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Teaching Manuscripts in the Digital Age

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Abstract

This chapter reflects on the author's practical experience teaching palaeography in several different contexts at the start of the so-called "digital age". Material for manuscript-studies is becoming available at an enormous rate: perhaps most obvious are the results of the large-scale digitisation programmes which are making high-quality colour facsimiles of manuscripts available online to wide audiences. At the same time, Virtual Learning Environments provide new possibilities for teaching and learning, and many tools for research on manuscripts can also be used for teaching. Perhaps more fundamentally, however, it has often been noted that scholarship is changing as a result of digital tools, resources, and methods. What, then, of teaching? Should the teaching of manuscript studies also change along with the scholarly discipline, bringing the Digital Humanities into our classes on palaeography and codicology? To begin answering this question, and to suggest some pedagogical possibilities brought about by technology, the author's own experiences are discussed. Some limitations of technology for teaching are then considered, and some general remarks are then provided on the relationship between palaeography and Digital Humanities, two fields which are both fighting for recognition as full academic disciplines and not "mere" *Hilfswissenschaften.*

Zusammenfassung

Der Beitrag reflektiert die praktischen Erfahrungen des Autors, Paläographie in verschiedenen Kontexten zu Beginn des sogenannten "digitalen Zeitalters" zu lehren. Materialien zur Handschriftenkunde werden in großer Zahl verfügbar: Am offensichtlichsten sind die Ergebnisse groß angelegter Digitalisierungsprogramme, welche hochauflösende Faksimiledigitalisate von Handschriften einer weiteren Öffentlichkeit zugänglich machen. Gleichzeitig bieten virtuelle Lernumgebungen neue Möglichkeiten für Lehre und Lernen, und zahlreiche Werkzeuge der Handschriftenforschung können auch für die Lehre genutzt werden. Fundamentaler ist allerdings die oft zitierte Veränderung der Wissenschaft durch digitale Werkzeuge, Ressourcen und Methoden. Wie verhält es sich damit in der Lehre? Sollte sich auch das Lehren der Handschriftenkunde mit der wissenschaftlichen Disziplin ändern und die digitalen Geisteswissenschaften in Paläographie- und Kodikologiekurse einbringen? Eine Antwort auf diese Frage und

Anregungen für pädagogische Möglichkeiten durch Technologieeinsatz werden auf der Basis der Erfahrungen des Autors gegeben. Es werden die Grenzen des Einsatzes von Technik in der Lehre diskutiert und grundsätzliche Bemerkungen über das Verhältnis von Paläographie und digitalen Geisteswissenschaften gemacht, jenen zwei Feldern, die um die Anerkennung als volle akademische Fächer ringen und nicht "bloße" Hilfswissenschaften sein wollen.

1. Introduction

M.R. James once wrote "I cannot teach the art of assigning dates to manuscripts; I am even inclined to think that it cannot be taught" (Pfaff 103). Despite this claim, manuscript studies in general and palaeography in particular have often been taught in programmes of classics and medieval studies, at least at graduate level. However, these courses have tended to remain relatively constant in the way that they are taught and have not always taken advantage of new developments in the "digital age". This applies on several levels: on the one hand, there are many ways in which technology can improve the teaching of "traditional" palaeography, and this has certainly been done in some cases, although perhaps not as widely as one might like. However, there are other issues which are much less frequently discussed. It is often noted that the so-called "digital age" is transforming humanities scholarship, including traditional fields such as palaeography and manuscript studies (Vogeler; Stokes). If one accepts this, and indeed the present volume and its predecessor seem to demonstrate it, then it follows that teaching should change accordingly. Certainly students must learn the "traditional" skills which are central to manuscript studies and, many readers of this volume may argue, to much of the humanities in general. This author takes it as given that basic skills in handling original materials, in reading, transcribing, editing and understanding these objects is central to medieval and even much of modern studies. The question that remains is therefore twofold. First, how can digital tools be used to better teach traditional skills. Second, a question much less frequently raised, is how the teaching of traditional skills should or could itself change as a result: how and to what extent should digital content be explicitly introduced into the curriculum for the study of medieval manuscripts? It is this question that will be addressed here. The discussion will focus necessarily on the author's own experience and makes no claim to a comprehensive survey of all teaching on the subject; rather some practical experiences and broader theoretical considerations are offered in the hope that we can learn from our collective experiences and also reflect on how we teach a topic which has great potential for attracting students now more than ever, but the provision of which is undergoing significant and drastic change across Europe and beyond.

2. Medieval Manuscript Studies in the Digital Age

Medieval Manuscript Studies in the Digital Age (MMSDA) is a six-day training course for post-graduate (PhD) students in the United Kingdom. Its principle subject of study is "the analysis, description and editing of medieval manuscripts" for both print and digital output. It is funded by the UK Arts and Humanities Research Council (AHRC) under their Collaborative Research Training scheme. This scheme operates at three levels and was developed with an explicit purpose.

> It enables institutions to offer such training to groups of students in several institutions where it is not possible or cost-effective to provide the training to students in just one department or institution. The expectation is that through this collaboration, an enhanced quality of training and student experience can be provided. (AHRC 2008 1)

MMSDA runs as a collaboration between four institutions. It is based at the Institute of English Studies, which is one of the Schools of Advanced Study in the University of London; the other collaborating institutions are the Department of Anglo-Saxon, Norse and Celtic in Cambridge, the Centre for Computing in Humanities at King's College London, and the Warburg Institute which is another of the Schools of Advanced Study. Many further institutions are involved which are not formal collaborators, and a team of instructors and administrators makes the course run. In total, eighteen instructors and ten institutions have taken part in both of the first two years of the course.[1]

As noted above, the stated subject of the course is "the analysis, description and editing of medieval manuscripts" for both print and digital output (MMSDA 2010). This reflects but perhaps does not make sufficiently explicit a central principle to the course which was incorporated into the planning from the very start: namely that both traditional and digital approaches should be taught together, with equal weight given to each, and with emphasis placed on how each one interacts with and enhances the other. It is this deep integration of digital and traditional, planned from the start as a fundamental principle rather than something which is added later or coincidental, which makes it different to any other which is known to this author. There are many intensive courses for teaching manuscript studies to postgraduate and other interested groups (although there are never enough).[2] Similarly, there are intensive courses for teaching digital methods, including XML markup and related technologies and approaches.[3]

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[1] For a full list of current instructors and institutions see MMSDA 2010, "Schedule" and "Instructors".

[2] A small sample of these includes the London Rare Book School and Palaeography Summer School at the Institute of English Studies in the University of London, and further examples in the UK are listed in Institute of English Studies and HOBO.

[3] For a list see EDU-SIG; further examples include the Digital Humanities Observatory Summer School in Dublin; Scholarly Codicological Research, Information & Palaeographical Tools (SCRIPTO), Friedrich

There are also courses in traditional palaeography which utilise digital methods, for which see further below, and courses which include some modules on manuscript studies and others on digital methods but without fully integrating the two.[4] However, if the digital age truly has arrived, and if digital methods have become part of humanities scholarship; if digital approaches should be closely integrated with and informed by humanities scholarship; then surely it follows that teaching should reflect this and that both should be taught together as one integrated whole, rather than as two discrete parts as normally happens in practice. This is the next level in Digital Humanities and Humanities in the "digital age".

How, then, did this course work in practice? The first three days are spent on "traditional" manuscript studies, with lectures on palaeography, codicology, art history, principles of cataloguing, provenance, and principles of editing. These classes include visits to libraries with significant collections of medieval manuscripts in Cambridge and London, during which the principles discussed in the morning classes are then worked through with real examples. In this way, a firm theoretical basis was established, along with some experience in practical applications (and, we hope, some exposure to the difficulties which theories inevitably encounter when put into practice). The next three days then focus on these same principles but applied to the digital realm. How does one catalogue in a digital format? How does one present a catalogue online? What of an edition? How do the principles and practices change when applied to a digital format? These questions are all addressed, both through discussion and implicitly through practice as the students produce their own sample catalogue-entries, transcriptions, and edited passages. In order to aid these questions, and to provide links across the different components of the course, we have made extensive use of Parker on the Web and the collection of Corpus Christi College in Cambridge, as well as the generosity of the library's staff. We are fortunate enough to have access to a wide range of material which we could draw on for teaching: the original manuscript, M.R. James' printed catalogue of 1909–12 (a scan of which is now freely available in PDF format from the library website), free access to the new digital catalogue provided by Parker on the Web, and high-quality images of the manuscript provided by the college (cf Gillespie 2010).[5] After lectures on cataloguing, palaeography and art history, we take the students to the Parker Library at Corpus Christi College, and among many manuscripts we show them manuscript 422, the "Red Book of Darley". The students then produce brief electronic

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Alexander University Erlangen-Nuremberg; TEI @ Oxford Summer School at the University of Oxford; and this author's own course on Digital Publishing for the London Rare Book School in the Institute of English Studies, University of London.

4 Examples include SCRIPTO and (from July 2010) the London Rare Book School, as well as numerous postgraduate Masters courses or equivalent on material culture.

5 The author, on behalf of the MMSDA team, wishes to thank Stanford University Libraries and Harrassowitz for granting access to Parker on the Web during the course.

catalogue descriptions of this manuscript in TEI-compliant XML, based on what they have seen in the library but also supplemented by the digital facsimile at Parker on the Web. We then take M.R. James's description and compare that with the new Parker on the Web to see the advantages and disadvantages of online *versus* print cataloguing. The students also electronically annotate the digital image of one of the more complex pages from the manuscript and use this with the Image Markup Tool (IMT; see Holmes) to create their own web page of a small digital edition which integrates image and text. This is quite a different use of Parker on the Web from that which the creators presumably intended: on the one hand, the digitised manuscript functions as material for the students, but the catalogue description also serves as a model for them to imitate in the first instance and as the object of their analysis in the second. Having both the print and online catalogues provides further material for discussion, allowing the students to compare the strengths and weaknesses of each. Without both the images and the two detailed catalogues online, the whole exercise would not have been possible.

The success of this approach has been significant. Enrolments and feedback provide the first evidence of this: with more than three applicants for every position in the first year, and about thirty applicants for twenty places in the second and third years, even though places were limited to PhD students registered at UK institutions. Feedback from students, their supervisors, and instructors on the course has been unanimously very positive indeed. All but two of the instructors and institutions from the first year participated again in 2010, and most also in 2011; of the two who did not in 2010, one is an instructor who has since changed field and moved country, and the other is an institution which is already heavily burdened by prior commitments but which is participating again in 2011. In addition to these quantitative measures of success are some others which are more subjective but which are perhaps of greater significance. When the students apply to the course, they are asked to write a brief statement outlining what they expect to gain from it: almost without exception, they focus on the manuscripts, the need for experience in handling original artefacts, and their lack of training in skills such as palaeography, editing, cataloguing and (much less often) art-history. Very few mention the "digital" element, and those who do usually show little awareness of its significance or the issues involved. In contrast, feedback after the course generally reveals a significant increase in understanding issues of digital production and consumption, including the value of standards such as TEI XML, greater critical awareness in the use of online resources, and awareness of the interrelation between digital and non-digital practices. This increased awareness is difficult to quantify, not least because we have no formal test either before or after the course, so one anecdote must serve to illustrate this point. When the course first ran in 2009, the visits to the libraries coincided with the traditional lectures and such in the first three days: the course was therefore itself divided into two clear parts, the "non-digital" and the "digital". In this respect we ourselves were guilty of the false

division just criticised in the first section of this chapter. It was the students who pointed this out, as one noted in feedback at the end of the course that it would have been useful to schedule a final library visit after they had gained some exposure to digital methods so that they could bring this experience back to the manuscripts themselves, and this suggestion was incorporated into the course for 2010.

3. Teaching Undergraduates using Digital Resources

In addition to the MMSDA course, this author's other experience includes teaching undergraduate students in a Palaeography and Codicology course in the Department of Anglo-Saxon Norse and Celtic in the University of Cambridge, and one on Book History for the School of Historical Studies in the University of Leicester. The former is aimed primarily at first and second-year undergraduates but usually includes one or two MPhil students and is occasionally audited by PhD students. The latter is for second-year undergraduates. Both courses have proven very popular: enrolments at the one in Cambridge peaked at about thirty students, and the one in Leicester has only been offered once but had a similar number of students. The course in Cambridge initially involved four or five contact-hours a week, but these hours were reduced because of the costs involved and so online teaching has become more important as a result. Learning-outcomes for both courses included a sense of the material culture of the early Middle Ages, some awareness of the survival (or lack thereof) for medieval documents and manuscripts, and other similar aspects that are relatively unsuited to current online teaching for palaeography and manuscript studies for reasons that have already been discussed elsewhere and will be again shortly here. Further outcomes of the Cambridge course were the ability to describe, date, localise, and transcribe scribal hands. These skills involve training rather than teaching: they require students to invest a significant amount of time practicing, preferably assisted by feedback from an instructor of some sort, and for this reason the course is in many ways closer pedagogically to language teaching than to history. This meant on the one hand that the reduced contact hours required finding new ways of providing the extended training and feedback, but also that online methods could be applied more readily than to the material aspects of book history, although this holds only with some important caveats that will be discussed below.

Both Cambridge and Leicester now use Virtual Learning Environments (or VLEs): the former Sakai and the latter Blackboard. Both are very similar in functionality, perhaps the biggest difference being that Blackboard is a proprietary system developed by a commercial firm, whereas Sakai is free and open-source, developed by an international community (Sakai Project; Earhart). The principle advantages of VLEs are obvious, insofar as both systems provide an easy way for instructors to add images or links

to images for students. Instructors can create online assignments, where students are told to go to a particular image of a particular manuscript on-line, to transcribe a certain number of lines, and to discuss features of the manuscript page (or entire manuscript); the transcription and discussion can be submitted through the website, and the instructor can then correct it and give feedback. One can also illustrate a single page of a manuscript in class, giving the students a black-and-white printout for them to annotate during the class but providing them with a link to a full-colour, high-quality image to view in their own time.[6]

This use of digital images was itself an obvious but very significant improvement to the course which initially involved plates in books being photocopied in black and white onto overhead transparencies: many students expressed their appreciation of the greatly improved quality of the presentations in class (cf. Duggan; Twycross; Kamp; Gillespie). It also allowed other possibilities, however. Rather than using simple static images, as in an overhead transparency, slide, or even PowerPoint presentation, high-quality digital images can be manipulated "live" during the class. One can therefore project an image of an entire manuscript page to discuss topics such as *mise en page* but can then zoom in to different regions to illustrate details of script, decoration, glosses and the like, something which this author and others have found invaluable in the classroom (cf. Duggan 156–7) or indeed in conference presentations. As well as providing a more arresting class, this also conveys better the relationship between the details and the whole.

All of this is made easier by digital resources, but none of it is particularly exceptional or even very different from what was done previously. More interesting teaching becomes possible when complete manuscripts are available on-line: in these cases the instructor might discuss one page during a lecture, but the students can then go to the complete facsimile and see that page in its larger context: they therefore gain access not only to a very good image but also to the rest of the book, which allows them to supplement the lecture material with their own investigation. Exercises can work the other way, too. For example, a class on liturgical manuscripts can involve searching catalogues for litanies and then comparing the facsimiles of litanies from different manuscripts. Patterns of survival can be investigated by searching catalogues for different types of book from different dates and different locations and seeing how these change. The resources for these sorts of classes are available now, and with a little creativity students can be given all manner of questions which they can then investigate using digital resources in a form of active learning that has been used very effectively with the *Oxford English Dictionary*, to name just one example (Simpson; Bunting and Stevens). With the advent of so-called "Web 2.0" this could easily be taken

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[6]   In Cambridge, the department has a site licence for Bernard Muir's *Ductus* programme which has very high-quality images and transcriptions, although these are just single pages of manuscripts (Muir and Kennedy 2007; Muir 2009 139–40).

even further. One important aspect of "Web 2.0" is user-created content: that is, people can now create their own web pages by aggregating content from different sources, as well as blogging, commenting on each other's pages, and so on. The significance of this has not been lost in educational circles, and resources such as Google Groups are already being used in teaching: indeed, this is one of the principle purposes of resources such as Sakai and Blackboard (Mahony; cf Kamp). Content can easily be presented in new ways, too, such as Simile Timemaps which allow one to rapidly create web pages that integrate data, maps and timelines that can be linked back to online facsimiles and catalogues (*Timemap*). For example, in this author's experience at Cambridge, students tended to become too tied down in the *minutiae* of letter-forms and quickly lost the larger-scale overview of chronological and geographical developments. This could then be ameliorated by providing a map on which the manuscripts are plotted by their (presumed) place of origin, and which are also marked on the accompanying timeline: they can therefore manipulate both the timeline and the map to gain a sense of the "bigger picture". The map and timeline both include links back to the online facsimiles of the various manuscripts, thereby allowing students to go back to the details. These timelines and maps can read directly from XML files, so it would be very easy to create pages that read their data directly from the online catalogues if this material were made freely available, although in practice this is rarely the case. In his own teaching this author has only produced a few very crude examples, and has come nowhere near using their full potential, but this potential seems clear and should be exercised more (Mahony). Indeed, many of the uses of digital resources for research in manuscript studies that this author has discussed elsewhere (Stokes) can be applied equally usefully to teaching; virtual light-boxes are one obvious example (*Online Gallery*), as are annotating images and sharing annotations (OCVE), tools to aid transcription such as one developed by Jim Ginther which has already been used to teach palaeography (Ginther; Gillespie), a Virtual Research Environment for the study of documents and manuscripts (Bowman et al.), and many others.[7]

4. Some Limits of Digital Teaching

The discussion so far has outlined some possibilities for teaching which have already been put into practice. Many other possibilities exist, and this chapter makes no attempt to be complete in any way, but it is hoped that some of these may help to show what can be done. However, there are also many aspects of manuscript studies that cannot be taught easily or at all with existing online resources. Once again a full discussion of

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[7]   Further examples can be found in the first volume of *Codicology and Palaeography in the Digital Age* (KPDZ 1), particularly the contribution by Kamp and by Cartelli and Palma.

these is beyond the scope of this chapter, and so two of them will now be discussed in some depth.

4.1. Codicology and the Materiality of the Book

One relatively obvious limit to computer-aided teaching is codicology and what has been termed "phenomenology" or the "materiality of the book". Focussing on images reduces or removes other aspects of manuscript studies, including not only practical concerns such as how to prepare quire-diagrams and how to handle original artefacts safely, but also phenomenological issues such as their physical size and weight, or indeed how they feel, sound and smell. These last aspects are often ignored by scholars as well as students, but their importance has been stressed by some, and it has also been argued that, in the Middle Ages, the physical feel of a manuscript is almost as important as its appearance – that touch was close in significance to sight – and that digitisation increases further the modern privileging of sight over all other forms of acquiring knowledge (Treharne). Sight as the highest sense is clearly not a modern development, as it dates to Aristotle if not earlier, and we will never be able to reproduce the complete experience of a medieval reader, but it does remain that digital images present only the visual aspect of a manuscript, without giving much or any sense of its size and weight and often minimal sense of its format. However, size, weight and format are important parts of a manuscript, and even more so of a roll. The size of a manuscript tells us much about its function and status: a pocket-gospel was probably made for personal use, whereas a large-format bible may be an assertion of wealth and power. The enormous size and weight of a pipe roll is almost impossible to convey in digital format, but its size is also perhaps an assertion of authority and certainly tells us something about how the roll could and could not have been used. This author is probably not alone in badly underestimating the difficulty in handling a roll of this size, and therefore the significant amount of time required to check even one small detail in it.

These issues are well known, and are also becoming increasingly difficult to teach as libraries restrict access to their materials and are being squeezed more and more by funding cuts.[8] A certain amount of this can be overcome by careful use of images and video, as demonstrated by Bernard Muir's *Making of a Medieval Manuscript* (2007; Muir 2009 142): pedagogical aids such as this convey the structure and process of book-production perhaps even more effectively than a complete manuscript can, although this is only one part of codicological training. A good deal can be achieved with mockups, too, and this has been used in both the Cambridge undergraduate and MMSDA courses

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[8]   As just one example of this, until recently conservationists at the British Library would train groups of students in the proper handling of books and rolls, but it has now become extremely difficult to arrange such sessions due to organisational and funding changes within the library.

with model books that have been produced by the Cambridge Conservation Consortium. Nevertheless, in this author's experience, libraries are still generally open to hosting groups of students if given appropriate warning and compliance with library procedures, and many universities also hold collections of fragments and manuscripts which can be used for teaching. Both the post-graduate MMSDA and the undergraduate course in Cambridge involve library visits, and almost all libraries have agreed to these without hesitation.[9] Even if manuscript collections of the size and quality of Cambridge and London are not available, much can still be done with a little thought. Many universities have teaching collections of cheap manuscripts or manuscript fragments, and such a collection can be compiled very easily and with minimal budget even just by using eBay. Students can be asked to create mockups of manuscripts based on quire diagrams, or asked to think about the phenomenology of their own books: how is a paperback novel different from a glossy hard-cover coffee-table book, for example. Images projected during lectures can (and should) be accompanied by an indication from the lecturer of the approximate size and weight of the manuscript, and students should always be reminded to ask themselves if they know these details when they look at photographs or digital images. Such reminders and other indicators could conceivably be put into online teaching, but it remains that existing digital approaches are unable to deal with this satisfactorily.

4.2. The Problem of Transcription

One of the basic teaching outcomes in palaeography is transcription: that is, students should acquire the skill of reading and accurately transcribing original manuscripts, usually in a range of different scripts. This, like all other skills, is something that requires practice: I would argue that it can be taught, certainly, and that it does require guidance, but also that it requires each student to devote a relatively large amount of time in front of manuscripts or facsimiles gaining "hands-on" experience. As pressure on teaching increases, with larger classes and reduced time for teaching, it has become increasingly difficult to provide students with the time and attention that is necessary.[10] The only way of maintaining the necessary skills is to require students to work more on their own, completing exercises in their own time which the instructor must then try to correct and give feedback on as best he or she can. The natural question thus arises

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[9] The MMSDA course involves visits to Corpus Christi College, Trinity College, and St John's College libraries in Cambridge; and Lambeth Palace, the Wellcome Institute, and the University of London Senate House libraries in London. The Cambridge undergraduate course has involved visits to the Cambridge University Library, Corpus Christi College, Cambridge, and the conservation rooms at the British Library.

[10] To cite this author's experience, when he began teaching undergraduate students he was allocated five hours a week for sixteen weeks a year for discussion classes, one of which was dedicated to transcription. This has now been reduced to one hour a week for four weeks a year, with no time dedicated to transcription per se. Compare also the same trend observed by Ganz (1997).

whether digital methods can be used to supplement traditional classroom teaching and to make this process easier and less time-consuming.

To this end, and also for the benefit of those who do not have access to a formal course and wish to teach themselves, a relatively large number of online exercises has emerged (Vorholt *et al.*). In general these tend not to consider the dating or localisation of manuscripts much, if at all, although there are some exceptions: perhaps this is because people tend to accept James' principles that these skills cannot be taught, or perhaps the feeling is rather that they require the direct assistance of an instructor. What online courses very often do offer is exercises in transcription. In principle this is a valuable and logical approach. Facsimiles of manuscripts can be presented on the screen, students can enter their transcriptions, receiving a range of different types of help if required, and they can be given immediate feedback. Errors in transcription can be highlighted immediately, students can learn from their mistakes, and so they can build up the necessary skills in their own time, thereby supplementing classroom instruction and allowing the instructor to focus on particular areas where the students are having the most trouble.

This, at any rate, is the ideal, but it has a flaw in the very principle of its construction. The model usually assumes that every facsimile has one and only one correct transcription: the instructor, or the person who develops the teaching module, enters this one transcription, and all students' responses are checked against that one; any deviation from this is automatically marked incorrect. This model, then, assumes that transcription is entirely objective and therefore invariant for different transcribers. In practice, however, as has been repeatedly shown, transcription is not objective but requires interpretation, and there is often more than one possible reading for any given passage (Parkes xxix–xxx; *Computers and Old English Concordances* 88; Page 79; Robinson and Solopova 19; Robinson 43–44; Walsh; Pierazzo). Granted the extent of this interpretation varies: one can easily find many set scripts for which complete agreement on the readings can easily be achieved. However, as the level of cursiveness increases, or as the minims become more indistinguishable; as the level of abbreviation increases, and as scribes use more and more individual features, so the degree of ambiguity increases, and so the number of possible readings increases with it. Some of these possibilities will be eliminated by the principles of transcription which the students should have been given in advance—for example, whether or not to expand abbreviations, how to treat **u**/**v** and **i**/**j**, and so on—but even the most detailed guidelines cannot encompass all possibilities. These ambiguities in manuscript readings may also be irrelevant if one is editing a work, since the grammar may demand only one of the possible forms, and part of the editor's responsibility is to resolve these ambiguities according to the editorial principles and requirements of the edition. However, it may not be reasonable or even possible for a student to determine which of the various transcriptions is required by the sense. Besides, students are repeatedly told that the goal of transcription is to

reproduce what the scribe wrote, not what the sense requires: by definition, a diplomatic transcription must reproduce all scribal errors. When Malcolm Parkes (xxix–xxx) has noted that he cannot resolve the ambiguities between otiose strokes and abbreviation strokes in fifteenth century cursive, how can we expect the student to guess which reading the computer demands? In some online transcription exercises, the students are not even given any context, but are simply presented with the image of a single word, sometimes in a very cursive script with many possible readings. In a classroom, this is not a significant difficulty, since the instructor can adapt accordingly, perhaps explaining that the student's response is perfectly reasonable, and perhaps correct, but that the context makes an alternative answer more likely. However, with the online teaching that this author has seen, students are simply told that they are wrong.[11] In some cases the students are given no constructive feedback at all, but simply left to guess why they were wrong: this could be due to genuinely misreading a word, but it may also be rather because of a different interpretation of an ambiguous reading. Telling students that they are simply "wrong" is often counterproductive at best, and doing so without any explanation of why they were wrong or how to improve can be outright destructive. In the case of online teaching, the most likely result is for students to become discouraged and give up.

How are we to resolve this difficulty? One possibility is to present students with model transcriptions and ask them to correct their own work; this is already followed in most online courses,[12] but there are disadvantages with such an approach. First, it depends on the students taking the time and care to correct their work accurately. It also limits the amount they can learn from the exercise, since they lack the feedback of an instructor who may be able to recognise patterns in the students' errors and suggest ways of improving. It also fails to address the issue of variant answers, since the students will again only have access to one possible "correct" answer and may not be able to recognise that some errors are more venial than others, so to speak. A third possibility is for the instructors to correct the transcriptions by hand: this again has been followed in practice (Twycross 279–80; Muir 142; Gillespie; see above) and is probably the best in pedagogical terms, but it requires a significant investment from the instructors which they may not be in a position to make. A fourth possibility is to think more widely in the way we design our online transcription exercises, and in particular to look at teaching in other, related subject-areas. In general, the model for palaeography, implied but rarely made explicit, is that of foreign languages: just as languages require regular practice with a trained instructor, so do palaeographical skills, and just as machines have long been used to assist in the teaching of languages, so technology has been used to supplement palaeographical teaching, first with photography and now with

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[11] Examples include Burghart; TNA "The Ducking Stool Game"; *Medieval Palaeography*; and Tillotson.
[12] Examples are Paläographie Online; Toureille; De Brún; EHOC; Scriptorium; TNA (except for the "Ducking Stool Game"; Muir 2009 141–2; Kamp 115–6.

interactive learning environments. But one would not normally type a translation of a text into a field and expect the computer to correct it. Instead, language software provides a wide range of alternative methods, most of which are more or less variations on multiple choice. So why should we expect transcription to be any different?

5. Final Remarks

This discussion has given some suggestions as to how palaeography and manuscript studies can be taught in the so-called "digital age", as well as some limitations in the same. These limitations are significant and are not to be dismissed lightly; it is also not obvious how they can be overcome at least in the short term, and this is one of several reasons why digital technology should only ever supplement rather than replace teaching with a live human instructor. Nevertheless, the advantages which arise from supplementing teaching in this way are significant and should not be passed over, either through fear of the limitations or perceived lack of technical ability. Some of the suggestions given here do require some skill in computing but this is reducing rapidly as more and more tools and resources become available. The teaching of palaeography has long been a somewhat marginal and threatened activity (Lowe 580; Brown 378; Ganz 1990 and 1997), and this is particularly evident at the time of writing when the Chair of Palaeography at King's College London has just been closed down, and the prospect looms of *all* government funding being cut for the teaching of Humanities subjects in UK universities.[13] Nevertheless, student interest in the field remains high, as demonstrated by enrolment levels in the courses described here, and it is perhaps easier now than it has ever been before to attract students, since even universities without significant manuscript holdings can use the wealth of online resources: students can be tempted by the prospect of leafing through online facsimiles of the Lindisfarne Gospels, the Sherborne Missal, the Sforza Hours, or the Baybars' Qur'an, to list just some offerings from just one freely accessible resource (*Turning the Pages*). In addition, however, it must be remembered that the digital is now part of humanities scholarship: it is no longer an adjunct field but is an integral part of it. Both palaeography and digital humanities have fought for recognition as valid fields of research rather than "mere" *Hilfswissenschaften* (Brown 361; Ganz 1990 17 and 1997 4; IATH; Terras 2010a), and neither should be taught without due recognition of the other. Students of medieval studies, particularly post-graduate students looking towards post-doctoral and academic careers, need a thorough grounding in the theory and practice both of digital humanities and of manuscript studies. Indeed very many post-doctoral positions being advertised

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[13] Discussion of this is far too voluminous to cite in full. Perhaps the highest-profile responses to the closure of the chair are Beard 2010, CIPL 2010, and Morgan 2010; see also Palaeography Working Group 2010. For the cuts to education in the Humanities, and the implications for Digital Humanities in particular, see especially Prescott 2010 and Terras 2010b.

at the time of writing require or prefer skills and experience in both areas, skills and experience which most post-graduate training does not provide. This is the rational for MMSDA, both theoretical and practical, and the response seems to demonstrate that it is well founded.[14]

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