however, issues of image quality and copyright came up, issues that are perhaps of more significance in an Art School environment.



Happy attendees at a Digital Picture seminar

4.3.1. Digital image issues

Seminars took place over a day and involved presentations, discussions and breakout groups. The morning session of the seminars centred around a presentation from AHDS Visual Arts staff explaining the purpose of the project and the main issues that had been identified, through AHDS Visual Arts' close connections to the arts education community, as worthy of discussion. These were presented as:

- **Cost.** Financial strains across the higher education sector are a major obstacle to the creation of digital images and/or the digitization of current analogue slide collections. Budgets are always tightening and, perhaps inevitably, money set aside for ICT projects is often ring-fenced for demonstrably essential work and equipment, or, alternatively, for novel or innovative projects that bring kudos to funder and/or funded. Sadly, the simple repetitive task of transforming existing resources into a different medium can often be regarded as neither essential nor innovative and, therefore, some way down the list of financial priorities.

- **Image quality.** There is justifiable nervousness within many art and photography communities, that the level of affordable digital media has not attained a high enough output quality for certain purposes. Although digital imaging technologies and projectors have improved immensely over recent years, there is still a perception that the image quality does not match that of traditional analogue transparencies in terms of colour, contrast, clarity and depth of detail (resolution). Furthermore, in many cases, scanning technologies and other capture mechanisms can simply add a layer of loss of quality, particularly when 'enthusiastic amateurs' are responsible for the capture process.
- **Metadata Standards.** Unless further resources are put into ensuring existing metadata standards are used, across the board, there is significant risk that the future will produce millions of images that will be unsearchable, unidentifiable and unusable.
- **Resources.** Many of those concerned with preserving or promoting slide collections do not have the time and/or appropriate training, or are not in a position to carry out digitization themselves nor to instigate such work by others. The lengthy time commitments, skills, knowledge, hardware and resources necessary for digitization on any significant scale are more often found in ICT departments where, as with costs, priorities are generally different.
- **Copyright and IPR.** Even where an institute or organization has overcome issues of quality, finance and resources, digitization can still pose enormous obstacles in respect of copyright and intellectual property rights (IPR). Many slide collections contain works where the rights of ownership and/or permissions for broadcast are blurred to say the least, particularly for dissemination via the Internet. Such issues, which are often ignored (or unknown about) by many people with access to a scanner or web development tools, are extremely complex, and the ramifications of misuse are wide-reaching and potentially disastrous in both terms of legality and image usage.
- **Functionality.** Whilst most visual arts lecturers and tutors will acknowledge the ubiquitous nature of digital tools such as Microsoft's PowerPoint, there can be a mismatch between the apparent functionality of such tools and their own needs. One example of this is the common practice of using dual projectors to illustrate differences/comparisons between two or more images, something that would be difficult to emulate in a linear-based tool such as PowerPoint. Whilst other tools do exist, for example, MDID or the presentation software available through ARTstor, these are yet to achieve significant levels of mainstream use.
- **Loss of resources.** It is extremely unlikely that all slides that exist today will be digitized for the future. Any process of transformation (in this case, from analogue to digital) threatens a potential loss of resources, mainly for the reasons given above but also because of the misguided belief that digital media is inherently more stable than analogue formats. In fact, slides have a proven record as a medium for archival purposes, whereas, while an individual digital file will not degrade over time, the hardware and software necessary for its future protection is unlikely to survive far into the future; will CDs, DVDs or ZIP discs still be usable in thirty years?
- **Physical environments.** Many institutes have yet to reach the point where the entire physical environment is geared up for the digital age. This means that teachers struggle to use digital media in classrooms and lecture theatres that are simply not built for the task
- **Cultural change.** If a National initiative is to produce real and tangible results, it must be acknowledged that there will be elements of doubt and concern in some areas, particularly in relation to threatened changes in working practices and associated cultural shifts. Fear of change is often justified to some extent and, therefore, any plans that emerge must embrace a deeper understanding of the needs of all affected members of the visual arts education and research communities.

Each topic was discussed with the audience and, whilst some areas (particularly copyright and IPR) engendered more passion than can be gleaned from the questionnaire results, the points raised were much the same, and are reflected by the results as presented in section 4.2. Having discussed each topic in detail, a number of potential solutions for accessing digital images were

discussed, and some existing services were introduced to the audience in order to stimulate discussion and debate. Dependant on time constraints at each seminar, a number of simple overviews were given of services such as ARTstor, The Bridgeman Art Library, Saskia, EDINA, SCRAN and, occasionally, AHDS Visual Arts. Demonstrating services that were already up and running, and already facing many of the issues that the community is having to face, served as a useful focal point on which to rationalize thoughts and desires for any future image provision. The demonstrations led the seminars into an afternoon session devoted to debating the issues, and potential solutions, in more detail

4.3.2. Potential solutions

The Digital Picture did not, in itself, aim to describe specific solutions to the potential problem areas described in the previous section. Instead, it took a view that a structured approach to the identification of tangible problems and to any potential resolutions was needed. In order for such a process to take place it was necessary to identify some of the theoretical solutions that were under discussion at the time, amongst stakeholders and interested parties. Without wishing to pre-empt the outcome and thoughts of the seminar delegates, the project formulated some ideas of how the community could be provided with the images that they required. The following list outlines six models that were presented to the workshop audiences as having potential for offering solutions or partial solutions for some digital image issues:

- **National model - external.** This model would be based on identification of the basic set of images that would be required to meet the needs of those in visual arts higher education and research. An external body, or consortium of individuals/bodies, would compile a digital collection of such images and make them available, possibly through a licensing agreement, to those who require access. Examples of bodies already offering such a service, but for a much broader educational audience, are EDINA and SCRAN (though in both cases a subscription is payable). This model could include the provision of shared tools for the manipulation and use of images.
- **National model – internal.** A digital collection founded on the cooperative pooling of resources from within the visual arts higher education and research communities. Such a model would develop interoperability across collections, employing protocols such as Z39.50 for harvesting different online services. Institutes or individuals could sign up to a web-based system that permits the uploading/harvesting of their own images plus an interface for the searching and downloading of all other images within the ‘pool’. This model could also include the provision of shared tools for the manipulation and use of images.
- **Local model.** Many institutes will doubtlessly find the resources necessary for the digitization of their own slides, either at single collection or institute level. If such resources could be made available via the Internet (for example, the Design Council slide collection) there are possibilities for building an extensive resource. However, it is more likely that, in most cases, such collections will be restricted to local intranet systems because of political, financial or IPR reasons.
- **Commercial image libraries (e.g. subscription-based).** Many large image libraries (for example, ARTstor, Bridgeman Art Library or Getty’s Education Image Gallery) already offer extensive collections to the higher education and research sectors, with a variety of payment-for-use models. Discussions with such bodies may establish models for the provision of the necessary images.
- **National Fund.** If money could be found at a National level to create a dedicated fund, perhaps similar to the NOF-digitise project, it may be possible to enable slides to be digitized and made available in a variety of ways, for example; large projects of National importance, or small local projects.
- **Serendipity.** Ignoring current slide collections and using freely available resources, with all the attendant IPR, standards and misinformation risks, such as Google’s Image Search.

Although delegates were presented with the above list, they were also prompted to think 'outside the box' and reminded that for any future solution to work, a combination of approaches may need to be taken in order to provide the community with the digital pictures they need in a way that suits each member of that community. Also, to prompt further debate, a number of more provocative topics was used (see Appendix A). An overview of the discussions that resulted is presented below:

National model - external

Many delegates felt that this model would require the appointing of a centralised body to oversee the identification of a 'corpus' of images which could be accessed by external organisations. The corpus would have licence agreements in place for educational use and the model would include software tools and the ability, say, to search, browse and download images into local working environments. It was noted that, although organisations like EDINA and SCRAN go some way to demonstrating this model, they do not have the specific arts subject focus that might be necessary to understand or meet the community's needs.

There was fear that, in adopting this model, control and power would most likely be appropriated by outside organisations, who had different, or even opposing motives when undertaking their core work: there were cries that 'Possession kills creativity!', and fears of a 'Stalinist take-over'! While on the face of it, thousands of images could easily be made available, there was scepticism over how many of them would be pertinent in an educational context, particularly in regard to the way that a corpus would be identified, and by whom. There was also concern over how such a service could meet subject-specific, academically-focused search, retrieval and research requirements. The needs of users, it was felt, could not be guessed by those 'at the top', and while the benefits of centralised and managed control were appreciated, the fear of losing control and resources to an 'external body' was strongly voiced.



A well earned break at a Digital Picture seminar

National Model - internal

Discussion of this model encompassed a broad desire to pool resources from within the sector, thereby joining up existing collections, through both submitting or harvesting large digitised collections, and also uploading idiosyncratic content from bespoke, individually curated collections. Interoperability would be the key issue, and would permit (or even encourage) the sharing of free-to-use software tools and contextual material as well as images.

The idea of joining up the resources that already exist in our community was deemed to be an excellent and the most preferred starting point for many delegates. The idea of pooling resources, sharing tools and managing and/or policing from within the community, without the dominance of commercial or political agendas, was popular, and it was agreed that such a 'union catalogue' approach, with potential access to specialist research-based collections, would encourage academics to submit materials, as would 'tax credits' or reciprocal access rights, dependent on each college's buy-in. Perceived ownership by the community, and a process with which the community could engage and interact, was felt to be paramount, and essential for community building and the success of such a strategy.

A centralised agency that could manage the model was understood to be in the best interests of all, since quality assurance, metadata and rights clearance procedures could be set to agreed standards, and effectively monitored. In order for such a model to develop, it was felt that a sensible starting point would be to carry out a comprehensive audit of current institute-owned content, collections and slide libraries, delving deep into the resources held within institutions, departments

and faculties. This would inform the agenda and help to assess the feasibility of an internal national model. Such a model could evolve as user needs were refined, and it was felt that the collection should not only contain digital content of analogue objects, but it should also always indicate where the analogue version (where applicable) could be accessed. It was also thought to be beneficial for there to be collection level records pointing to analogue collections, even where digital surrogates were not available.

There was a general consensus that for this model to work, and to attain the correct kudos, uptake and collaboration should be secured from all the National museums, whose trove of public domain works of art should be made accessible through such a system. Indeed some felt that such a solution should be led by the National Museums, and it was suggested at a number of seminars that lobbying should be initiated to that end. In addition, the idea of having a National repository for images, to act in a similar capacity as the British Library does with regard to books, was discussed on a number of occasions.

Technological issues would need to be employed with care; the security of networks would have to be ensured without creating too many barriers to access, like password usage etc.. The employment of 'cultural architects' to develop good, simple, reliable and robust technical infrastructures was felt to be essential for this and indeed any model to work effectively.

Local Model

This model, which would work on the principles of an institutional repository was felt not to offer the breadth of opportunity that the national model offered, but it was recognized that the influences of intra and inter institutional competition, plus funding and rights issues may make this solution favourable for some. Indeed it was recognized that such models exist and will continue to exist, but their ability to interact with a national model is where many delegates saw their real potential. It was noted however, for a sustainable, feasible and cost-effective solution to be employed, it would not be appropriate, nor useful, for institutions to approach the issues independently; this would breed a lack of consistency, duplication of effort, and an inefficient use of limited digitization funds. It was also thought to be elitist to go down this route, fragmenting the needs of the greater good. It was also noted that many staff are 'sole traders', working across institutions and domains, which would make such a solution unworkable.

Commercial image libraries

While the benefits offered by 'commercial' image libraries, i.e. companies or organisations that offer images via one of a number of payment-for-use models, were universally recognized at the seminars, it was felt that such 'core' resources could only be usefully used to augment a more internal model; it was thought that the ability to select works from such libraries would be better and more cost effective than subsidizing the use of the whole collections, in order that the community could still lead on the selection of digital content, without being dictated to by outside agents. Licensing issues would also need to be resolved in order that use was granted in perpetuity, as assigning time constraints to the images was unworkable and unenforceable across large academic networks.

The use of public money to benefit private organisations was also questioned, and was thought by some to be unethical and unsustainable. That said, many of the tools and functions offered by such organisations were desirable in an education context, but if images could not be used across a broad spread of software solutions, or were not interoperable, then they were deemed by many to be of limited use within an HE environment.

National Fund

It was acknowledged that there was a need to attract more money for the digitization of still images, and that other object types, like GIS and Virtual Reality, seemed to enjoy more success with securing funds. Even beyond the format distinction, it was felt by many delegates that in general the sciences, plus partially-scientific disciplines like archaeology, seemed to have more success in finding funding than the arts, and ideas for lobbying budget holders were raised. While initiatives like the National Lottery's New Opportunities Fund (NOF Digitise) project were welcomed,

continuity, with a long-term, continuous funding stream was felt to be the only way to address the issue, which would be ongoing for the foreseeable future. Some kind of national dedicated fund for digitization, with published strategic priorities, would aid all institutions to position themselves appropriately, and assess their ability to contribute, without wasting time and resources on building unsuccessful bids.

Serendipity

The need to recognise the success of search engines such as Google was acknowledged, and it was agreed that the apparent functionality of such systems would need to be emulated in any community led solution. However, the problems associated with, for instance, Google Images, needed to be unravelled in order to avoid the same mistakes. Delegates felt that the lack of metadata, provenance, proper rights clearance, integrity or quality would be unacceptable in an academic rendition of the same. It was thought that misinformation was worse than no information at all, and such a lack of control and policing of content would not work well in the academic environment. Despite recognising all these issues, most delegates agreed that Google was almost certainly the most used method for finding images in education today.

4.3.3. 'Blue-sky' thinking

Besides the 'structured' discussions based on the topics outlined above, a number of other suggestions and thoughts cropped up on a regular basis at the seminars. This section outlines some of the more pertinent ideas that emerged:

- It would be desirable to have an intuitive system that, on submitting a search term, could suggest other resources and images of interest, in the same way that Amazon makes assumptions on one's reading preferences, and points users to other books of potential interest.
- The Wikipedia¹¹ approach for enabling annotation, additional referencing and hyperlinks to be added by users was raised, and while many thought it to be desirable, it needed to be measured against the need for quality assured resources whose integrity could be relied upon.
- Other successful internet tools like Napster and Flickr were also discussed, the principles of which could be applied to education systems whereby images could potentially be shared between institutions without the need for them to be visible in a national online collection. While the idea was problematic in a number of areas, it was thought that it could act as a mechanism that could potentially circumvent some copyright issues.
- It was thought that it would be useful and reassuring to users if the quality of images could be measured against a benchmark, not dissimilar to the Michelin Star scheme used by restaurants. In tandem with the setting of standards on image capture, such a scheme would act as an external quality assurance mechanism, for the benefit of all.
- While it was agreed that the cataloguing of images should be mandatory, additional assignment of ideas, themes and emotions, as well as keywords, would maximize usefulness of the resources.



The conversation continues over lunch

¹¹ <http://www.wikipedia.org/>

- Subject-based trails and/or memory functions to assist browsing were suggested in order to allow users to trace and re-visit previous searches and research methods, helping them to 'build a story'.
- The ability to upload content was thought to be essential, as any resource should be capable of growth: in art history for instance, research always relies upon unpublished resources that are uncovered/discovered during the learning process. An ability to share that process would be advantageous.
- In response to the perceived threat to slide librarian jobs, it was felt that their knowledge and expertise could be redeployed in the centralised cataloguing and quality assurance of image metadata, potentially via a distributed cataloguing model (like the 'ask a librarian' scheme).
- In response to copyright issues, the community largely welcomed the ongoing discussions with DACS and the CLA, but the limitations of the most recently agreed HE licence were strongly voiced. Clarification of the issues were required, and until the law had been shaped in court, it was recognized that rights clearance strategies needed to be weighed up against risk analysis of the feasibility of litigation. This conclusion was drawn because currently no solution to the issues was foreseen by delegates, and many felt that nothing short of a change in the law, through an act of Parliament, would suffice in order to allow dissemination of copyrighted images for educational purposes.

4.4. Virtual consortium

One of the original project plans was to set up a 'virtual consortium'. This would permit representatives of all interested institutions and organisations to be represented in any ongoing debate that related to the issues surrounding digital images in arts education. Consequently, a discussion list was set up (via the JISCMail service) at the outset of the project in order to engage the arts education community via another channel, using the concept of virtual conferencing. Over 450 people have already subscribed to the list and it is anticipated that it will enable, and stimulate, debate within the community over coming months. In the ten days following the launch of the first topic on 27th June, 34 messages were posted to the list exploring, in some depth, themes such as:

- the adverse affect computers have on the learning and teaching of traditional skills
- the erroneous belief that PCs are cheaper than personnel
- computers as an artistic tool
- the inability to subject digital objects to traditional forms of intellectual enquiry and track artistic process
- parallels with changes faced by the art world with the advent of photography in the 19th century

Selected quotes from respondents

"I love the struggle of shoving paint around on a surface but also love the instant gratification of a photo. Digital even better."

"[the computer] is a tool, a tool to be used to extend our vocabulary of the visual world."

"Tool, not solution!"

"I think that if artists and designers of the future are not trained to use non-digital process, tools and materials, they will have a more limited vocabulary for expressing ideas"

"Art surely lies in the intention of the maker whether it uses paint or programming."

"Working in that [education] sector, I see there is a tendency for management (who are neither artists nor IT specialists) to erroneously think that savings can be made on salaries by the provision of suites of computers."

"It's surely a matter of finding a balance between the possibilities created by new technology whilst not throwing the baby out with the bath water."

"I don't think this (IT) is a threat, so much as there is a very substantial challenge involved. After all with the advent of photography, painting was supposedly about to die a death. But still lives to fight its corner to this day."

"What's more important, the artists skills or the artists' message?"

Despite such a positive response, it soon became clear that the members who joined the email list were far from representative of the community that would need to be served by any UK-wide solution to the digital images issues. If such an approach to creating a 'virtual consortium' is to be followed up, extensive mechanisms will have to be put in place to ensure that the members can legitimately 'represent' what they claim to represent. Furthermore, such mechanisms will have to ensure that all those bodies, organisations and institutions that should be consulted are represented at every appropriate layer (e.g. student, management, tutor) if a genuine picture is to be created of the community.

5. The *broader* picture

Beyond the direct research into what the art education community thinks and feels about digital images, the project also conducted a limited survey into the sorts of online image facilities that are currently available to the community, and comments on other related projects.

The core aim of the research was to identify resources that students and academics were being pointed to on a regular basis and, particularly, to identify image databases that were being used within UK visual arts higher education institutions. Because of the lack of National boundaries afforded by the Internet, the scope also covered the use of digital image databases in a wider, European and non-European context. This section presents a summary of the findings.

5.1. What image databases are out there?

The clearest (but perhaps not surprising) discovery that the project made is that there are a bewildering number of different options available for students and academics searching for digital images. Not only is there is a huge range of databases and image collections available online, but increasingly each institution has its own repository, in one form or another, particularly as institutions move towards e-learning/blended learning and Virtual Learning Environments become more prevalent. Factor into this the staff and students' own portfolios and/or collections available to others online and the number, range and scope becomes uncountable. Feedback from **the Digital Picture** regional seminars constantly remarked on the lack of a simple one-stop access for everything, and made it clear that the fall back for online research is often a search engine or, more specifically, Google. One of the main drawbacks to a broader, browsing-the-web-approach, is that users discover only extremely limited image collections, or else stumble on to gateways and portals that simply lead to further limited collections and more gateways and portals. The result of such limitations can be that students and staff, who are usually short of time, prefer to stick with a default one or two sites, or refer to their library or college department for guidance that can often be from a fairly limited perspective. Students at the University College for the Creative Arts, for example, receive targeted induction on the use of image databases: library staff wait until students are working on a specific project before introducing them to the databases available, and then only target the ones needed in that case.

The following lists, which is far from comprehensive, present a taste of the online visual art resources commonly used within the UK arts education community. Some of them are not dedicated image databases, but provide image-centric contextual information and some of them are only available through payment of subscription or via an ATHENS password.

1. The Aberdeen Bestiary – <http://www.abdn.ac.uk/bestiary/>

The Aberdeen Bestiary has been completely digitised by the University of Aberdeen. The manuscript, written and illuminated in England around 1200, is of added interest since it contains notes, sketches and other evidence of the way it was designed and executed. The digitised version, offering the display of full-page images and of detailed views of illustrations and other significant features, is complemented by a series of commentaries, and a transcription and translation of the original Latin. The Project was independently evaluated.

2. **AHDS Visual Arts (a.k.a. VADS)** – <http://vads.ahds.ac.uk/index.html/>

AHDS Visual Arts is based at The Surrey Institute of Art & Design, University College. AHDS Visual Arts is one of five Subject Centres of the Arts and Humanities Data Service (AHDS), and as such acts as The AHDS Centre for Visual Arts. The four other Subject Centres are: AHDS Archaeology; AHDS History; AHDS Literature, Languages and Linguistics; and, AHDS Performing Arts

3. **Architecture.com** – <http://www.architecture.com/>

Architecture.com has 250,000 pages of useful information about architecture, architects, and the Royal Institute of British Architects.

4. **Art Abstracts and Art Full Text** – <http://www.hwwilson.com/databases/artindex.htm/>

This database indexes and abstracts articles from UK and international journals. The main subjects covered are art, design, advertising, architecture, crafts, interior design, photography, textiles, television and video. It covers from 1929 onward, with full text articles available from 1997.

5. **Art Bibliographies Modern** – Usually available through academic library services

Abstracts literature on modern and contemporary art from major art journals, museum bulletins, exhibition catalogues, books, essays, and dissertations covering 20th century art. Updated quarterly

6. **Art Images for College Teaching (AICT)** – <http://arthist.cla.umn.edu/aict/index.html>

AICT is a free-use image resource for the educational community. AICT is intended primarily to disseminate images of art and architectural works in the public domain on a free-access, free-use basis to all levels of the educational community, as well as to the public at large. All images displayed on this site have been photographed on location by the author, who consents to their use in any application that is both educational and non-profit in nature.

7. **Arts and Humanities Data Service** - <http://ahds.ac.uk/>

The Arts and Humanities Data Service is a UK national service funded by the JISC and AHRB to collect, preserve and promote the electronic resources which result from research and teaching in the arts and humanities.

8. **Artifact** - <http://www.artifact.ac.uk/>

Artifact is the arts and creative industries hub of the Resource Discovery Network (RDN) has officially been launched this month on 10th November 2003. Artifact is a free online subject gateway providing access to the best arts and creative industries web resources for the UK higher and further education learning, teaching and research community.

9. **Artnet.com** - <http://www.artnet.com/>

Artnet.com provides access to art resources, research tools and magazines on-line and links to artists' web sites.

10. **ARTstor** – <http://www.artstor.org/>

ARTstor are an American not-for-profit organisation; the money paid in subscriptions each year is fed back into the service. The organisation's focus is on Art, Architecture and Archaeology and, particularly, American history and education. They have over 300,000

images in a series of collections, the largest of which is the Image Gallery with 180,000 images put together to provide a core of images for education use. More specialist collections include the Art History Survey Collection (4,200), The Carnegie "Arts of the US" collections (4200), Native American Art & Culture (12,000). Some of the ARTstor images are very high resolution and there is a range of tools to help the user, including zoom facilities.

11. AXIS – <http://www.axisweb.org/>

Axis is a not-for-profit organisation core-funded by Arts Council England and the Arts Council of Wales to actively support contemporary artists in the UK. The Scottish Arts Council supports activity through project funding. The Axis database is a guide to artists practicing in the UK and contains artists' details, with a selection of images, and an enquiry service allowing commissioners to contact artists with work opportunities. Access to information on artists is through both a general search engine and themed programmes. AXIS also organises events, conferences, exhibitions, presentations and workshops to promote its artists and encourage the creation of new work.

12. The Bridgeman Art Library – <http://www.bridgeman.co.uk/>

Provides over 100,000 images to illustrate the articles from the Dictionary of Art. Bridgeman claim to be the world's leading source of fine art with images from over eight thousand collections and twenty nine thousand artists, with a good international representation. Acting on behalf of museums, galleries and artists throughout the world they provide a commercial service as a central source of fine art for image users.

13. Britton2000 – <http://www.freefoto.com/pictures/>

Picture library of over 3,500 images on a variety of subjects.

14. British Library Images Online – <http://www.imagesonline.bl.uk/britishlibrary/>

Images Online provides access to thousands of the images from the British Library's collections which include manuscripts, rare books and maps spanning almost 3000 years, with material from all over the world.

15. BUBL: image collections – <http://bubl.ac.uk/link/types/images.htm/>

BUBL LINK is the name of a catalogue of selected Internet resources covering all academic subject areas and catalogued according to DDC (Dewey Decimal Classification). All items are selected, evaluated, catalogued and described. Links are checked and fixed each month. LINK stands for Libraries of Networked Knowledge. Image Collections is compiled list of resources available via the web.

16. Collage – <http://collage.nhil.com/>

An image database containing 20,000 works from the Guildhall Library and Guildhall Art Gallery London.

17. Creative Club – <http://www.creativeclub.co.uk/>

Creative Club is the UK's largest advertising archive. Including over 1.5 million advertisements across all media, users are able to search by company, brand or sector, for TV, Press, Direct Mail, Outdoor, Internet, Cinema and Radio ads. The archive is updated in real-time, so as soon as an ad breaks in the UK, it will be on the Creative Club system.

18. Design and Applied Arts Index (DAAI) – Usually available through academic library services

DAAI indexes and abstracts articles from international range of journals on the topics of design, including architecture, interior design, ceramics, furniture design, glass, metals, packaging, advertising and environmental design. It also contains information on over 48,000 designers, crafts people and studios. It covers from 1973 onward.

19. Education Image Gallery – <http://edina.ac.uk/eig/>

Thousands of images from the world-famous Getty archive covering diverse subject areas such as Sport, Fashion, Major Events, Buildings, Politics, Social History, Key Personalities, Transport, Industry, Work, Leisure, Music

20. Education Media Online - <http://www.emol.ac.uk/>

Education Media Online brings together collections of film, video and associated metadata of wide interest to the higher & further education communities. The films and videos are fully downloadable, either in full or as segments and can be used in learning, teaching and research. (Playback uses either Windows Media Player or QuickTime software). Education Media Online currently give access to 8 collections and archives: Alger Hiss, Anglia Television, Education & Television Films, Films of Scotland, Healthcare Productions, Logic Lane, Sheffield University Learning Media Unit and St George's Hospital Medical School, IWF Knowledge & Media GmbH and Imperial War Museum.

21. FIAF International Film Archive – <http://www.fiafnet.org/uk/>

This database provides joint access to the BFI's Film International Index and the American Film Institute Catalogue. It provides a wide range of information about films dating back to 1893. It includes plot summaries, cast and crew lists, reviews, awards, biographies, etc.

22. FreeFoto.com – <http://www.freefoto.com/>

FreeFoto.com is the largest collection of free photographs for private non-commercial use on the Internet.

23. The Getty Center – <http://www.getty.edu/>

The Getty Center links databases of information on art and architectural history and provides search tools to allow easy retrieval of bibliographic information.

24. The Getty Provenance Index – <http://piedi.getty.edu/>

The Getty Provenance Index, a project of the Getty Research Institute, accumulates and disseminates information related to the history of collecting and the provenance of individual works of art. Maintaining several electronic databases as well as non-automated material on the history of ownership of works of art (primarily European paintings) gathered from sales catalogues, archival records, and museum files, the Getty Provenance Index provides scholars and museum curators with important information about the history of taste and collecting.

25. Grove Dictionary of Art On-line – <http://www.groveart.com/>

A subscription service, available to Intranet users only. It provides a comprehensive online reference resource for all aspects of the visual arts worldwide from prehistory to the present day. Art News, as a part of the Dictionary of Art, provides up to date news stories from around the world.

26. Helix – <http://www.helix.dmu.ac.uk/>

Helix is a digitisation project which has so far digitised and archived 52,000 images which are freely available to the Higher Education community. It holds images from the National Arts Slide Library, the Picture Post collection and a social and political history of Great Britain from Hulton Getty and the James Valentine collection.

27. London College of Fashion: Archive - <http://vads.ahds.ac.uk/collections/LCFCA.html/>

The London College of Fashion is digital record of images from the London College Fashion archive is the first of those to be archived by AHDS Visual Arts .

28. Mad.co.uk - <http://www.mad.co.uk/>

Mad.co.uk is an on-line community for marketing, media, new media, advertising and design research and information site for both staff and students.

29. Module Expressions: Images from the Microscope -
<http://microscopy.fsu.edu/index.html/>

Module Expressions is one of the Web's largest collections of colour photographs taken through an optical microscope (commonly referred to as "photo-micro-graphs"). The site contains galleries of images.

30. Moving Image Gateway – <http://www.bufvc.ac.uk/gateway/>

The Moving Image Gateway collects together websites that relate to moving images and sound and their use in higher and further education. The sites are classified by academic discipline, covering over forty subjects from Agriculture to Women's Studies. The site is administered by the British Universities Film and Video Council.

31. National Gallery – <http://www.nationalgallery.org.uk/collection/>

This is the website of the National Gallery in London, which contains images from its collections.

32. National Portrait Gallery – <http://www.npg.org.uk/live/collect.asp>

The website of the National Portrait Gallery in London, which provides access to many images from its collections.

33. PhotoGraphic Libraries – <http://www.photographiclibraries.com/>

PhotoGraphic Libraries is a image gateway containing categories of websites image collections available on the web.

34. RDN (Resources Development Network) – <http://www.rdn.ac.uk/>

RDN provides access to a number of subject gateways, including Arts & Creative Industries, Business, Computing, Engineering, Geography & Environment, Health & Medical, Hospitality, Humanities, Law, Life Sciences, Mathematics, Physical Sciences, and Social Sciences

35. Saskia – <http://www.saskia.com/>

Saskia Ltd. is an American organization which breaks down collections into different modules, offering a broad range. Saskia currently offers 30,000 images, but this could

increase as they digitise images, as requested, using a professional photographer and historian. Users select and pay for what they want and can buy individual images, rather than the whole collection. The organisation's emphasis is on Ancient Greek and Roman art, together with paintings from Italy, Flanders, Holland, France, Germany, and Spain. Saskia also Scholars Resource, a one-stop site for licensing images for educational use from multiple sources. Currently Scholars Resource features the digital image collections of Saskia Ltd., Davis Art Images, and Hartill Art Associates. Negotiations with additional vendors are already in progress, and more contributors will be announced soon.

36. SCRAN – <http://www.scran.ac.uk/>

SCRAN's mission is to create a fully searchable resource base of Scottish material culture and human history. Funded by the Millennium Commission, we work with project partners such as museums, galleries, archives and universities to digitise selected parts of their collections. There are over 200 projects underway and material is being added to the resource base daily.

37. Screenonline – <http://www.screenonline.co.uk/>

Screenonline brings to life Britain's big and small screen histories from the 1890s to the present. Popular classics, little-known gems and many hard-to-find films and television programmes are represented by thousands of video extracts, thousands of still images, publicity materials and specially-written analyses by expert writers, supported by comprehensive filmographic information. Screenonline is a vital resource for anyone with either an academic or casual interest in British film or television. Access to video and audio material is limited to users in registered UK schools, colleges and libraries. All other material is available to all.

38. TASI: Image Sites – <http://www.tasi.ac.uk/imagesites/images.html/>

The Technical Advisory Service for Images is a service that has been set up to provide advice and guidance to the Further and Higher Education community on the issues of creating, delivering and using digital images together with managing digitisation projects. TASI Image Sites - allows access to their collection of digital image resources.

39. Tate Gallery – <http://www.tate.org.uk/>

Online collection of images from the Tate Gallery.

40. Time Life – <http://www.pathfinder.com/photo/>

Archive of photographs from Time Life.

41. ViewFinder (English Heritage) – <http://viewfinder.english-heritage.org.uk/>

ViewFinder is a new online image resource for England's history. The Picture Gallery and Stories contain images of the industrial age ("England at Work") and the "Henry W Taunt Collection" of vintage scenes of Oxfordshire and the Thames.

42. Voice of the Shuttle: Art & Art History – <http://vos.ucsb.edu/>

The Voice of the Shuttle Art & History section provides a collection of image websites within the area of Art & Art History.

43. WGSN-edu.com – <http://www.wgsn-edu.com/>

Worth Global Style Network, excellent for forecasting, news, trade show reports, catwalk collections, interiors and trend led graphics.

44. World Advertising Research Center – <http://www.warc.com/>

The World Advertising Research Center (WARC) is the leading supplier of information, knowledge, insight and data to the global marketing, advertising, media and research communities.

5.1.2. Different models outside the UK arts education community

1. Bildarchiv Foto Marburg – Germany – <http://www.fotomarburg.de/>

With around 1.7 million pictures this is one of the largest picture archives of European Art and Architecture. Through a combination of restoring its own archives and new photographic campaigns Bildarchiv Foto Marburg supports the work of museums, heritage and cultural bodies, visual archives, universities and libraries.

2. PictureAustralia – Australia – <http://www.pictureaustralia.org/>

Using this site it is possible to search for people, places and events in the collections of libraries, museums, galleries, archives, universities and other cultural agencies, in Australia and abroad – all in the same search. The originals are viewed on the member's web sites allowing them to retain management of their own images and metadata and 40 different institutions currently make their collections available. For the user this means they have a one-stop shop to collections.

PictureAustralia uses Dublin Core and the metadata is harvested every two months and stored by the National Library. An index is built from this metadata and it is this that users are searching when they access the service – the images themselves are retained by the member and retrieved only when searched for. Other benefits include the acceptance and use by all involved of Dublin Core standards and the Australian Pictorial thesaurus (although this is currently optional).

3. Prometheus – Germany – <http://www.prometheus-bildarchiv.de/>

Education Based Model (University to University). Prometheus is described as a “distributed digital image archive for research and tuition”.¹² A co-operative university project, initially funded by the German Federal Ministry of Education and Research the aim is to provide the user with a single, unified interface linking into different image databases in the fields of history of art and archaeology, with images drawn from the slide libraries of the art history departments at the Universities. It is non-commercial but a licence fee is charged to cover the administration costs involved in running the image archive. Membership can be granted Institutionally, for access through a campus network or a personal account and fees appear relatively low at €2000 per annum for a University. The site indicates that to date it has over 67 institutions participating and 14 databases.

4. Réunion des Musées Nationaux – France – <http://www.photo.rmn.fr/c/htm/Home.aspx/>

Museum and Gallery Based Model. The Photo Agency of the Réunion des Musées Nationaux have created a site with over 200,000 images from the Museums of France, from the major Paris Galleries to the regional and local museums. Access is open to anyone and the collection is searchable without registration. To download and use an image a fee is paid to the Photo Agency but they clearly state the images are not copyright cleared and the onus is on the user to clear copyright. Images appear as thumbnails or a large image with core record metadata and a high resolution version can be ordered; an account must

¹² Georg Hohmann, University of Cologne.

be set up to do this, which is simple and straightforward and the images are then emailed to the user. It is however, possible to access a reasonably high quality version of the image without being registered and a copy is then potentially simply a couple of clicks away.

As a resource the site provides a one stop access point to digital images of an unparalleled art collection. They also have a staff of 15 professional art history archivists who can be contacted for specific advice or information relating to images and the site has a lightbox facility to allow for users to store searches. On the negative side the issues of copyright are skipped over and security in terms of accessing an image is low.

5. University of Seville – Spain –

http://bib.us.es/guiaspormaterias/ayuda_invest/bellas_artes/gpm_img01.htm/

The library at the University of Seville provides the following list of image resources:

- Agence Photographique de la Reunion des Musees Nationaux
- Acit: Art Images for College Teaching
- Art Resources
- Artchive
- Archivision
- Art Gallery
- ARTCYCLOPEDIA; the fine art search engine
- Artefacts Canada
- Artserve (Australian National University)
- ARTstor
- AskART
- AXIS
- Ciudad de la pintura
- CGFA: a virtual museum
- Detroit institute of Arts: Visual Resources Art Images Database
- A Digital Archive of Art
- Fototeca del Laboratorio de Arte de la Universidad de Sevilla
- The Great building collection
- History of Art, a resource of images
- International Cultural property Protection Image Database
- National Library of Australia
- National Portrait Gallery
- SASKIA
- Thais
- Tresor de l'art du monde/World art treasures
- Videomuseum:
- Visual Resources Library of Vassar College
- Web Gallery of Art
- Webmuseum
- Women artists through time
- World Wide Art Resources
- Smithsonian Institute, Office and Images and photographic services

6. The Web Gallery of Art – Hungary – <http://www.wga.hu/index1.html/>

Independent Model. Operating at the opposite end of the scale and based in Hungary, the Web Gallery of Art are, in their own words, “ a free resource of art history primarily for students and teachers. It is a private initiative not related to any museums or art institutions, and not supported financially by any state or corporate sponsors.”

It is a searchable database of images from the 12th century to the mid-19th century and offers a subjective and eclectic mix of art images, artists and commentary. A sister site Fine Arts in Hungary (<http://www.hung-art.hu/index-e.html>) has since also been developed:

Fine Arts in Hungary (5.100 images) is part of a larger project aiming to utilize the Internet technologies in public education, in schools and in research on the fields of fine arts. **Web Gallery of Art** (11.000 images) provides a European background by the comprehensive presentation of European painting and sculpture from the 12-18th centuries, while **Szentendre Virtual Art Exhibition** (1.800 images) explores the possibilities to present contemporary art. **István Szónyi and his Circle** (250 images), and **Mattis Teutsch and Der Blaue Reiter** (450 images) aim to elaborate Internet tools for art historians and museum curators, while **Landscapes by Thomas Ender** (220 images) those for librarians.

7. **Union Catalogue of Art Images** – USA (<http://gort.ucsd.edu/ucai/>)

UCAI (Union Catalogue for Art Images, based at the University of California, San Diego in partnership with 8 Institutions including the Fine Arts Library at Harvard University and the Ingalls Library of the Cleveland Museum of Art) is a good example of money being made available (through the Andrew W. Mellon foundation) and a prototype catalogue being built bringing together records created to different standards and making them interoperable in a single database.

8. **University of Washington Image Bank** – USA –<http://depts.washington.edu/imagbank/>

Started in early 2004 this project:

"Had the goals of providing university wide access to an online database of images of art, architecture, and cultural and historical materials, while also strengthening the infrastructure of individual schools, departments, and campusus to more effectively manage and deliver digital images to local constituencies."¹³

Spread across 3 campusus and realising that there was a duplication of resources and effort the project recognised that there would be benefits to creating an image sharing system, taking a core collection of UW images and investing in selected external content e.g. Commercial image databases.

Key to the project appear to be the investment of money and support by the UW at a strategic level and a full consideration of local needs ie department, faculty and campus level together with the Libraries. The technical side was again spread across the University – with investment in a centralised single server to house the shared files but also investment within departments and offices to provide the correct equipment and training to staff involved. Standards and baseline guidelines were agreed, aiming for simplicity and flexibility but based on best practice.

5.2. Other organisations/projects of interest

1. CHArt Round-Table 2005

Democratizing the Image: Creating a global learning community

At the recent CHArt (Computers and the History of Art) conference 2005 there was a timely roundtable discussion which covered many of the issues raised by respondents to **the Digital Picture** consultation. Some of the key points that emerged from the discussion were:

- New ways of looking at digital images have radically changed teaching and learning and, technologically, it is now possible to have a global learning resource for the images that arts education requires. However, to achieve such an aim the problem should perhaps be defined as one of access and responsibility, rather than technology: to what extent should access to images be regulated and to what extent should access be free, and who chooses?

¹³ Denise L. Hattwig, University of Washington at Bothell, The UW Image Bank: A Libraries and visual Resources Digital Image collaboration at the University of Washington, Part 1, Published in VRA bulletin, spring 2005, Vol 31, No. 3

- Museums and educators, while both claiming to have education as a central aim actually appear to have opposite views on educational access to image and how this should happen. As one panel member, Duncan Smith (a practising digital artist), explained it, the currently prevailing view is, “I want access to all images freely but I want my images copyrighted!” - a view reiterated at several of **the Digital Picture** regional seminars. The fusion of educational institutions with the museums and galleries sector, who regularly compete for funding and charge each other for any ‘value-added’ services is a relationship that will need to be resolved if any positive solutions are to emerge. There was also much debate about just what ‘profits’ could be had from images online. It would seem that, as long as museums and galleries continued to make money from image-based online services, there would be a reluctance to give anything away to education free-of-charge.
- There was general agreement that the key areas of quality, search terms and metadata are important, as is the contextualisation of image collections and the need for mechanisms to establish academic integrity and authority. It was also noted that, with the current principle of ‘everyone doing their own thing’, there was inevitably a huge quantity of duplication of effort, wasted time and money, as well as untapped expertise and ‘hidden’ digital image resources. However, the high expectations of educational users of images were often in direct conflict to the harsh reality of funding and branding issues that restrict the image providers on a daily basis.
- On the question of how to move forward an easy to use, free or cheap one-stop-shop seemed to be the preferred and most practical solution. However, whilst it was acknowledged that some of the commercial, or nonprofit, organisations already offered much in the way of such a service, there was also a strong feeling from some parties that many of the images that education needs are already in the public domain and should therefore be made available for free. An evolutionary approach was offered as an alternative to trying to ‘join’ everything up as a finished product. The idea would be to start building up a corpus of images based on known user needs: perhaps through the commissioning of photography/scanning or through negotiating for educational access with collection owners. The point would be to go to the community, establish what users need and let that dictate the way the corpus grows. If it is community led, there is a much greater chance that collection owners will follow rather than lead.

2. Compare and contrast – Digital images and art historians

Compare and Contrast (by Chris Bailey and Margaret Graham)¹⁴. This project, in both the original research and the more recent update, provides a comprehensive view of the needs and uses of digital images within an art history context. The detailed results can be seen in the paper as referred to here, but a couple of important points that emerged from the research can be picked out as pertinent to **the Digital Picture**:

“...there is a growing willingness to employ digital images in research. Some art historians reported a change in their working behaviour due to the availability of digital images – for example, they use digital images more readily as starting points in the initial stages of the research process. Whilst some are quite comfortable with the technology, others lack confidence and the required skills to make it work effectively. User-friendly tools and adequate training and/or appropriate technical support are critical. However, the age of the hardcopy image of the original artefact is by no means over – the two formats are likely to continue to exist, and be used, in tandem for some time to come.”

¹⁴Bailey, C., 'Compare and Contrast: measuring the impact of digital imaging on the discipline of art history' see <http://www.unites.ugam.ca/AHWA/Meetings/2000.CIHA/> and Bailey, C., and Graham, M.E., 'Compare and Contrast: the Impact of Digital Image Technology on Art History', in Marilyn Deegan and Harold Short (Eds.), DRH99: A Selection of Papers from Digital Resources in the Humanities 1999, OHC publication number 12, King's College, London, 2000, pp.13-26, ISBN 1-897791-14-3

“There is a school of thought that believes that within the teaching of art history levels of visual literacy amongst students is dropping. Lecturers are getting away with using low resolution images and using them to support their own verbal opinion. This opinion has been built up over their own experiences, often from viewing the original or a high quality copy. Students being exposed only to low resolution or poor quality digital can mistakenly believe that this is a good substitute for ‘the real thing’ – with all the subsequent knock on effects in art history teaching and research. The message seems to be don’t get too obsessed with the technology but to think behind the image to why it is being used.”

Also, for **the Digital Picture** project, Colin Cruise, Chair, Association of Art Historians (AAH) sent a detailed response to the survey, based on the Compare and Contrast results. The full response is included as Appendix B, but the introductory section is reproduced here:

The growth of digital imaging provides tremendous opportunities for art historians to improve what they do, but this comes with risks. The convenience offered by digital images must not be allowed to erode the quality of the services which art historians can provide, for the sake of managerial or financial expediency. It may be argued that digital technologies are being adopted before they are sufficiently mature to meet all our members’ needs: there is a feeling that the adoption of digital technologies is predominantly being driven by commercial considerations, as displayed by Kodak’s announcement, on 26 September 2003, that it would cease manufacturing the art-historian’s main teaching tool, the 35mm slide projector, by June 2004, in order to concentrate on digital media – despite recognising in the press release announcing this decision that ‘some remaining market segments consist of specialty applications in museums ... and educational institutions’.

As commercial companies and large-scale American projects attempt to meet the need for digital images, there is a danger of image banks responding to what they see as market demands, and focussing on the canon created for basic American undergraduate courses. Whilst such images are necessary, in the U.K. they play a major role in education only at first-year undergraduate level. Digital images created for our members’ use must represent the subjects studied by the discipline as a whole. Unfortunately these are incredibly wide-ranging, and often very specific – our members are nearly all specialists. In addition, there is a need for contextual images, for example from the history of medicine, to back up in-depth specialist research with appropriate examples from wider social histories. Any image-banks assembled for the use of U.K.-based art historians must be as comprehensive as possible, and should be created in consultation with the community that will be using them – that is, with the art historians themselves. And, given the focussed nature of most art historians’ work, they must allow users to scan and incorporate images themselves without fear of breaking copyright.

Whilst we appreciate that *The Digital Picture*’s remit specifically covers the use of images in further and higher education, we would be wary of any digital resources which restrict their use to these constituencies. As described above, we also represent art historians who work in schools, museums, or as independent scholars. Digital images are crucial to the work of *all* our members, all of whom need unfettered access to high-quality digital images. We would urge *The Digital Picture* to press for mechanisms that ensure that all those involved in the teaching and research of art history, whatever their institutional status, have access to the digital resources they require.

As Kodak’s announcement indicates, digitisation is to some extent being forced upon our members. Consequently, many are unaware of the factors involved in creating and maintaining high-quality digital images. The advisory role played by organisations such as AHDS Visual Arts and the Technical Advisory Service for Images (TASI) is crucial in ensuring that best practice is disseminated and adopted, and we urge *The Digital Picture* to press in the strongest possible terms for their continued funding for the foreseeable future. Indeed, an expansion of their role, taking workshops on the use of digital images to institutions that employ art historians, should be encouraged.

3. Creative Commons – <http://creativecommons.org/>

This organization is a “nonprofit organization that offers flexible copyright licenses for creative works”. Users can access and use images under a Creative Commons licence, or alternatively, share their own works, in a much wider, variety of ways than more traditional copyright mechanisms allow. The following is from the Creative Commons website:

“Too often the debate over creative control tends to the extremes. At one pole is a vision of total control — a world in which every last use of a work is regulated and in which “all rights reserved” (and then some) is the norm. At the other end is a vision of anarchy — a world in which creators enjoy a wide range of freedom but are left vulnerable to exploitation. Balance, compromise, and moderation — once the driving forces of a copyright system that valued innovation and protection equally — have become endangered species.

Creative Commons is working to revive them. We use private rights to create public goods: creative works set free for certain uses. Like the free software and open-source movements, our ends are cooperative and community-minded, but our means are voluntary and libertarian. We work to offer creators a best-of-both-worlds way to protect their works while encouraging certain uses of them — to declare “some rights reserved.”

Thus, a single goal unites Creative Commons' current and future projects: to build a layer of reasonable, flexible copyright in the face of increasingly restrictive default rules.”¹⁵

4. The Madison Digital Image Database – <http://www.mdid.org/>

Developed at James Madison University, Harrisonburg this open-source content delivery system allows users to search, retrieve, organize and teach with digital images. Available as a free download the system appears to operate similar to a VLE (Virtual Learning Environment). Institutions which choose to download the software have to scan in their own images to build their own database. Currently approximately 39 US Universities have downloaded the system for use.

It has been described by George Bent, associate professor of art history and chair of Washington and Lee University’s Department of Art as “a wonderful pedagogical tool. It’s changing the way we teach, reducing the prep time needed for lectures and it gives us extraordinary flexibility in the classroom”¹⁶

Washington and Lee are currently in the process of digitizing their collection of 100,000 colour slides and in 2002 Bent was the first academic in the Department of Art to teach exclusively with digital images. (The images are only available to W&L staff and students.)

5. MINERVA (Ministerial network for valorising activities in digitisation) and MICHAEL

The MINERVA program is an EU-wide initiative that is attempting to regulate digitisation. The aim of Minerva is to create a network of (EU) Member States' Ministries to discuss, correlate and harmonise activities carried out in digitisation of cultural and scientific content, for creating an agreed European common platform, recommendations and guidelines about digitisation, metadata, long-term accessibility and preservation. In association, there has also been a recent launch of MICHAEL, the Multilingual Inventory of Cultural Heritage in Europe. This is a ground-breaking British, French and Italian led initiative, aiming to develop online access to the digital collections of museums, libraries and archives of Europe.

“The European Commission today unveiled its strategy to make Europe's written and audiovisual heritage available on the Internet. Turning Europe's historic and cultural heritage into digital content will make it usable for European citizens for their studies, work or leisure and will give innovators, artists and entrepreneurs the raw material that they need. The Commission proposes a concerted drive by EU Member States to digitise, preserve, and make this heritage available to all. It presents a first set of actions at

¹⁵ <http://creativecommons.org/about/history>

¹⁶ Digital Image Database Revolutionizes Art History Instruction, Washington and Lee University, November 2002

European level and invites comments on a series of issues in an online consultation (deadline for replies 20 January 2006). The replies will feed into a proposal for a Recommendation on digitisation and digital preservation, to be presented in June 2006.”¹⁷

6. The Museum Educational Site Licensing Project (MESL Project)

A UC Berkley study looking at a multi-site image distribution scheme called The Museum Educational Site Licensing Project (MESL Project), provides an interesting early US angle for anyone considering the implications of the use of digital images within Art education. Written in 1999 and entitled: The Social and Economic Implications of the Production, Distribution and Usage of Image Data, a report to the Andrew W. Mellon Foundation, by Howard Besser and Robert Yamashita,¹⁸ the report covers many of the issues raised by participants in The Digital Picture consultation.

*“The project was the first large-scale attempt to take a collection of images and accompanying metadata from a variety of museums and deliver these in digital form to university users over campus networks.”*¹⁹

Started in 1995 the project involved seven museums supplying the content and seven universities using the content. The content was defined as 10,000 digital images and associated metadata. The study also “analyzed the costs of running conventional analog slide libraries, and examined the difficulties facing faculty trying to teach with digital images”.

the Digital Picture would like to thank the huge number of individuals and organisations who have been involved in the project. It is particularly grateful for the advice, help or support received from art and design colleges and faculties across the UK, and also from the following organisations:



¹⁷ EU Press Releases, 30 September 2005

¹⁸ <http://www.dlib.org/dlib/october99/10besser.html>

¹⁹ Howard Besser, Digital Image Distribution, A Study of Costs and uses, D-Lib Magazine, 1999

Appendix A

Discussion topics for some of *the Digital Picture* seminars.

Lecturers are digging their own digital graves!

Uptake of new media and ICT in our schools, universities and colleges brings with it untold opportunities for enhancing learning at all levels. Now, more than ever, lecturers are being encouraged to embrace digital learning environments as the way forward. But as they strive to put more resources on intranets, Virtual Learning Environments and the Web, are they inadvertently digging their own digital graves? Will lecturers lose their jobs/hours as soon as their institution feels their contribution is adequately covered by digital resources?

Librarians replaced with 'digital resources'!

The growth and linking up of digital resources across universities, colleges and libraries provides users with greater tools and opportunities when searching for the images and resources they need. But this could have implications for the role of the librarian: a recent article in the Times Higher Education Supplement lamented the cause of librarians at the University of Wales, Bangor who are now under threat from cost-cutting measures which may see them being replaced with digital resources.

Massive increase in art theft is unstoppable!

Uptake of new media and ICT in our schools, universities and colleges brings with it untold opportunity for the use of digital images but, in vast numbers of cases, the images are simply downloaded from websites without permission or 'borrowed' from friends or colleagues. This is theft and it will have legal implications for educational institutions.

The digital revolution is re-writing art history!

Art history has changed enormously with the advent of technology. Access to collections and galleries via the internet, plus the use of advanced technologies to scrutinize what lies beneath the surface of a painting have changed the way we study art. But are we seeing true representations of the artworks? Are digital images to be trusted?

Computer imaging flattens the artist's hand!

The translation of artistic ideas via a computer leaves artificially 'smooth' edges and takes away valuable process 'markers'. A review of Sue Stockwell's work, in ArtForum this week, says "[her] works are refreshingly non-perfectionist: knotted ends of the artist's sewing hang loose and the maps' rough edges make manifest Stockwell's hand." Will the next generation of artists be able to create works like this or will computers average everything out?

Computers play into the hands of the over-zealous Health and Safety brigade!

Every week, more and more machines in art college foundries, print-rooms, woodworking and metal workshops are condemned as too dangerous for students to use. It is far easier (and cheaper) for institutions to set up rooms full of computers and teach 'safe' subjects instead.

Human interaction replaced by computers!

Art lessons are delivered through a Virtual Learning Environment; art research is conducted via the web; images are viewed through online galleries; and art is created in PhotoShop. Does all this technology in our art schools mean that no-one is talking to anyone else? Are we losing 'cultural absorption' by diminishing social interaction in art education?

Appendix B

Response to *the Digital Picture* survey from the Association of Art Historians (AAH).

20 July 2005

Dear Mike Pringle

Response to *The Digital Picture*

The Association of Art Historians (AAH) appreciates the Arts and Humanities Data Service's timely and much-needed response to the growing use of digital images in teaching and learning. The phenomenon has huge implications for our discipline, and the Association has decided to respond formally in order to ensure that its members' particular concerns are heard alongside those who teach art and design practice. Our response is in two parts: some general observations on the challenges and benefits of digitisation for our profession are followed by specific responses to each of the *Digital Picture*'s ten questions.

The Association of Art Historians

The Association of Art Historians was formed in 1974 to support and promote the study of art history. It is the national organisation for professional and independent art and design historians, researchers and students involved in education, museums and galleries and freelance work. The AAH represents the interests of those involved in all aspects of the discipline including art, design, architecture, film and other media, photography, cultural studies, conservation and museum studies. It has over 1,000 members, in the UK and overseas. The AAH has links with similar societies in America, Canada, Australia and Europe and is affiliated with the Comité International d'Histoire de l'Art (CIHA) and the College Art Association (CAA). Membership is open to professional and independent art and design historians and researchers, to all those involved in museums and galleries and to those teaching or studying art history.

Basis of response

The Association's response to *The Digital Picture* is based upon an unpublished survey of academic members of the Association on the 'Impact of Digital Images on Art History', conducted (and generously shared with us) by Chris Bailey and Margaret Graham, Northumbria University, 2000. 251 members of the Association who described their main activity as 'academic' were surveyed in early 2000; 63 responded, giving a response rate of 25%. To this, we have added anecdotal evidence of our members' experiences.

General

The growth of digital imaging provides tremendous opportunities for art historians to improve what they do, but this comes with risks. The convenience offered by digital images must not be allowed to erode the quality of the services which art historians can provide, for the sake of managerial or financial expediency. It may be argued that digital technologies are being adopted before they are sufficiently mature to meet all our members' needs: there is a feeling that the adoption of digital technologies is predominantly being driven by commercial considerations, as displayed by Kodak's announcement, on 26 September 2003, that it would cease manufacturing the art-historian's main teaching tool, the 35mm slide projector, by June 2004, in order to concentrate on digital media – despite recognising in the press release announcing this decision that 'some remaining market segments consist of specialty applications in museums ... and educational institutions'.

As commercial companies and large-scale American projects attempt to meet the need for digital images, there is a danger of image banks responding to what they see as market demands, and focussing on the canon created for basic American undergraduate courses. Whilst such images are

necessary, in the U.K. they play a major role in education only at first-year undergraduate level. Digital images created for our members' use must represent the subjects studied by the discipline as a whole. Unfortunately these are incredibly wide-ranging, and often very specific – our members are nearly all specialists. In addition, there is a need for contextual images, for example from the history of medicine, to back up in-depth specialist research with appropriate examples from wider social histories. Any image-banks assembled for the use of U.K.-based art historians must be as comprehensive as possible, and should be created in consultation with the community that will be using them – that is, with the art historians themselves. And, given the focussed nature of most art historians' work, they must allow users to scan and incorporate images themselves without fear of breaking copyright.

Whilst we appreciate that *The Digital Picture's* remit specifically covers the use of images in further and higher education, we would be wary of any digital resources which restrict their use to these constituencies. As described above, we also represent art historians who work in schools, museums, or as independent scholars. Digital images are crucial to the work of *all* our members, all of whom need unfettered access to high-quality digital images. We would urge *The Digital Picture* to press for mechanisms that ensure that all those involved in the teaching and research of art history, whatever their institutional status, have access to the digital resources they require.

As Kodak's announcement indicates, digitisation is to some extent being forced upon our members. Consequently, many are unaware of the factors involved in creating and maintaining high-quality digital images. The advisory role played by organisations such as AHDS Visual Arts and the Technical Advisory Service for Images (TASI) is crucial in ensuring that best practice is disseminated and adopted, and we urge *The Digital Picture* to press in the strongest possible terms for their continued funding for the foreseeable future. Indeed, an expansion of their role, taking workshops on the use of digital images to institutions that employ art historians, should be encouraged.

1. *Digital images are on the increase in arts education. What overall impact does this increase have on you?*

The impact of digital images is growing, even though art historians have tended, in general, to be late adopters of technology. As academic institutions have increasingly installed the facilities for digital projection, the last two or three years have seen a noticeable increase in the use of digital presentations by post-graduate students and academics for teaching and the presentation of research. This trend has also had a visible manifestation in the technological requirements of speakers at the Association's annual conference over the last two years. This can be expensive: digital projectors are significantly more expensive to hire for such events than analogue ones, and adoption is so uneven that they have to be hired in addition to, rather than instead of, slide projectors.

2. *Digital images can be used in a number of ways, but are they better at some things than they are at others?*

Images are potentially useful for seminars, talks, lectures, close study, and publication online and in print – but quality is paramount: for art historical use, images must be accurate, reliable and accompanied by proper metadata. Currently, there is a dearth of freely-available images which fulfil all (or even some) of these criteria.

3. *What effect do digital images have on more traditional aspects of arts education?*

Digital images, combined with digitally-mediated teaching, have tremendous potential to improve the ability of students, particularly adult and lifelong learners and those from non-traditional backgrounds, to access arts education without extensive travel and at their own convenience.

But digitally-mediated teaching must supplement, not supplant, more traditional forms of pedagogy. The current economic climate, which seeks efficiency savings everywhere, may lead to a desire to shift from face-to-face teaching to teaching that is entirely digitally-mediated. This must be resisted: face-to-face teaching (lectures, seminars, tutorials, etc.) are a vital form of pedagogy, and retain a flexibility which digitally-mediated teaching cannot supply. Art historians are acutely aware of the

physical qualities of the artefacts they study; indeed, this is the basis of the discipline. Students must continue to be reminded of the primacy of the original object, for which all reproductions – whether digital or analogue – are mere surrogates.

Likewise, a shift to digitally-mediated teaching may lead to an expectation on the part of students that all information is available online. Whilst projects such as Google's digitisation of the nineteenth-century holdings of several major research libraries might increase this expectation, any student who expects to carry out research must continue to be able to acquire experience in the use of book and picture libraries and archives

4. *If you wanted a particular image in digital format, what would be the ideal way to obtain it?*

According to Bailey and Graham's survey, finding digital images was a significant barrier to their use: 59% of respondents replied that lack of knowledge of sources of digital images prevented them from using them, whilst 38% even lacked the knowledge of *how* to search for them.

Existing tools for online image searching are hampered by the necessity of searching across multiple sources and sites, not all of which are visible to the major search engines. In addition, the search engines' algorithms are not sufficiently attuned to art historians' requirements to avoid turning up a great deal of irrelevant material. Art historians are usually busy, and the ability to perform a single search for all quality-controlled images, with the individual images being returned on a single screen on which they could be compared, would be a major improvement in the tools with which we work.

5. *The successful use of digital images depends on technology. What issues does this raise?*

This, too, was a significant problem for respondents to Bailey and Graham's survey. 33% claimed that lack of experience in using the technology was a significant barrier to their use of digital images, whilst 29% complained of lack of access to the technology. Conditions have certainly improved in the time since the survey was completed, but the gradual replacement of *all* slide projectors with digital ones will be an expensive process. Until suitable digital replacements are found for the substantial holdings of departmental slide libraries, there will continue to be a demand for hybrid presentations of visual material, using both digital and analogue projectors side-by-side or in succession.

Clearly, the installation of digital projectors in teaching spaces affects *all* subjects, and will benefit *all* the staff of the relevant institutions. Whilst it is vital that institutions employing art historians are fully committed to funding the adoption and installation of new technologies, and ensuring that all staff receive the training and support necessary to use it effectively, the burden for this must be shared across all subject areas, all of whom will use the new technology – just as many subjects called upon the resources of art history departments' slide libraries in the past.

6. *Are there particular aspects of digital images that improve or reduce their usefulness?*

Art historians are particularly concerned with the quality of the images they use. Their work focuses on the visual and material qualities of artefacts and, where possible, they work directly with the original artefact. If they are unable to secure access to the original objects, any surrogate – digital or analogue – must be an accurate reproduction of its original. This is particularly true for art history publishing, where good quality images are of paramount importance.

Having said this, the apology for the poor quality of certain slides has become an almost traditional part of most art historical presentations. It is not impossible to work as an art historian with low-quality images (analogue or digital), and for some uses low-quality images are sufficient. But high-quality images will *always* be better, and the adoption of digital technologies potentially makes their acquisition and use much more straightforward. Whilst it is true that, at the moment, a well-produced 35mm slide, taken directly from the original or a first-generation copy, well-projected, remains of much higher quality than a good digital image projected using a digital projector, developments in technology will lead to the erosion of this quality gap.

The growth in digital imaging therefore presents a major opportunity to ensure the widespread dissemination and use of images at a much higher quality than was generally available with analogue images. However, we have not yet reached that stage. The unavailability of quality digital images was seen as a major barrier to their use by a significant number of respondents to Bailey and Graham's survey: 24% gave answers complaining of this, despite the question not being asked directly in the survey questionnaire.

For a digital image to be useful to an art historian for teaching and research, it must be as accurate as possible – sharp, tonally-accurate, colour-controlled, of a high enough resolution to allow zooming, un-manipulated, from a reliable source, and with accurate metadata. Sadly, much of what is currently available – even from major commercial and academic image libraries – fails to fulfil some, or even all, of these criteria. There are technical solutions to some of these issues, but ignorance and financial constraints prevent their uptake. For example, how many institutions make it a policy to calibrate the colour and contrast of all the monitors and projectors used by their staff? Yet this is vital if colour and tone is to be reproduced accurately using digital images: institutions must be informed of this, and encouraged to undertake it.

7. Digital images can be shared and re-used very easily. Should we worry about ownership?

Copyright will continue to be a major concern as long as the current Copyright Act is in force. (A surprisingly small number of respondents to Bailey and Graham's survey considered it a significant barrier to the use of digital images, but we suspect this is due to art historians not being fully aware of the 1988 Act's implications for digital images.)

In particular, the proposed CLA license for the assembling of course packs is, as we understand its contents, of limited use to a discipline which focuses much of its attention on objects produced, housed, and most significantly *published*, in countries other than the UK. The restrictions it places upon the scanning and re-use of digital images is onerous.

Similarly, any broader licensing scheme for the creation of digital images for use in teaching and learning must avoid the mistakes of the 1988 Act and the ensuing disagreements over the validity of DACS's claims to be able to indemnify slide libraries against prosecution for copyright infringement, at the same time as they tried to pursue institutions for such infringements. Any scheme which assumes a similar mechanism for managing copyright in digital images of objects which may well be in the public domain is likely to provoke strong opposition from our members, as well as being a restriction on their ability to carry out their profession.

As mentioned above, the major problem is the existing Copyright Act. In order to work, art historians need unfettered access to high-quality images. Previous UK copyright acts had waivers covering the use of images in teaching and research, and these must be reinstated for the use of digital images. The AAH is fully committed to the rights of living artists, and the estates of the recently-deceased, to secure an income from the reproduction of their works. However, it continues to be the AAH's belief that the vast majority of contemporary artists (the main beneficiaries from enforcement of copyright fees on reproductions of works of art) want their work to be disseminated in teaching and academic research, and are happy for this to happen without copyright restrictions or obstructive fees.

The use of copyright fees as a source of income by publicly-funded museums and galleries effectively imposes a tax on art historians carrying out their work; the costs are very seldom met by publishers or other institutions. We would argue that, in restricting access to and use of their collections in this way, institutions are reneging on their commitment to allow their collections to be used for the public interest, and are therefore abrogating their public role.

In addition, the charges levied by institutions for the use of images online often assume that such use is by definition commercial rather than academic. The mechanism by which reproduction fees are calculated is based upon a broadcast model, granting rights only for a limited period of time (which can be as low as one year) before they have to be renegotiated. As online publishing becomes of increasing significance, and as journals increasingly place their contents and back-issues online, such assumptions and mechanisms become increasingly obstructive, preventing our

members from carrying out their profession and disseminating their research. Institutions across the world must be persuaded to switch from a broadcast model of charging to one based upon print publication, charging a one-off fee for reproduction in a single work. After all, a website is like a book: once it has been published, there is no way (if a book has been placed in a library) of predicting how many people will actually read it.

As these issues involve public policy and legislation, they will need to be resolved nationally, probably by government.

8. *What considerations need to be made to help you get the most out of digital images in arts education?*

Many institutions have built up extensive collections of 35mm slides, often over decades and at significant costs. These can contain as many as 150,000-250,000 slides. The costs of replacing these with digital images will be immense. Yet conversion is being forced upon us by industry's determination to do away with analogue technologies. Consequently, institutions will require major funding to support this conversion. As discussed in question 5 above, art history departmental slide libraries are used by staff from many subjects, and the burden of conversion must be distributed across subject areas. Institutions must be encouraged to develop clear and liberal policies regarding the production and use of images, and to support the infrastructure, expenses and major training involved in their adoption. They must be willing to stand up for art historians' rights to use images without intimidation from organisations claiming to represent copyright holders.

Slide librarians (many of whom are AAH members) will play a crucial role in the process of transition, and must be supported with the training and budgets required to perform their duties. Even after digitisation of analogue slide libraries, they will continue to perform a vital role in tracing or creating high-quality digital images required by students and lecturers, and in administering their storage and delivery, and the rights for their use. If major centralised repositories of quality digital images are created, slide librarians will play a crucial role in transmitting their users' needs to these repositories.

9. *Digital images have a role in research, but are there issues surrounding their use in this area?*

The role of digital images in research will continue to grow, although it is already well-established in certain sub-disciplines of the subject. For example, the recent announcement of the discovery of a 'new' Leonardo drawing in the under-drawing of the National Gallery's *Virgin of the Rocks* was based upon investigations carried out using digital images created in the infra-red spectrum (see the *Burlington Magazine*, July 2005). Similarly, various forms of three-dimensional visualisation allow significant opportunities for research and its dissemination in the history of architecture.

However, existing digitisation policies, as supported by research funding bodies, tend to emphasise small-scale digitisation projects focussed on selections from larger collections. These will not serve our members' needs: it is only with the creation of major research resources (containing tens or hundreds of thousands of images), based upon museum and other collections, that the critical mass of material will be reached which will enable digital images to play the major role in research of which they are capable. Cherry-picking the highlights which are already well-represented in image collections is not helpful. High-quality digitisation is not cheap: if an object has to be catalogued and photographed rather than scanned, then a figure of £50 per image is not unreasonable. A major investment will therefore be required on the part of the research councils and other funding bodies.

Digital images also play a major role in the dissemination of research. The speed with which they can be created and used are a major advantage when producing conference presentations and lectures. But they will only be effective if they can be created and used flexibly, without the necessity of clearing copyright image-by-image for educational and research use. The same applies to the publication of research, where online publication is increasingly significant. Our comments under section 7 above apply equally to this question.

Conclusion

The Association of Art Historians welcomes the opportunities provided by the use of digital images, but recognises that substantial investments are required to ensure that these opportunities are fully exploited. These opportunities must be available to all art historians; and art historians must continue to be involved in the shaping of policies which affect the use of digital images.

We are highly appreciative of the opportunity afforded by *The Digital Picture* to begin this process of collaboration, and wish the project every success as it collates and disseminates its findings.

Yours sincerely

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