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**Adhesive use in textile conservation:  
an update on recent developments and current practice**

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## **Abstract**

Despite infrequent use in general practice, adhesive treatments have been a topic of great debate and study throughout the history of textile conservation. From the 1950s through the end of the 20<sup>th</sup> century, the re-evaluation of the use of adhesives produced a strong negative reaction from the profession at large until scientific study, availability of more appropriate materials, and refinements of techniques led to a more informed debate and greater comfort in their use. In 1997, a seminal study by Hillyer et al. on attitudes toward adhesives and their use in practice produced quantifiable data and overall interpretation of the observed changes. This paper reports on a project that aimed to confirm and update the 1997 results using similar methods of review and analysis of available literature as well as an international survey and supporting targeted interviews. This study updated the raw data on adhesives and application techniques in recent and current practice, confirmed a continuing increase in acceptance of the use of adhesives as a valid treatment option in the support of textiles, and used those results to identify and suggest manners in which the practice of adhesive use and conservator's confidence in it may be further advanced.

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## **List of Abbreviations**

<b>AIC</b>	American Institute for the Conservation of Historic and Artistic Works
<b>CAC-ACCR</b>	Canadian Association for Conservation of Cultural Property
<b>CCI</b>	Canadian Conservation Institute
<b>CTC</b>	Centre for Textile Conservation (Part of the CTCTAH - Centre for Textile Conservation and Technical Art History)
<b>CTN</b>	Canadian Textile Newsletter
<b>ICOM-CC</b>	International Council of Museums, Committee for Conservation
<b>Icon</b>	Institute of Conservation, UK (TG – Textile Group)
<b>IIC</b>	International Institute for Conservation of Historic and Artistic Works
<b>JAIC</b>	Journal of the American Institute for the Conservation of Historic and Artistic Works
<b>TCC</b>	Textile Conservation Centre (forebear to the CTC)
<b>TCN</b>	Textile Conservation Newsletter
<b>UKIC</b>	United Kingdom Institute for the Conservation of Historic and Artistic Works (TS – Textile Section)
<b>V&amp;A</b>	Victoria and Albert Museum

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## 1. Introduction

### 1.1. Introduction

Adhesives entered the field of textile conservation with a bang in the 1950s and their use was a highly contentious topic for decades afterward. Though this contention is alluded to in almost every article on adhesive use, the actual arguments are outlined less frequently. In 1997, a highly influential study “Evaluating the Use of Adhesives in Textile Conservation: Part 1 - An Overview and Survey of Current Use” was published by Lynda Hillyer, Zenzie Tinker, and Poppy Singer which examined contemporary practices and attitudes towards the use of adhesives. The study showed the issues uppermost in conservators’ minds were those of reversibility, long term performance of synthetic polymers, and the compatibility of modern synthetic materials with degraded fibres.<sup>1</sup>

In my initial research into this topic, I found this unease, controversy, and rapid development echoed across many sources in the decades leading up to the end of the twentieth century, but the publications drop off after this period. In 2010, Hillyer explained this drop in publications and studies by asserting that the subject had plateaued due to a drop in the frequency of adhesive treatments, a resolution of the controversy surrounding adhesives, and the establishment of suitable technical application methods.<sup>2</sup> Taking into account the acknowledged continuing rapidity of developments in materials and continued reviewing of the topic of adhesives over the last twenty years, I wanted to ascertain whether the profession had truly reached a comfortable understanding of adhesives and settled them into place in the conservation toolbox to be used confidently via established techniques when appropriate.

While the rapid advances in materials and application techniques resolved many issues and the furious debate settled down in time for the turn of the century, a slower but nonetheless important stream of studies and findings on adhesive properties, ageing behaviours, and the influence of application techniques continued. This study aims to ascertain if confidence in practice has shown a corresponding increase, or if the plateau Hillyer describes is still in effect. As the use of adhesives has been identified as practice based principally on practical experience, the aim is also to identify the types of resources

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<sup>1</sup> Lynda Hillyer, Zenzie Tinker, and Poppy Singer, "Evaluating the Use of Adhesives in Textile Conservation. Part 1: An Overview and Survey of Current Use," *The Conservator* 21 (1997): 37.

<sup>2</sup> Lynda Hillyer, “Advances in adhesive techniques – the conservation of two Coptic tunics at the Victoria and Albert Museum,” in *Textile Conservation: Advances in Practice*, ed. Frances Lennard and Patricia Ewer (Kidlington: Butterworth-Heinemann, 2010), 186.

most helpful for conservators considering adhesive treatments, both extant or in need of creation.

## **1.2. Research questions**

1. How do academic resources reflect the changes in professional practice and attitudes towards adhesives in textile conservation in the last two decades?
2. Does the 1997 study need verification, supplementation, or correction?
3. Can further resources be identified that would aid textile conservators in building their experiential confidence with adhesives?

## **1.3. Research aims:**

- Discover the breadth of information and sources available
- Identify themes in attitudes toward the use of adhesives in textile conservation in existing research
- Determine the adhesives and techniques for their application that are currently in use
- Identify the changes that have taken place in professional practice
- Identify sources of information that ensure continued advancement in theory and practice of adhesive use

## **1.4. Objectives**

- Carry out a literature review to identify key sources of information
- Analyse themes in the literature review to identify key concerns and possible supplementary sources
- Send out an international questionnaire to practicing conservators designed to be comparable with the results from Hillyer et al. (1997)
- Perform targeted interviews with professionals who are representative of key groups in this field to supplement the questionnaire

- Synthesise the available and new information in order to draw conclusions

## **1.5. Research Methodology**

### **1.5.1. Analysis of the available sources**

Part 1 of the main text will examine sources identified by the literature review that became available after Hillyer et al. (1997), as well as those still considered the most valuable works available if published earlier. This study will incorporate sources outside the most traditional peer-reviewed articles and books, widening to include other sources one might consult, such as workshops, online blogs and other related sources. The aim of the section is to analyse how conservators present and interpret data on adhesives, identifying inconsistencies that may diminish the impact of the body of literature as a whole.

### **1.5.2. Questionnaire and interviews**

Part 2 will outline original research in the form of a questionnaire sent out to survey practicing conservators on their use of adhesives on textiles in the past twenty years and provide a snapshot of current practice and attitudes. The questionnaire will be formatted to create comparable results with Hillyer et al. (1997), though additions will be made to reflect the findings of the analysis of the literature. Supplementary targeted interviews will be carried out to expand on the findings of the questionnaire and literature review.

In comparing these two sets of extant and original data, gaps in the resources available to textile conservators will be identified and potential suggestions for their remedying offered.

## **1.6. Defining adhesives**

Treatments involved in textile production and finishing sometimes use the same materials that are put to adhesive use, such as starches or PVAs used for sizing yarn and fabric. These same materials, as well as animal and fish glues, are often original materials in composite objects. The materials can also be present as soiling in previous domestic or professional repairs. In context of this study, “adhesive” will refer to the material used by a

conservator for object treatment, and if adhesives are present or discussed for another reason, they will be so noted.

In order to further limit the scope of this study to a manageable level in the timeframe allowed, some restrictions needed to be in place on the definition of adhesives even in conservation use. The focus will be on adhesives rather than consolidants as the latter are more frequently used on materials such as painted surfaces or archaeological materials, and while these categories frequently overlap with the purview of the textile conservator, they are equally the purview of other specialists whose input would often be necessary. Additionally, conservators often make use of adhesives in mounts and storage materials, causing them to be in association with artefacts but not acting upon them. Therefore, for simplicity and brevity's sakes, an "adhesive" in the context of this study is a material used in a conservation treatment for its adhesion properties between an artefact textile and a support or adjacent material, rather than one that penetrates the artefact textile fibres in order to consolidate, or one that is simply in proximity to the object.

### **1.7. Defining textile conservation**

As an adhesive generally works best when it shares as many properties as possible with the materials to be adhered, textiles pose a particular challenge in their multiplicity, as described most effectively and succinctly by Ewer and Lennard in *Textile Conservation: Advances in Practice*:

The textile conservator engages with a huge variety of materials and techniques on a daily basis. Textiles come in an enormous variety of forms: they can be woven, knotted, or felted; they can be flat or three-dimensional; flexible or stretched; dyed, printed, painted or embroidered; old or new. They come in conjunction with a wide range of other materials: metal threads, plastic buttons, feathers, leather, paper, to mention a few. This demands a range of knowledge and understanding on the part of textile conservators, made even more challenging by the growth of collections containing modern materials. Textiles are also easily damaged; treatments are often restricted by technical limitations such as risks of dye bleeding or shrinkage during cleaning. This diversity makes the textile conservator's job particularly challenging but also rewarding.<sup>3</sup>

This variety is exponentially increased when combined with the ever-increasing diversity of materials available for use as adhesives, and again with the addition of the techniques for

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<sup>3</sup> Frances Lennard and Patricia Ewer, "Remedial conservation," in *Textile Conservation: Advances in Practice*, eds. Frances Lennard and Patricia Ewer (Kidlington: Butterworth-Heinemann, 2010),141.

their use. With these seemingly infinite possibilities taken into account, it is easy to imagine why the practice of adhesive use in textile conservation is sometimes viewed with trepidation.

### **1.8. The history of adhesives in textile conservation**

As the nature of most textiles is not obviously aligned with that of adhesives and there were no longstanding traditions of the practice (if compared with techniques involving stitching, which has been called “more natural to a textile”),<sup>4</sup> textiles were some of the later heritage objects to be treated with adhesives. Other materials were being treated and preserved with natural adhesives for centuries, and the first synthetic adhesives for conservation were developed and used in the late 19<sup>th</sup> century, continuing in refinement into the mid 20<sup>th</sup> century.<sup>5</sup> Beginning in the late 1800s, a practice was established to preserve Coptic fragments, flags, and banners by gluing them on or between textile supports with natural adhesive to preserve them.<sup>6</sup> This period may well be defined better as one in which restorers were undertaking work on objects still primarily concerned with their appearance and often function,<sup>7</sup> as conservation as a profession is widely recognised as beginning in the 1920s.<sup>8</sup> Textile conservation itself was established later in the 1960s.<sup>9</sup>

It is commonly agreed that the use of adhesives were first introduced to textile preservation in the mid-1900s: as “adhesives have long been used to attach textiles to rigid supports, their use as conservation and preservation tools have been common from the 1950s onwards.”<sup>10</sup> However, these early adhesive treatments on textiles were often applied wet, either directly to the object or to the support onto which the object was laid. The adhesive would therefore penetrate nearby fibres to varying degrees, making it very difficult if not impossible to fully remove. Additionally, ageing properties of synthetic adhesives (or resins,

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<sup>4</sup> Johan Lodewijks and Jentina E. Leene, “Restoration and Conservation,” in *Textile Conservation*, ed. Janita E. Leene (London: the Butterworth Group, 1972), 151.

<sup>5</sup> Velson Horie, *Materials for Conservation: Organic Consolidants, Adhesives and Coatings*, 2nd ed., (Oxford: Routledge, 2010), 8-10.

<sup>6</sup> Lodewijks and Leene, “Restoration and Conservation,” 144.

<sup>7</sup> Foekje Boersma, *Unravelling Textiles: A Handbook for the Preservation of Textile Collections*, (London: Archetype, 2000), 131-32.

<sup>8</sup> Mary Brooks and Dinah Eastop, “Foreword,” in *Changing Views of Textile Conservation*, eds. Mary Brooks and Dinah Eastop (Los Angeles: The Getty Conservation Institute, 2011), xiv.

<sup>9</sup> *Ibid.*

<sup>10</sup> Ágnes Tímar-Balázsy and Dinah Eastop, *Chemical Principles of Textile Conservation*, (Oxford: Butterworth-Heinemann, 1998), 304.

as they were termed at the time) were not well known and usually cross-linked after a number of years, compounding the issue of reversibility and leading them to be considered inappropriate by conservation standards for this as well as additional reasons we may find familiar even now: a lack of experience in proper application as well as a lack of awareness of the specific demands of the field of textile conservation on the part of the scientific researchers.<sup>11</sup>

So why the notable influx of adhesive use in the 1950s and 1960s? One factor is the development of the newly defined field of textile conservation, where “the race to distance conservation from restoration became a strong characteristic of our field from the 1960s to the mid-1980s,”<sup>12</sup> and may have contributed to the eager use of modern materials. General fascination with these materials, especially synthetics, and the use of new technologies brought about rapid developments in materials during this period, and influence from other conservation fields probably had osmotic effects.<sup>13</sup> In at least one instance, the direct involvement of commercial manufacturers was noted: “In 1953, the Dutch Shell Oil Company offered a considerable amount of money to the Department of Fibre Technology and Textile Technique at the Technical University of Delft [...] to do research on the use of synthetic adhesives for the conservation of flags and banners.”<sup>14</sup> Painted textiles are widely acknowledged as prime candidates for adhesive support, as the damage created by stitching through the painted areas is often unacceptable.

The continued use of wet application techniques, especially those involving rigid supports, in the mid-1900s may be in part responsible for the violent controversy that surrounded adhesives in the field of textile conservation, as when papers on similar techniques involving gluing the textile to glass or Perspex were presented at international conferences in 1963 and 1965, one of the tamest descriptions of the outcomes was “heated discussions.”<sup>15</sup> The realistically irreversible nature of such treatments and the loss of the

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<sup>11</sup> Lodewijks and Leene, “Restoration and Conservation,” 144.

<sup>12</sup> Patsy Orlofsky and Deborah Lee Trupin, “The Role of Connoisseurship in Determining the Textile Conservator’s Treatment Options,” in *Changing Views of Textile Conservation*, eds. Mary Brooks and Dinah Eastop (Los Angeles: The Getty Conservation Institute, 2011), 273.

<sup>13</sup> Mary Brooks and Dinah Eastop, “Part II: Debates in Pioneering Practice,” in *Changing Views of Textile Conservation*, eds. Mary Brooks and Dinah Eastop (Los Angeles: The Getty Conservation Institute, 2011), 127.

<sup>14</sup> Suzanna Linda Meijer, “Waking the Dead: The Resurrection of a Tablecloth,” (conference paper, CCI Symposium 2011, Adhesives and Consolidants for Conservation: Research and Applications, Paper 24, Ottawa, 2011), 3.

<sup>15</sup> Suzan Meijer, “Bonding issues? Adhesive treatments past and present in the Rijksmuseum,” (conference paper, ICOM-CC 17<sup>th</sup> Triennial Conference, Melbourne, 2014), 1.

flexibility and tactile qualities that often define textiles led many to regard adhesive treatments as unacceptable, or at most, a last resort. The treatments were not carried out with ignorance of their consequences, however, and a handbook of the period, Leene's *Textile Conservation* (1970), outlines the rationale of the time: "The glueing [sic] methods are meant as alternatives only to be applied in those cases where objects of no great historical or art-historical value are concerned, or where the textile material is already disintegrated in such a way that conservation by sewing is no longer feasible."<sup>16</sup>

During the 1960s, there was a reported increase in collaboration with specialists in the field of museum textile objects which led to an increase in satisfactory materials.<sup>17</sup> This period saw the development of the most common technique used today: the adhesive is applied wet to a support fabric, allowed to dry, then positioned on the object to be supported and reactivated with heat, pressure, and more recently, solvents.<sup>18</sup> Very little contemporary published work outlining such adhesive treatments carried out can be found, and conservation documentation was often minimal, if present at all.<sup>19</sup> Discussion and debates truly peaked once these early treatments were revisited in later decades. Therefore, despite a great deal of discussion evidenced by dedicated conferences such as the 1984 Adhesives and Consolidants Congress and development in materials and scientific studies that provided data on the working and ageing properties of adhesives, "the early debates on the use of adhesives in the 1960s-1980s demonstrated a polarization of views between those in favour of modern, 'scientific' techniques and those who remained resolutely opposed to them. The legacy was a widespread unfamiliarity with the theory and practice of adhesive treatments."<sup>20</sup> In 1985, two more books on the care of textiles were published by well-known textile conservators: Karen Finch and Greta Putnam's *The Care and Preservation of Textiles* and Sheila Landi's *The Textile Conservator's Manual*, and it is interesting to note that while the former does not even mention adhesive treatments, the latter is even now the most comprehensive guide to adhesive application techniques available (though somewhat outdated). The intended audience of Finch and Putnam's work was heritage professionals in general, and stipulations are made that a specialist in textile conservation should be consulted for complicated issues,

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<sup>16</sup> Lodewijks and Leene, "Restoration and Conservation," 174.

<sup>17</sup> *Ibid.*, 146.

<sup>18</sup> Timar-Balázs and Eastop, *Chemical Principles*, 304; Hillyer, "Evaluating the Use of Adhesives," 37-47; Boris Pretzel, "Evaluating the Use of Adhesives in Textile Conservation. Part 2 - Tests and Evaluation Matrix," *The Conservator* 21 (1997): 49.

<sup>19</sup> Frances Hartog and Zenzie Tinker, "Sticky dresses – The re-conservation of three early 19<sup>th</sup> century dresses." In *Adhesive Treatments Revisited*, ed. Jane Lewis (London: UKIC, 1997), 12-26.

<sup>20</sup> Lennard, "Remedial conservation," 145.

so this may offer some explanation;<sup>21</sup> however, the book contains detailed instructions on stitching techniques, which makes the omission appear quite deliberate.<sup>22</sup> Landi's work, by contrast, is extensive in its discussion of appropriate uses of adhesives and provides instructions for when they are chosen.<sup>23</sup>

The 1990s saw an increase in appropriate adhesives for conservation as well as greater understanding of adhesive application techniques and skills that proved to be just as important as the choice of adhesive itself.<sup>24</sup> There came a flurry of publications, conferences, and more informal discussions on various treatments, case studies, and research projects which evidenced a softening of negative attitudes toward adhesives. At the 1997 UKIC Textile Section forum *Adhesive Treatments Revisited*, many people, along with speaking on reversals of treatments, "acknowledged the success of the previous treatments in preserving textiles which would otherwise have been lost."<sup>25</sup> The same year, Hillyer et al. published the article key to this research: the results of two surveys on adhesive use that encapsulated both the settling of adhesive use into a more informed practice as well as continued discomfort surrounding lack of information.<sup>26</sup>

For the first decade of the 21<sup>st</sup> century, the debate surrounding adhesives diminished and publications became more sporadic. However, in 2011, the CCI held a Symposium entitled *Adhesives and Consolidants for Conservation*, at which the many papers, posters, and demonstrations confirmed the profession at large still had great interest in the discussion and study of adhesives. Around the same time, two compilation works specific to textile conservation were published which each featured a significant number of articles and case studies in which adhesives were discussed.<sup>27</sup> Then in 2015, the *Adhesive Compendium for Conservation* was published, a textbook on adhesive properties with chapters on specific considerations for different artefact material categories in separate chapters. Alongside these adhesive-specific events and publications, it is notable that a high number of presentations

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<sup>21</sup> Karen Finch and Greta Putnam, *The Care and Preservation of Textiles* (London: B. T. Batsford Ltd., 1985), 9.

<sup>22</sup> *Ibid.*, 91-123.

<sup>23</sup> Sheila Landi, *The Textile Conservator's Manual* (Oxford: Butterworth-Heinemann, 1985).

<sup>24</sup> Lennard and Ewer, "Remedial conservation," 145; Jane Down, Maureen MacDonald, Jean Tétreault and R. Scott Williams, "Adhesive Testing at the Canadian Conservation Institute: An Evaluation of Selected Poly(Vinyl Acetate) and Acrylic Adhesives," *Studies in Conservation* 41, no. 1 (1996), 19-44.

<sup>25</sup> Lennard and Ewer, "Remedial conservation," 145.

<sup>26</sup> Hillyer et al., "Evaluating the Use of Adhesives," 37-47.

<sup>27</sup> Mary M. Brooks and Dinah D. Eastop, eds., *Changing Views of Textile Conservation*, (Los Angeles: The Getty Conservation Institute, 2011); Frances Lennard and Patricia Ewer, eds., *Textile Conservation: Advances in Practice*, (Kidlington: Butterworth-Heinemann, 2010).



about adhesives (and often adhesives on textiles) have been made at all major conservation conferences and textile specialist meetings in the last decade. Interest in adhesives appears to be trending again, and the time seemed ripe for another survey on common practice and attitudes toward adhesive use.

### 1.9. Key sources for current practice

When considering an adhesive treatment, *Chemical Principles of Textile Conservation* is the first to be consulted for many textile conservation queries, as it is both all-encompassing and minutely detailed. Published one year after Hillyer et al., its discussion of adhesives is excellent, covering their possible association with textile objects, basic history, chemical and working properties of a good adhesive, conditions for best use, ageing behaviours, and solubility parameters for removal. The information is clearly presented and easy to find, with varying levels of technical detail on each topic, often supported by helpful tables and graphics. There are also a number of case studies, in which adhesives figure prominently, that support the factual information of the main text. The work, however, lacks practical information on carrying out adhesive treatments beyond a short description of the most common method of application.<sup>28</sup> As the work's title suggests, practical methodologies are somewhat justifiably outside its purview, but while the book is still relevant and scientifically significant, it shows its age by not identifying the role played by treatment design combined with the experience and skill of the conservator in ensuring best results.

More recent works similar in scientific focus are Horie's *Materials for Conservation*<sup>29</sup> and Down's *Adhesive Compendium for Conservation*.<sup>30</sup> Horie's book is organised by adhesive types and is highly scientifically and historically detailed. The information is similar to the third book in the *Science for Conservators* series, *Adhesives and Coatings*,<sup>31</sup> in which adhesive types are discussed in more depth and more accessible language through chapters organised by properties. Horie is more up-to-date on specific adhesives and provides a useful starting point that provides basic polymer properties as well as references to significant case studies and articles on each adhesive type's use on specific

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<sup>28</sup> Tímar-Balázsy and Eastop, *Chemical Principles*, 304.

<sup>29</sup> Velson Horie, *Materials for Conservation*.

<sup>30</sup> Jane Down, *Adhesive Compendium for Conservation* (Ottawa: Canadian Conservation Institute, 2015).

<sup>31</sup> Helen Wicks ed., *Science for Conservators: Adhesives and Coatings* (Abingdon: Routledge, 1992).

artefact materials. The broad scope of the book means that the information is likely the most useful when an adhesive has already been identified in a past treatment, or when the conservator has a longer period in which to carry out research. Horie is emphatic in his calls for greater transparency in both the methods and materials used in conservation, but is much more focussed on the scientific recording of the latter. The wide-reaching facts-based approach may be helpful for choosing the adhesive itself, but not designing the treatment as a whole.

Down's similar scientifically focussed reference work on adhesives by class and properties where each section includes a heading "Characteristics, limitations, and/or ageing studies" both general and when available, as pertains to particular heritage materials. It strikes a better balance between science and practice, however, by including a compilation of chapters on different disciplines written by experts in their fields.<sup>32</sup> The textile section, written by Irene Karsten, opens with the assertion that "achieving an adhesive bond that will effectively support a textile is not due to adhesive choice alone. [...] successful adhesive treatments depend on technical skill and judgement that can only be gained by experience."<sup>33</sup> Nevertheless, the remainder of the section provides valuable, accessible information on the interaction of the object, adhesive, and treatment design in creating successful textile stabilization, largely based on the author's previous graduate and continuing research.<sup>34</sup> With the addition of this section outlining the importance of treatment design, the book is possibly the most valuable resource on adhesives for textile conservation, and provides a starting point for the considerations necessary when treating many different classes of objects. In addressing the importance of the treatment design and experienced skill of the conservator, this work exemplifies the shift in conservation research from the chemistry-based to the physics-based, such as stress/strain relationships, gravity and friction, so much more influenced by the physical manner in which a treatment is carried out.<sup>35</sup>

Details on the interaction of aspects of treatment design and execution are most comprehensive in Karsten's other collaborative works, which are especially rich in graphics

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<sup>32</sup> Down, *Adhesive Compendium*.

<sup>33</sup> Irene Karsten, and Jan Vuori, "Textiles," In *Adhesive Compendium for Conservation*, Jane Down, ed. (Ottawa: Canadian Conservation Institute, 2015), 149.

<sup>34</sup> Irene Karsten, "The Light Stability of Silk Adhered to Sheer Silk and Polyester Backing Fabrics with Poly(vinyl acetate) Copolymer Adhesives" (MA Thesis, University of Alberta, 1998); Irene Karsten, "Factors Affecting the Bond Strength of Textile Artefact/Adhesive/Support Fabric Laminates" (PhD Thesis, University of Alberta, 2003).

<sup>35</sup> Frances Lennard and Patricia Ewer, "Scientific developments," in *Textile Conservation: Advances in Practice*, ed. Frances Lennard and Patricia Ewer (Kidlington: Butterworth-Heinemann, 2010), 229.

and images that underpin the research.<sup>36</sup> In fact, the specificity of the titles of these articles almost belie the true range of information given, as they provide some of the best explanations of the effects of the numerous factors effecting adhesive properties in any sources. Karsten and Kerr features a helpful diagram defining the degree of adhesive coating on substrates that is reduced for inclusion in the *Adhesive Compendium*, as well as a diagram of the effect of degree of film coverage and application methods on the adhesive coating.<sup>37</sup> SEM images comparing strengths of adhesives and peeling behaviours of films are also featured, adding a visual impact to points in the text surrounding the relationship between flexibility of an adhesive and cohesive as well as adhesive properties, which effect peeling behaviour and therefore reversibility.

Edited compilation works such as Frances Lennard and Patrica Ewer's *Textile Conservation: Advances in Practice* and Mary Brooks and Dinah Eastop's *Changing Views of Textile Conservation* are excellent resources for further investigation of adhesives in that they provide further detail with specific case studies, reviews of treatments, conservation trends, and targeted research. In these compilations, standalone articles have been singled out as significant or written to address gaps in the conservation literature. In Lennard and Ewer, seven chapters cover context, technical advances, and the future of textile conservation and include relevant case studies. Each of these chapters contain information on adhesives to varying degrees. The chapter on remedial conservation contains a section on adhesives prepared by Hillyer, outlining their history and general principles of use with two case studies previously revisited in an earlier conference paper.<sup>38,39</sup> Hillyer provides updates on the information from the 1997 study and as mentioned above, asserts that the debate has plateaued and conservators are now more comfortable with adhesives. However, in Brooks and Eastop, the coverage of the information on adhesives to such a high degree in a general compilation on textile conservation, wherein the authors sought works that had been "the

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<sup>36</sup> Irene Karsten and Nancy Kerr, "Peel Strength of Silk and Nylon Textiles Adhered to Sheer Support Fabrics," (conference paper, CCI Symposium 2011, Adhesives and Consolidants for Conservation: Research and Applications, Paper 21, Ottawa, 2011); Irene Karsten and Jane Down, "The Effect of Adhesive Concentration, Reactivation Time, and Pressure on the Peel Strength of Heat and Solvent-Activated Lascaux 360/498 HV Bonds to Silk," in *Pre-prints of the ICOM CC 14<sup>th</sup> Triennial The Hague 12-16 September 2005*, (London: James and James Publishers, 2005), 927-35.

<sup>37</sup> Karsten and Kerr, "Peel Strength," 9.

<sup>38</sup> Hillyer, "Advances in adhesive techniques," 181-87.

<sup>39</sup> Lynda Hillyer and Sarah White, "Developments in decision-making – the conservation of two Coptic tunics," in *Adhesive Treatments Revisited*, ed. Jane Lewis (London: UKIC, 1997), 4-11.

most significant to [participants] in their professional lives,” possibly illustrates a more complex continuing dialogue and interest.<sup>40</sup>

*Changing Views of Textile Conservation* is a significant source on adhesives in general and for the present project, not only for containing the Hillyer et al. (1997) study, but for a large number of significant contextual works surrounding adhesives. An article from 1956 describing mounting flags and banners on rigid supports (the controversial technique mentioned above in 4.1), establishes the clear and well-supported rationales used to support the treatments, disproving the notion that the treatments were so very ill-advised.<sup>41</sup> However, the following article is a response to these methods some years later that critiques the treatments in practice for the fact that the adhesive soaks through and both alters the appearance of weave structures and stains the fabrics, despite the ideals of the previous article that the treatment should be invisible and not affect the colours of the object.<sup>42,43</sup> Another response follows with refinement of the methods and clarification of the rationales, and the three readings together form a case study of the wider early debates surrounding adhesives and modern materials and methods in general.<sup>44</sup> The editors of the collection specifically aimed to ensure access to “less well-known and ‘gray’ (unpublished) sources” in multiple languages, exemplified by this otherwise difficult to access exchange.<sup>45</sup> Another seminal work included is a 1981 article that aims to create a balanced and objective comparison of the merits and defects of stitched and adhesive support methods.<sup>46</sup> There are also numerous case studies indicative of wider issues that ground the debates and theories in real-world scenarios.

As much of the current study is based on Hillyer et al. (1997), a short overview of the article is necessary as an introduction to the further information provided in later chapters. The article was the culmination of surveys and studies that took place from 1994 to 1997, undertaken at what may be regarded in hindsight as the peak of the furious debate and study

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<sup>40</sup> Brooks and Eastop, “Foreword,” xvi.

<sup>41</sup> R. Sieders, J.W.H. Uytendogaart, and J.E. Leene, “The Restoration and Preservation of Old Fabrics: A New Method of Mounting on a Rigid Backing (1956),” in *Changing Views of Textile Conservation*, eds. Mary Brooks and Dinah Eastop (Los Angeles: The Getty Conservation Institute, 2011), 133-36.

<sup>42</sup> *Ibid.*, 135.

<sup>43</sup> Agnès Geijer, “Dangerous Methods for the Conservation of Textiles,” in *Changing Views of Textile Conservation*, eds. Mary Brooks and Dinah Eastop (Los Angeles: The Getty Conservation Institute, 2011), 143-46.

<sup>44</sup> Agnès Geijer, “Brief reply from Dr. Geijer, Stockholm, 12 June 1961,” in *Changing Views of Textile Conservation*, eds. Mary Brooks and Dinah Eastop (Los Angeles: The Getty Conservation Institute, 2011), 147.

<sup>45</sup> Brooks and Eastop, “Foreword,” xv.

<sup>46</sup> Hanna Jedrzejska, “Problems in the Conservation of Textiles: Needle versus Adhesive (1981),” in *Changing Views of Textile Conservation*, eds. Mary Brooks and Dinah Eastop (Los Angeles: The Getty Conservation Institute, 2011), 148-152.

of adhesives in textile conservation.<sup>47</sup> At this point, so many points of view had been expressed, challenged, and brought to some sort of resolution that gathering real-time data and creating an overview of current attitudes and practice was extremely timely. The study was one half of a project on re-evaluation of adhesive use that also included a long-term testing programme aimed at developing a matrix to aid conservators in their decision-making process when formulating a treatment design.<sup>48</sup> Hillyer et al.'s paper is divided into three sections, "range of materials in current use," "methods of application in current use," and "factors which determine choice." The study includes valuable background information, such as why certain adhesives became popular at certain times.<sup>49</sup> The statistical data on adhesive brands and types as well as application methods will be compared to current findings in detail in the final chapter and therefore will not be described here. One of the most important findings of the study is that refinement in application methods was one of the notable advances in the use of thermoplastic adhesives, and that failures noted in revisited treatments could most often be attributed to "poor methods of application as well as use in inappropriate situations."<sup>50</sup> This conclusion was an influential one, and has been carried forward by works on adhesives to the present day, as we have seen in the description of newer key texts above. An additional finding that served as the spark for the current study was that "the use of adhesives still remains a difficult area in textile conservation and many conservators feel that they do not have enough information on some aspects of their use."<sup>51</sup> The current study sets out to determine if studies and advances of the last twenty years have eased this difficulty, and where work might need to be done.

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<sup>47</sup> Hillyer et al., "Evaluating the use of adhesives," 37.

<sup>48</sup> Pretzel, "Evaluating the use of adhesives," 48-58.

<sup>49</sup> Hillyer, "Evaluating the use of adhesives," 37-39.

<sup>50</sup> *Ibid.*, 39.

<sup>51</sup> *Ibid.*, 37.

## 2. Analysis of the available sources in the study period

### 2.1. Introduction

Though the history of adhesive use as outlined above has been written as factually and objectively as possible, one must apply constant vigilance to prevent oneself from viewing past treatments through the lens of current mind-sets and knowledge, especially in an area like adhesives that has developed in practice so quickly as to have gone through many changes in a very short time. In addition, the introduction of adhesives and the origins of textile conservation as a profession are almost synchronous, and both have developed and changed, ensuring continual re-evaluation of one in the context of the other. By borrowing from another profession, as is common in conservation, we can define this impact of observation on the interpretation of facts as physicists do: the *observer effect*. “For the conservator, the *observer effect* can provide a framework to help acknowledge the impact of subjective observations on the many changes made [to an object] over time.”<sup>52</sup> Whatever ideology is in place at the moment, it is imperative to recognise and interpret each change made to an object within its contemporary context. Fortunately, conservators as a profession are rather self-aware, and recognition of the *observer effect* is included in almost all case studies, often in a variation on the “hope that in another 70 years this [object] is not the subject of a scathing presentation (perhaps holographic instead of PowerPoint) looking back sadly at yet another set of unenlightened choices!”<sup>53</sup>

We are not here to judge treatments by modern standards, but instead analyse the way adhesive treatments were presented and written about to instead formulate manners in which to improve our own practice and documentation for the benefit of future colleagues. It may help us to frame our analysis by viewing the treatments themselves and the context of conservation philosophy in which they were carried out as a parallel or overlapping heritage to that of the object, the preservation and interpretation of whose heritage is our primary concern.

Theory, philosophy, and ethics in conservation have received a great deal more published attention than simple standard practices and procedures, as laid out and evidenced by Muñoz Viñas,<sup>54</sup> Appelbaum,<sup>55</sup> and the opening chapters of most books on conservation.

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<sup>52</sup> Laura Mina, “The observer effect in conservation: changes in perception and treatment of a man’s silk suit c. 1745,” in *Postprints of the AIC Textile Specialty Group 2011* 21, (2011): 20.

<sup>53</sup> Mina, “observer effect,” 26.

<sup>54</sup> Salvador Muñoz Viñas, *Contemporary Theory of Conservation* (Abingdon: Routledge, 2011).

<sup>55</sup> Barbara Appelbaum, *Conservation Treatment Methodology* (London: Routledge, 2007).

Each studio and/or individual will likely have developed their own specific practices and standard approaches to common procedures, such as the variety of adhesives and threads kept on hand, manners of creating mounts, or methods and equipment used to carry out dyeing. These are unlikely to be published or shared widely simply for their mundane nature, unless a procedure is sufficiently ‘revolutionary.’ However, ideology and practice share a reciprocal relationship that often requires a long build-up of potential energy on one side before a change is made to reflect it on the other. Adhesives in conservation form a perfect example of this relationship described in Horie’s keynote speech at the 2011 *Adhesives and Consolidants Symposium*: “Specifically, the downside of a standardised approach being so widely used as to be resistant to change, finally being proven unwise, and the realisation creating a bias in professional attitudes toward related techniques and/or materials.”<sup>56</sup>

With these more philosophical frameworks in place, combining the history of adhesive use in textile conservation with developments of the period under study, the past 20 years, brings about four significant factors in shaping and influencing conservators’ attitudes toward adhesive use: revisiting past practice, documentation, communication, and creation and utilization of new sources to facilitate all of these factors.

## **2.2. Revisiting past practice**

While the re-evaluation of past practice and treatments, especially when the results were detrimental to the object, was largely responsible for creating the snap-back bias against adhesives, judicious application of the above mindsets has been instrumental in creating the more holistic and constructive mindset enjoyed today. Many studies pertaining to adhesives have isolated the adhesive and tested its properties, but to truly understand the outcomes of a treatment, the influence of the interaction between the adhesive, support, and object must be taken into account.<sup>57</sup> “There is now a greater understanding of the properties of materials, both of the original object and of added materials. But there is still a lack of understanding of the resultant properties, chemical and physical, of the treated object. As a result, it is difficult to forecast the outcomes of different proposed treatments.”<sup>58</sup> Seeing what has worked and what has not in real-world scenarios enhances our understanding of this interaction in a way

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<sup>56</sup> Horie, “Does what we want exist?,” 3-4.

<sup>57</sup> Pretzel, “Evaluating the use of adhesives,” 48.

<sup>58</sup> Horie, “Does what we want exist?” 4.

that cannot be shown or recreated in laboratory experiments, which can enhance understanding of elements but not necessarily their long term interaction. Examining the successes and failures of treatments on museum objects “substantiates the notion that there is no ‘standard’ procedure or choice when choosing to apply an adhesive owing to each object’s unique needs.”<sup>59</sup> Therefore, what many case studies illustrate is methodologies of rationalising treatment choices to best mould the treatment to the object’s unique needs.

As a case in point of the importance of re-evaluation in this subject area, in 2011, the CCI held a conference entitled *Adhesives and Consolidants for Conservation: Research and Applications* in which half of the papers presented on textiles were on the interpretation and re-evaluation of past treatments. This was a theme apparent in the other specialties as well, some even outlining institution-wide programmes to ensure practice was kept up-to-date. At the British Library, a study similar to this one was carried out by reviewing literature to gather information on “chemical and physical aspects of adhesives as well as the current trends and thinking in the conservation community,” as well as surveying internally across conservation disciplines to balance those findings against their internal attitudes and practice.<sup>60</sup> While the study found that on the whole, there was “consensus in the conservation community about which adhesives are suitable for conservation,”<sup>61</sup> where animal glues were concerned, trends were noticed that were based on observation and experience “not backed up by empirical testing or research” which the team addressed by designing experiments to provide the missing data. The outcomes of the project were conclusive data based off such trials to address professional concerns, identification of areas in need of further research, the creation of guidelines based on current expertise at the Library, and a three-year rolling programme for testing of new materials within the institution.<sup>62</sup> Furthermore, the study identified a lack of consistent use of adhesives between individuals of the same institution: “however, by asking questions, discussing issues and raising awareness in this way, we believe that the treatment review process can be a valuable tool to influence practice in a positive way; encouraging a consistent approach to treatments.”<sup>63</sup> This type of systematic

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<sup>59</sup> Rosie Nutall, “A Sticky Subject: An Evaluation of Past Adhesive Treatments on 19th Century Costume” (Master’s dissertation, University of Glasgow, 2017), 10.

<sup>60</sup> Ruth Stevens, Paul Garside, and Eleanor Russell, “A Review of Current and Recent Practice in the Use of Adhesives by the Conservation Department at the British Library,” (conference paper, CCI Symposium 2011, *Adhesives and Consolidants for Conservation: Research and Applications*, Paper 3, Ottawa, 2011), 3-5.

<sup>61</sup> *Ibid.*, 1.

<sup>62</sup> *Ibid.*, 8-9.

<sup>63</sup> *Ibid.*, 9.



work in a single institution could serve as a case study for the investigation and revision of practices across the discipline as a whole.

Zenzie Tinker's contribution to the conference was an article that explained the rarity of undertaking initial adhesive treatments in contemporary conservation, and therefore outlined the more common instance of the decision-making process for further conservation of objects with existing adhesive treatments.<sup>64</sup> The article uses the case studies of a Mughal tent hanging and an English bed hanging to illustrate the main points, contrasting the conditions, previous treatments, and current methodology in detailed comparison charts. The bullet-point guidelines for determining when reversing an adhesive treatment reversal is and is not desirable are a crucial addition to the dialogue on adhesives. Tinker concludes that "in the UK, textile conservators have probably learned more about adhesive treatments from studying and revisiting past treatments than from scientific testing programmes, essential though these are to our choice of adhesive when considering a new treatment."<sup>65</sup> The question of adhesive treatment reversal brings philosophies on what constitutes historical or important evidence, especially contrasted with concepts of the 'original state', into the considerations for a holistic approach to treatment design. No one aspect of the adhesive, treatment or object may be viewed in isolation.

Truly embracing the idea of historical context of the treatments carried out, Suzanna Meijer's article on multiple attempts to work with an adhesive support on tapestry-woven table cloths first outlines the history of adhesive use in the Netherlands and utilises that context to objectively evaluate the previous course of treatments and design a current treatment plan.<sup>66</sup> Meijer outlines the rationales, as she understood them, of the original treatments, and concluded that adhesives were chosen as they were viewed as more time and money efficient and that the reversibility of the treatments were not a concern at the time.<sup>67</sup> Attempts in later years to reverse the treatments, likely due in part to the general prejudice against adhesives, did varying levels of damage, and Meijer notes that "the objects would probably have been left the way they were without trying to remove the support nor the adhesive" if the decision were to have been made at the time of the paper.<sup>68</sup> The conference

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<sup>64</sup> Zenzie Tinker, "Pragmatism with past adhesive treatments," (conference paper, CCI Symposium 2011, Adhesives and Consolidants for Conservation: Research and Applications, Paper 26, Ottawa, 2011), 2.

<sup>65</sup> *Ibid.*, 4.

<sup>66</sup> Meijer, "Waking the Dead."

<sup>67</sup> *Ibid.*, 6.

<sup>68</sup> *Ibid.*, 11.

included many similar articles to those mentioned above, and the themes of identifying issues with past practice in order to inform current practice and future research was evident.

In the years since the 2011 conference, case studies involving revisiting adhesive treatments have cropped up in conferences internationally. An excellent example is another article by Meijer in 2014 revisited adhesive treatments across the textile collections at the Rijksmuseum, especially those that had utilised heat reactivation, looking for “persistent stickiness, accumulation of dust and dirt, stiffness, yellowing, malfunctioning of the support, new damage, peeling off and damage caused by storage or exhibition.”<sup>69</sup> Some conclusions were the importance of investigating batches of commercial adhesives, a need for increased questioning of methods used and choices made, and a corresponding need for further discussion amongst conservators.<sup>70</sup>

Only last year at the ICOM-CC 18th Triennial Conference on Objects from Indigenous and World Cultures, Lennard et al.’s paper on revisiting treatments carried out by students of the TCC and CTC on bark cloth artefacts was presented that noted the how trends in conservation are visible when reviewing comparable objects treated at different times.<sup>71</sup> The authors noted that “the systematic re-evaluation of treatments is an underestimated and very valuable tool in developing best practice in conservation.”<sup>72</sup> The assessment of the objects provided an encouraging result: the majority of the adhesive support treatments were largely still stable and successful.<sup>73</sup> While many case studies have concluded with similarly successful treatments, the true value of this type of reflective analysis stems from knowing what exactly was done to create that positive result so it may be repeated.

### 2.3. Documentation

To ensure that mistakes do not recur and that successful treatments can be repeated, thorough documentation must be made at the time of any treatment. Revisiting past adhesive treatments especially illustrates this point as records usually only reflect what was considered

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<sup>69</sup> Suzan Meijer, “Bonding issues?”, 2.

<sup>70</sup> *Ibid.*, 6.

<sup>71</sup> Frances Lennard, Misa Tamura, and Mark Nesbitt, “Re-evaluating student treatments of barkcloth artefacts from the Economic Botany Collection, Royal Botanic Gardens, Kew,” in *ICOM-CC 18th Triennial Conference Preprints, Copenhagen, 4–8 September 2017*, ed. J. Bridgland, art. 1203. (Paris: International Council of Museums, 2017).

<sup>72</sup> *Ibid.*, 8.

<sup>73</sup> *Ibid.*, 4.

important, and we know that in the past it was not considered influential how one cast a film or applied it to the object, and the lack of such records slows progression in the field as we now cannot be sure what variables truly shaped a treatment. Another key outcome of Lennard et al. was a recognition that arose from such omissions in the treatments (all carried out roughly within the period under study) that documentation plays an important role in the ability to effectively learn from re-evaluating past treatments. The study used this finding to offer suggestions for how conservators can target the information they include in reports for this purpose, especially the inclusion of both generic and name brands along with suppliers for materials used.

A large-scale re-evaluation akin to that of the British Library also presented at the 2011 conference was from the Museum of Fine Arts, Boston, where adhesive use on the increasing range of objects and materials considered to be textiles was considered through seven recent case studies. Each study was presented through three headings, “description,” “rationale,” and “application,” each following the guidelines for key points needed in documentation of adhesive treatments laid out in the opening text.<sup>74</sup> The studies exhibit various levels of success in consistency in the comprehensiveness of the information, but the system is admirable.

Zenzie Tinker’s 2013 contribution to the Icon Book and Paper Group’s session *Current Solutions for Mutual Issues* is an excellent example of revisiting past treatments in a pragmatic and non-judgemental manner, in doing so, creating a report that is not only useful for contemporary professionals, but should provide the detail needed when the treatment is revisited in the future.<sup>75</sup> The paper compares two sets of bed hangings from historic houses, both of which have past adhesive treatments, one professional and one domestic. The conditions of the two objects are compared in detail in a helpful table, and the treatment options and rationales discussed in detail with special attention to the fact that reversing and removing past treatments is not always desirable.<sup>76</sup> In contrast to the lack of documentation for the original treatments, in the treatment carried out, Tinker lays out the type of adhesives, brand names, concentrations, and preparations and application techniques, all while providing

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<sup>74</sup> Joel Thompson and Masumi Kataoka, “From Mummies to Modern Dress: Adhesive Treatments in Textile Conservation at the Museum of Fine Arts, Boston,” (conference paper, CCI Symposium 2011, Adhesives and Consolidants for Conservation: Research and Applications, Paper 25, Ottawa, 2011).

<sup>75</sup> Zenzie Tinker, “Working with adhesives: different routes to the same destination,” in *Current Solutions for Mutual Issues: postprints from the Icon Book and Paper Group’s sessions at the Icon Positive Futures Conference*, edited by Mary French, et al. eds. (Glasgow: Icon, 2013), 63-70.

<sup>76</sup> *Ibid.*, 66

context on the limitations on the treatment (such as access to equipment) and reasoning behind each aspect of the treatment design. In the end, both treatments described adhesives as an integral part of a much larger and more complex system.<sup>77</sup>

More conservators should be careful in accounting for the long time frame between examinations of treated objects, and for the fact that they are rarely carried out by the same individuals who carried out the treatments. “Although conservators based in museums may, in theory, have access to objects to review past treatments, the limitation of resources and increasing workloads for individual conservators mean that the opportunity rarely occurs, while it is even less likely that freelance conservators can revisit their past projects.”<sup>78</sup>

#### **2.4. Communication**

The difficulty of staying up to date individually has been recognised, therefore, sharing by those who have carried out studies and treatments is key to the success of similar treatments carried out by colleagues. Thus far, this study has included formally published and peer-reviewed work alongside conference pre- and post-prints, as the exclusion of the latter would severely limit the scope of the available literature. This is mentioned as there is some continuing debate about the formality of conference materials unless they are published in a peer-reviewed fashion after the event. However, conferences are a key resource for practicing conservators, not only for the dissemination of compiled information, but also for the contact with other professionals at the event itself. Conferences of professional bodies are especially valuable for cross-disciplinary contact, as we have seen in many of the sources above, especially paper and paintings conservation.

There is nothing wrong with practicing conservators using their observations and experience to alter their practice as discussed in the British Library project, but as Horie said in his 2011 keynote, if these trends could be shared more widely it would benefit the entire community. In such an academic community, however, it appears that the most readily available and trusted information is publications, however, producing those resources involves a significant time commitment and does not usually take the form of impressions or opinions. What the discipline lacks are methods of sharing these less solid results, even if it is as simple as “I don’t use animal glue as I have noticed yellowing or embrittlement.” A

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<sup>77</sup> Ibid.

<sup>78</sup> Lennard et al., “Re-evaluating student treatments,” 8.

large number of individuals may all hold the same opinion, but if it is not shared, that slows the progress of the entire field. Therefore, some very valuable resources to conservation that are not often written on and probably underutilised, likely due to this informality, are blogs and mailing lists.

The TexCons Discussion List, an unmoderated discussion mailing list was “developed to expedite communication among textile conservators within the textile community worldwide.”<sup>79</sup> Searching the archives of this list will turn up active conversation and numerous enquiries about adhesives, often for the benefit of a specific treatment. Other professionals would then informally share their experiences and expertise, even if it was just to recommend a source or express a short opinion. One question on the supporting of shattered silk linings in costume in 2004 received a response from a conservator at the Philadelphia Museum of Art who advised while recounted the failure of adhesive patches under the rigours of dressing and undressing an exhibition. This prompted the below response from a third party:

On behalf of the membership of this distlist, I want to thank Sara for being so open in discussing her treatment for this kind of problem.

We need to be less afraid of sharing our experiences, and more open to discussion in this kind of format. The entire profession would be better for it.

Thanks again, Sara, for being so willing to share your experiences.

Michele Pagan<sup>80</sup>

Unfortunately, an interruption in service occurred in 2009 when Stanford Libraries were forced to give up their operation of Conservation OnLine (CoOL) due to budget cuts and the mailing lists were migrated to operation by AIC. After this interruption, the more general and formal Conservation Distribution List (ConsDistList) became the primary mailing list for conservation and while recent archives for the TexCons list are unavailable, it appears relatively inactive on the basis of the months during this study.

Finally, in the age of social media, the value of organisational FaceBook pages for circulating conference proceedings or such informal communications of current treatment problems has yet to truly be explored. Campaigns to raise awareness and interest in conservation through social media have proved successful, such as the Museum of London’s

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<sup>79</sup> “Information for Subscribers,” Textile Conservation Discussion List, Conservation OnLine (CoOL), accessed June 21, 2018, <http://www.cool.conservation-us.org/byform/mailling-lists/texcons/>

<sup>80</sup> Michelle Pagan, “Re: Replacing Linings,” Textile Conservation Discussion List, Conservation OnLine (CoOL), January 22, 2004, <http://www.cool.conservation-us.org/byform/mailling-lists/texcons/2004/01/msg00022.html>

funding campaign for the Pleasure Gardens refit on Instagram. Finally, though publicly available, conservation accounts on social media often lead to conversations between professionals.

## **2.5. New sources**

As mentioned above, in the introduction to *Materials for Conservation*, Horie made a strong case for the need for more accessible communication, first due to the physical inaccessibility of low circulation newsletters and conference proceedings, then due to journal articles being placed often exclusively on the internet accessible through academic institutions or behind paywalls, “and therefore closed to most conservators. A digital divide is opening up that conservation organizations have not addressed.”<sup>81</sup> While conservation organisations have made conference proceedings available to members (the majority of conservation professionals are members of at least one professional body), the potential value of more informal sources for information sharing and communication is undeniable. It may be the time for a renewal of the type of conversations seen on the TexCons mailing lists, and an academic recognition of the professional value of blogs, vlogs, and social media.

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<sup>81</sup> Horie, *Materials for Conservation*, 11.

### **3. Evaluation of Adhesive Use Through Collection of New Data**

#### **3.1. Introduction**

As shown by the seminal nature of the 1997 Hillyer et al. study, information of great value can be collected from surveying practicing conservators. While Hillyer et al. showed a snapshot of practice at the end of the 20<sup>th</sup> century, the current study aims to both show developments of the interim period between the two studies as well as another snapshot of current practice. In doing so, trends should be more visible and the information comparable between works.

The original study utilised two surveys: one circulated to current and previous members of professional conservation bodies, and a follow-up survey sent to all respondents of the first survey. The call put out in the Textile Conservation Newsletter in 1994 outlined scientific advances in the field of adhesives as well as continued unease surrounding their use for practicing conservators faced with the “wide variety of situations in which an adhesive treatment is required,” for whom “it is not easy [...] to learn different methods for applying adhesives.”<sup>82</sup> Having acknowledged the importance of practice experience to a technique used so seldom, often leading to lack of both, the survey also aimed to identify not only application methods, but conservators with expertise who would be willing to share their knowledge. The project was accompanied by workshops designed for experienced textile conservators to examine adhesives in practice in partial fulfilment of this aim.<sup>83</sup>

#### **3.2. Methodology**

The time frame of the current study necessitated the use of a single questionnaire, and interviews were carried out as the questionnaire received responses as a supplement akin to the second survey in the original study.

To maximise responses, the questionnaire was kept as short as possible while still repeating key elements of the original study and making additions to reflect current practice. The blank form from the original first survey was obtained from the TCN it was sent through and used in the creation of this questionnaire. The original survey was targeted at conservators in the UK, continental Europe, and North America, while a small number of

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<sup>82</sup> Lynda Hillyer and Ela Keyserlingk, “An investigation into the current use and application of adhesives in textile conservation,” *Textile Conservation Newsletter* 27 (1994): 16.

<sup>83</sup> Hillyer et al., “Evaluating the use of adhesives,” 38.

responses were recorded from outside these areas. Similarly, this study's survey targeted the same areas. While it is unknown if the original survey was anonymous, it was decided that the current survey would be in order to ensure a bias was not created when asking about challenges in practice that conservators may be less likely disclose if identified. Other statistical background information was collected on the specialism of the respondents and type of employment they held (institutional, private practice, etc.). Again to maximise response rates and reduce subjectivity in responses, the main body of the survey was multiple choice in format, though optional free text spaces for adding options and supplying additional information were included. A final section with optional free text boxes was added to collect data on comfort levels with adhesives and sources perceived as most helpful. Some free text responses are quoted to support the analysis below, they have been reproduced faithfully though some typographical errors were corrected.

It was decided that an online survey platform would be used for ease of dissemination and analysis. While independent platforms such as SurveyMonkey and Google Forms were considered, most included paywalls linked to formats of questions or number of respondents, and the platform supported by the University of Glasgow, Jisc Online Surveys (formerly Bristol Online Surveys), was chosen for ease of use and access to technical support. This platform allowed setups that guaranteed respondent's anonymity, allowed multiple question formats, and included analytical tools that proved useful. There were only two technical issues, one relating to embedding the invitation link into a mail merge system, and one in which two respondents were blocked from participation by security features of their institutions.

### **3.3. Limitations of the research**

- The original surveys were circulated through UKIC to contemporary and previous Textile Section members, ICOM Textile Group members, and to professionals in North America through the CCI and CTN. While attempts were made to use similarly official channels, this proved impossible in the UK due to technical issues. Respondents were contacted individually via public or professional body contact lists as well as professional emails available publicly or previously shared with the author. Inability to source contact information for many conservators in continental Europe is also recognised as a limitation.



- It is recognised that the research was limited in scope by the questionnaire only being available in English, but there were not sufficient resources available to address this issue.
- The data as presented in Hillyer et al. has been used for comparative purposes, as the raw data from the original surveys could not be obtained for comparison before the close of this project.

### **3.4. Results and discussion**

#### **3.4.1. Demographic Information on respondents**

The survey was sent directly via email to 329 people and shared on Facebook by the Canadian Association for Conservation of Cultural Property (CAC-ACCR) on their page and by the author to the CTC graduates group. Participants were encouraged to share the survey with colleagues and any other interested parties. The survey received 79 responses, indicating an encouraging 24% response rate on the basis of direct invitations. 38.8% of UK contacts responded, matching the UK respondent rate of 34.7% to the original survey again indicating a strong current interest in the use of adhesives by UK conservators.<sup>84</sup> Respondent numbers from Europe, the United States and Canada were 12, 25, and 8 respectively, with an additional 3 responses from Australia and New Zealand, 2 from Asia, and 3 from Argentina. Due to the low response rate, the responses from outside the UK, continental Europe, and North America were excluded from the results. While the USA and Canada are separated in the raw data, they have been combined for ease of comparability with the original survey.

Nearly 84% of respondents identified themselves as textile conservators, and all but one of the remaining respondents identified as conservators, ensuring the results statistically represented conservation views.<sup>85</sup> The majority of respondents (44%)<sup>86</sup> indicated employment by a large institution (especially those based in the UK and US, closely followed by private practice and small institutions. Despite the tradition of conservation training often

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<sup>84</sup> Ibid.

<sup>85</sup> The remaining respondent identified as an art historian, which also does not preclude their knowledge of, or interest in, adhesives in textile conservation.

<sup>86</sup> Though the raw data indicates 41.8%, two respondents selected “other” as public servants and were located in Australia or New Zealand, where ArtLab is a government-run conservation facility. As CCI and the BM are similarly run and staff at each were invited to participate, these responses have been added into “large institution” for consistency.

taking place in the form of internships and apprenticeships, the overwhelming majority of respondents (73.9%) indicated training through a formal course.

Crucially, 96.2% of respondents indicated that they currently used or had used adhesives on textile objects. It must be recognised that there may be some bias present in that conservators with an interest in adhesives were probably more likely to respond, but the invitation included an appeal for conservators who do not use adhesives to respond and so this result strongly indicates widespread adhesive use.

The first question in the main body of the survey asked participants to rate their proficiency level with adhesives from novice to expert. 73% ranked themselves as competent or above, with 7.9% choosing expert, 30.3% proficient, 38.2% competent, 19.7% advanced beginner, and 3.9% novice. This data seems to support Hillyer's 2010 assertion that conservators are now a great deal more comfortable and confident with the use of adhesives; this is despite the fact that adhesive treatments are little reported in literature, including the 1997 study, and this current study, as 73.7% indicated they have only used adhesives in 0-20% of treatments.<sup>87</sup> In fact, Zenzie Tinker, who no doubt qualifies as an expert, stated that having surveyed her previous treatments, only 2-3% involved adhesives.<sup>88</sup> The question was asked in percentage form to take into account the large variation in number of treatments a conservator may finish in a given period, but in hindsight an additional question with numbers of adhesive treatments may also have been useful. The text box associated with this question asked if participants would like to qualify their answer, and 38 respondents shared that they rarely undertook adhesive treatments, some shared numbers, and over a quarter qualified the data with their preference for stitching or mentioned adhesives as a "last resort" in contrast with nearly 40% who spoke of adhesives being used when they were the best and most appropriate option.

### **3.4.2. Range of materials**

The range of materials in recent and current use question involved a multiple-choice question with 49 adhesives, and participants were asked to indicate which they had used in the past 20 years, which they use currently, and which were 'preferred'. The final sub-question of 'preferred' adhesives was added to match the original survey's data on adhesives used most often, but was altered to allow respondents to indicate a preference even if the

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<sup>87</sup> Hillyer et al., "Evaluating the use of adhesives," 37.

<sup>88</sup> Zenzie Tinker (Textile Conservator) in discussion with the author, 27 July 2018.

adhesive was not currently used. The responses indicated that almost all adhesives noted in current use were also marked preferred, with the exception of the starches and proteinaceous adhesives. In these cases, only wheat starch and ‘unspecified starch paste’ were marked as preferred by significant numbers of respondents. For these reasons, and for the sake of clarity in expressing the data, this sub-question has not been included in Table 1: adhesives in use 1997-2018 below.

The original survey showed percentages over 50 for five adhesives: thermoplastic adhesives Mowilith DMC2 (co-polymer of vinyl acetate and dibutyl maleate dispersion), Beva 371 (ethylene/vinyl acetate copolymer base), Lascaux 360HV (butylmethacrylate dispersion), and modified cellulose adhesives Klucel G (hydroxypropylcellulose), and carboxymethyl cellulose. In various forms, these adhesives have remained popular save Mowilith products and carboxymethyl cellulose, both of whom have decreased drastically in use.

As the adhesive shown to be the most popular in the UK and Europe in 1997, the fall in use of Mowilith DMC2 and related products is notable. Mowilith DMC2 (the ‘original formula’, was discontinued in 1995 and replaced by Mowilith DM427, which “is a polyvinyl alcohol stabilised product which may give rise to slightly different film forming properties.”<sup>89</sup> A range of Mowilith products available from major suppliers at the time this study was created were included on the survey form, but Mowilith DM427 was not as it was not carried by these suppliers and case studies researched did not record it. This oversight may have skewed results, but it cannot have been a significant oversight as only one respondent added Mowilith DM427 to their list in the free text and the other Mowilith products did not receive high responses.

Two brands of adhesive have shown continued (if more moderate) popularity across all three periods: Beva 371 was the most popular thermoplastic adhesive in North America and the second-most popular in the UK in 1997, and has remained popular in its film form as well as in use in other variants;<sup>90</sup> Lascaux products were more extensively used in North

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<sup>89</sup> Mark Vine, “Mowilith DMC2,” Conservation Distribution List (Cons DistList), Conservation OnLine (CoOL), Tuesday, February 11, 1997, <http://www.cool.conservation-us.org/byform/mailling-lists/cdl/1997/0196.html>.

<sup>90</sup> Carole Dignard and Jane Down, “Farewell BEVA 371 Original Formula and Lascaux 360 HV, Hello BEVA 371b and Lascaux 303 HV,” in *ICOM-CC Leather and Related Materials Working Group Newsletter June 2014*, Céline Bonnot-Diconne and Laurianne Robinet eds.. Accessed August 2, 2018. <http://icom-cc.icom.museum/WG/LeatherRelatedMaterials/>

In 2010, Beva 371 Original Formula changed in 2010 to Beva 371b, but this was not indicated in the survey as the change was a small one that improved the properties by conservation standards.

America in 1997, but have gained significant popularity in the UK and Europe in recent years. The original survey noted conservators asserting that they were considering a wider range of adhesives with the introduction of such acrylic-based formulas, and the wider range had led to greater experimentation.<sup>91</sup> The highly customisable combination of Lascaux 498HV and 360HV had been introduced to the UK in 1988,<sup>92</sup> and the current study shows they have gained great popularity in the UK and Europe while showing a slight drop-off in use in North America. Lascaux 360 HV gained, and still maintains popularity despite being discontinued in 2012 and replaced by 303 HV.<sup>93</sup> Lascaux 303HV rose in popularity compared to its predecessor, likely due both to 360HV's poor performance in ageing tests and dwindling supplies.<sup>94</sup> 3 of 38 free text responses to a follow-up question on mixtures indicated Lascaux adhesives are almost exclusively used in combination, which was not surprising but perhaps indicated multiple-choice options for 498+360 and 498+303 may have been more efficient.

Of the modified cellulose products, only Klucel G has maintained and increased its popularity. In the UK, the percentage has remained at 50 and above, has shown continually increasing use in Europe, and reached somewhat of a peak in North America in the interim period, settling back to a moderate 27.3% in current use. While the original survey reported increased interest in modified cellulose and starch-based adhesives for their closer compatibility with natural fibres and ability to be used without heat or high pressure. In current use, wheat starch has certainly followed this trend in all three locations, growing steadily from 35% to 53.8% in the UK, from nil to 33% in Europe, and levelling to a significant 27% after its sharp rise from nil to 36.4% in the interim in North America. These results likely reflect this concern over the compatibility of object and treatment materials mentioned in the literature, but in practice they often prove more difficult to remove than a thermoplastic adhesive, which may be something to watch as further treatments are revisited.<sup>95</sup>

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<sup>91</sup> Hillyer et al., "Evaluating the use of adhesives," 40.

<sup>92</sup> *Ibid.*, 39.

<sup>93</sup> Dignard "Farewell BEVA 371."

<sup>94</sup> Down et al., "Adhesive Testing," 19-44.

<sup>95</sup> Tinker, interview.

**Table 1: Adhesives in use 1997-2018.**

Adhesive	UK (%)			Europe (%)			North America (%)		
	1997	Interim	Current	1997	Interim	Current	1997	Interim	Current
Acryloid B-72 HMG Adhesive	-	-	-	-	8.3	-	-	9.1	-
Acryloid B-72 (Paraloid B-72)	-	26.9	7.7	-	25.0	8.3	-	33.3	15.2
Acryloid B-67 (Paraloid B-67)	-	-	-	-	-	-	-	6.1	-
Aquazol**	-	3.8	3.8	-	-	8.3	-	-	3.0
Beva 371*	56.0	19.2	15.4	23.0	25.0	8.3	79.0	36.4	18.2
Beva 371 Film	-	42.3	50.0	-	16.7	50.0	-	45.5	36.4
Beva 371 Gel	-	3.8	3.8	-	-	-	-	9.1	-
Beva 371 Solution	-	11.5	15.4	-	-	16.7	-	15.2	3.0
Beva Tex	-	-	3.8	-	-	-	-	3.0	9.1
Conservation Adhesive (B72 in acetone)	-	7.7	7.7	-	8.3	-	-	15.2	3.0
Jade R	-	-	-	-	-	-	-	6.1	6.1
Jade 403N	-	-	-	-	-	-	-	24.2	15.0
Evacon R, EVA	-	7.4	3.8	-	-	8.3	-	3.0	-
Lascaux P550-40TB*	4.3	3.8	3.8	-	8.3	8.3	36.0	3.0	-
Lascaux 360HV*	10.8	46.2	50.0	6.0	33.3	41.7	64.0	51.5	33.3
Lascaux 303HV	-	19.2	61.5	-	8.3	25.0	-	6.1	15.2
Lascaux 498HV*	10.8	38.5	84.6	6.0	25.0	50.0	43.0	48.5	39.4
Lascaux Polyamide Textile Welding Powder 5350	-	-	-	-	8.3	8.3	-	3.0	3.0
Lascaux Hydro-Grund/Hydrosealer	-	-	-	-	-	-	-	3.0	-
Mowilith 50	-	11.5	3.8	-	-	-	-	9.1	-
Mowilith DMC2 (Clariant T1601)*	82.0	38.5	3.8	53.0	25.0	8.3	57.0	6.1	-
Mowilith DM5*	39.0	11.5	-	29.0	8.3	-	14.0	9.1	-
Paraloid F-10*	24.0	3.8	-	23.0	8.3	7.1	29.0	3.0	-
Plextol B500	-	-	-	-	8.3	-	-	9.1	3.0

Adhesive Rhoplex WS24 (Primal WS24)	-	-	-	-	-	-	-	6.1	3.0
Texicryl 13-002*	8.7	-	-	-	-	-	7.0	-	-
Vinnapas EP1*	43.0	23.1	-	35.0	-	-	-	3.0	-
Vinamul 3252*	43.0	46.2	19.2	-	25.0	-	-	3.0	-
Vinamul 3254*	8.7	7.7	7.7	-	-	-	-	-	-
Klucel G*	54.0	53.8	50.0	12.0	50.0	58.3	21.0	57.6	27.3
Klucel E	-	3.9	-	-	8.3	8.3	-	-	-
Klucel L*	6.5	-	-	-	8.3	-	-	-	-
Klucel HPC	-	-	-	-	8.3	8.3	-	-	-
Carboxymethyl cellulose*	67.0	30.8	15.4	41.0	33.3	8.3	14.0	15.2	15.2
Methyl cellulose*	10.8	26.9	23.1	23.0	16.7	16.7	43.0	33.3	21.2
Wheat starch*	35.0	46.2	53.8	-	25.0	33.3	Minimal	36.4	27.3
Rice starch*	4.0	3.8	-	Minimal	33.3	25.0	-	-	-
Arrowroot/sodium alginate*	11.0	11.5	7.7	-	8.3	-	-	-	-
Funori	-	11.5	7.7	-	16.7	8.3	-	3.0	3.0
Starch paste (unspecified)*	15.0	7.7	3.8	-	8.3	16.7	-	9.1	-
Stadex starch blend*	4.0	-	-	-	-	-	-	-	-
Gelatin*	8.7	7.7	3.9	-	16.7	-	14.0	3.0	3.0
Isinglass*	11.0	19.2	15.4	-	16.7	16.7	Minimal	6.1	3.0
Unspecified animal glue*	6.5	7.7	-	-	16.7	-	Minimal	3.0	3.0
Little or no adhesive ever*	8.7	3.8	3.8	41.0	-	-	7.0	-	6.1

Green = upward trend | Red = downward trend

\* Indicates an adhesive included in the original study

\*\* Aquazol received multiple responses in 'other' and therefore has been added to the main chart

### 3.4.3. Methods of preparing adhesive supports

Combined with choice of adhesive, the choice of support substrate, methods of preparing and casting the adhesive, and methods of applying the adhesive support to the object the other primary factors now recognised as having influence over the success of the treatment when combined with the skill with which they are carried out. Before analysing these results, it is important to note that the variables are all interdependent and choosing one from each category with the highest value will not guarantee a successful treatment. As one respondent noted: “Spend time practicing how you apply adhesives, and with what tools for the different types, ie. Brush for Klucel, roller for Lascaux, spray for BEVA, not too much, not too little, and even application throughout.”

With the adhesive itself, the other primary material is the support substrate. It has been established above that the early favourite, nylon net, has been proven less than effective in most scenarios; however, though it showed the most marked decrease in popularity in the UK and Europe between the two surveys, it is still in use and in fact, has gained popularity in North America. Silk crepeline was, and remains, by far the most popular choice overall. Polyester crepeline, reported to behave similarly,<sup>96</sup> has also always been popular, though having had an almost 8% lead on silk in North America in 1997, has dropped behind by nearly the same amount in current use.

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<sup>96</sup> Karsten and Kerr, “Peel strength,” 15.

**Table 2: Support material preferences**

Support material	1997 (%)			Current (%)		
	UK	Europe	North America	UK	Europe	North America
Silk crepeline*	91.4%	68.6%	69.2%	92.3%	75.0%	84.8%
Silk habotai*	10.6%	11.6%	-	11.5%	25.0%	33.3%
Silk net	-	-	-	15.4%	-	18.2%
Polyester crepeline (e.g. Stabiltex)*	57.4%	46.5%	76.9%	46.2%	33.3%	63.6%
Paper*	48.9%	23.2%	30.7%	61.5%	33.3%	42.4%
Tissue	-	-	-	11.5%	8.3%	30.3%
Fine cotton*	6.3%	5.8%	-	-	25.0%	24.2%
Nylon net*	46.7%	23.2%	-	38.5%	33.3%	51.5%
Nylon gossamer*	4.2%	-	-	11.5%	-	12.1%
Other	12.6%	-	38.4%	7.7%	16.7%	6.1%

\* Indicates an option in the original survey.

To prepare the adhesive support film the conservator must choose how and where to apply the adhesive. Table 3 shows the trends in preparation tool preferences, and Table 4 shows trends in preparation method and set-up preferences. In these two questions, no further options were added to the original options, as the methods and materials have not changes significantly, but rather techniques for using them have been refined. The most significant change visible on the two charts is the decrease in use of stretchers and sponges. As stretcher usually refers to a large and specialised piece of equipment, it is not surprising to see a drop in their use as more adaptable and economical methods are refined.<sup>97</sup> Sponges are used almost exclusively with the stretcher method, therefore their drop in popularity is doubtless linked.

The most common system used to prepare adhesive supports has been reported as the casting bed type method, where the support fabric is laid on a smooth-non-stick surface and the adhesive applied and allowed to set in this configuration.<sup>9899</sup> In this system, the ‘method’ as represented in the table is which casting bed has been chosen as the surface (polythene, Melinex, etc.), and the tools are usually a brush or roller. The combinations from these two categories are more variable than those created by spray or stretcher methods and the results are therefore possible to view independently.

<sup>97</sup> Landi, *Textile Conservator's Manual*, 121,183.

<sup>98</sup> Tímar-Balázsy and Eastop, *Chemical Principles*, 304.

<sup>99</sup> Landi, *Textile Conservator's Manual*, 121-22.



**Table 3: Preparation tool preferences**

Preparation tools	1997 (%)			Current (%)		
	UK	Europe	North America	UK	Europe	North America
Brush	82.9%	58.0%	84.5%	76.9%	83.3%	81.8%
Sponge	44.6%	5.8%	-	11.5%	8.3%	12.1%
Spray	29.7%	17.4%	61.5%	19.2%	50.0%	21.2%
Roller	27.6%	34.8%	-	80.8%	41.7%	39.4%
Other	12.7%	-	-	-	16.7%	6.1%

**Table 4: Preparation method preferences**

Preparation method	1997 (%)			Current (%)		
	UK	Europe	North America	UK	Europe	North America
Polythene	68.0%	17.4%	7.6%	96.2%	33.3%	30.3%
Polyester film (Melinex/Mylar/etc.)	59.5%	29.0%	23.0%	23.1%	41.7%	48.5%
Stretcher	53.1%	17.4%	46.1%	7.7%	16.7%	18.2%
Teflon® coated glass fibre cloth	34.0%	11.6%	53.8%	11.5%	33.3%	36.4%
Silicone release paper/polyester film	17.0%	11.6%	19.3%	38.5%	41.7%	45.5%
Other	6.3%	5.8%	15.2%	-	8.3%	12.1%

#### 3.4.4. Methods of applying adhesive supports to objects

As application methods had shown marked advances at the time of the 1997 study, and many case studies indicated trialling of activation methods initially used on one type of adhesive on further types, the methods of application were not separated by adhesive type in this survey. The original survey showed a marked preference for heat and pressure application methods for thermoplastic adhesives, while only respondents from the UK indicated use of solvents on thermoplastics as well as carbohydrates, and North America indicated small numbers of solvent and low-pressure table applications using carbohydrates. Wet and semi-dry applications of thermoplastics were only recorded in small amounts in the UK and Europe in 1997, while America reported 14% wet and 28% semi-dry applications. In all three locations, such applications were prevalent with carbohydrate-based adhesives.

**Table 5: Methods of application of adhesive supports**

Application/reactivation method	1997 (%)			Current (%)		
	UK	Europe	North America	UK	Europe	North America
Spatula iron	<i>86.0%</i>	<i>35.0%</i>	<i>86.0%</i>	88.5%	50.0%	81.8%
Flat iron	<i>52.0%</i>	<i>48.0%</i>	<i>21.0%</i>	19.2%	33.3%	15.2%
Spatula & flat iron	<i>67.0%</i>	<i>35.0%</i>	<i>50.0%</i>	7.7%	41.7%	18.2%
Vacuum hot table	<i>24.0%</i>	<i>18.0%</i>	<i>21.0%</i>	34.6%	8.3%	6.1%
Irons & vacuum hot table	<i>15.0%</i>	-	<i>21.0%</i>	7.7%	-	3.0%
Low pressure vacuum table (cold lining)	<i>2.0%</i>	<i>12.0%</i>	<i>7.0%</i>	-	16.7%	6.1%
Solvent activation	<i>21.0%</i>	-	-	88.5%	58.3%	57.6%
Solvent activation & low pressure table	<i>4.0%</i>	-	<i>7.0%</i>	-	25.0%	3.0%
Direct, wet application	<i>62.0%</i>	<i>30.0%</i>	<i>35.0%</i>	50.0%	33.3%	42.4%
Direct, semi-dry application	<i>30.0%</i>	<i>30.0%</i>	<i>49.0%</i>	38.5%	41.7%	42.4%
Other	-	-	-	-	8.3%	3.0%

Figures italicised in the 1997 section indicate percentages across adhesive types were combined.

The 1997 study noted that one of the key advancements in reactivation techniques was that of solvent activation, developed at the TCC.<sup>100</sup> The development of techniques that avoid the use of heat were welcomed as potentially less damaging to already degraded objects; however, further refinement since the technique began has raised concerns over the effects of solvent vapour when used in this manner.<sup>101</sup> The current survey shows almost equal amounts of heat and solvent techniques being used across the board. Far more respondents indicated use of spatula irons than flat irons: this may indicate smaller objects being treated with adhesives, but also may be due to the greater degree of temperature control usually available with a spatula iron. Similarly, fewer instances of the use of vacuum pressure tables were reported, despite 43% of respondents indicating employment at a large institution where access to the equipment is more likely; this may imply the technique has lost favour, perhaps due to issues of ensuring even tension reported in many case studies.

In the case of wet and semi-dry application methods, respondents indicated fewer uses of these techniques across the board. While these methods are usually used with starch and protein-based adhesives, similar numbers of respondents reported their use in both studies, indicating a drop in their use was not the cause of the drop in wet and semi-dry applications, and the decrease was more likely due to a marked decrease in use of thermoplastics with this method; however, this aspect of the analysis was slightly limited by

<sup>100</sup> Hillyer et al., "Evaluating the use of adhesives," 40.

<sup>101</sup> Aisling Macken, "A preliminary investigation into the effect of solvent vapour on ingrained textile soiling" (Master's dissertation, University of Glasgow, 2017).

the lack of separation of adhesive types in the current study. The choice not to separate the answers by adhesive type was also part of a final edit in which such distinctions were removed in order to remove eight questions and balance time spent by participants with depth of information. If the survey were to be repeated or elements expanded, this question would benefit from distinction between adhesive types when analysing application methods.

### **3.4.5. Factors which determine treatment design**

The composition, and therefore working properties, of adhesives were usually considered solely responsible for both the resultant film and the effectiveness of the treatment in early assessments. By 1997 much more recognition was being given to the effect of the conservator's methods and execution of them largely due to revisited treatments.<sup>102</sup> However, the full extent of the conservator's role was still not recognised: for example, Hillyer et al. attributes degree of adhesive coating to the adhesive itself, which we now know from Karsten and Kerr to be controllable in casting;<sup>103</sup> and in Pretzel's accompanying work, though the influence of application technique, support material, and object on the performance of an adhesive was a primary focus, the evaluation matrix presented to rank the suitability of adhesives for particular treatments again focussed on their working properties again, as each sample was cast in the same manner.<sup>104</sup> Though the study tested the adhesives in more 'real-world' manner than those before it by examining laminated fabric systems, it was "limited by results that are specific to the treatment methods used to create the samples. [...] A fuller understanding of how treatment design affects the behaviour of the adhesive combined with pre-testing is probably a more useful approach."<sup>105</sup>

With these stipulations in mind, two multiple-choice questions on factors that influence adhesive choice were included, divided between working properties of the adhesive itself (Table 6) and factors outside those working properties (Table 7). The options in both tables were based on the findings of the second survey carried out in the original study and the properties used by Pretzel.

Reversibility ranked as a "vital consideration" in the original survey by 51% of respondents and the number of conservators marking its importance has only increased, now ranking at 63.3%; however, many respondents qualified this by noting that 're-treatability'

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<sup>102</sup> Hillyer et al., "Evaluating the use of adhesives," 39.

<sup>103</sup> *Ibid.*, 40.

<sup>104</sup> Pretzel, "Evaluating the use of adhesives – Part II," 48-58.

<sup>105</sup> Karsten, "Textiles," 153.

was a much more realistic and achievable goal. Though remarked upon as the main areas of concern in the original study, reversibility overall ranked below performance in ageing tests, flexibility, and bond strength. This does not necessarily indicate a decrease in importance, but perhaps an increase of understanding that reversibility is not a property of each adhesive, but is in fact an umbrella concept that is dependent on manipulation of more specific properties (such as those chosen) through treatment design.<sup>106</sup> One respondent to the original study was quoted as saying “I think the debate on reversibility of adhesives is maybe a little out of date now. The choice to use an adhesive is made when it is the least destructive option for interventive conservation.”<sup>107</sup> This sentiment was echoed in an articulate response in the current survey: “Although I don’t see any treatment as fully reversible I am always concerned about the prospect of removing conservation adhesive treatments, especially as in many cases an adhesive support is the last resort to hold a fragile textile together, it is worth considering how difficult it may be to remove a support before you think about applying it.” Another response reminiscent of the heated debates in early practice made a similar point: “Virtually no interventive treatment in textile conservation is fully reversible - this has been used as an excuse for not using them [adhesives] for too long.” Many of the other free text responses limited the use of adhesives to when other techniques would be too damaging, and often in the ambiguously charged words “last resort.” In the context of the violent debate surrounding adhesives, these words often seem to describe the technique outside the context of the object, where if the grammar of the sentiment were reversed, sometimes such a treatment is the object’s “last chance.” By ensuring the argument is always working outward from the object, reversibility is sometimes a moot point: “sometimes the object you have to use the adhesive on, due to fragility or degradation, it’s almost like a last ditch, the question is, if we don’t, will it survive?”<sup>108</sup>

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<sup>106</sup> Karsten and Kerr, “Peel Strength,” 8-15.

<sup>107</sup> Hillyer et al., “Evaluating the use of adhesives,” 43.

<sup>108</sup> Vivian Lochhead, (retired, previously Senior Conservator at the People’s History Museum), in conversation with the author, July 18, 2018.

**Table 6: Desirable working properties**

Working property	UK	Europe	North America
Performance in ageing tests	73.1%	50.0%	72.7%
Flexibility (handle and drape)	92.3%	66.7%	87.9%
Bond strength	92.3%	50.0%	75.8%
Heat sealing temperatures	42.3%	41.7%	39.4%
Alkalinity/Acidity of adhesive	19.2%	8.3%	15.2%
Solubility	19.2%	16.7%	42.4%
Retention of colourants	3.8%	8.3%	6.1%
Glass transition temperature (Tg)	50.0%	50.0%	39.4%
Reversibility	73.1%	50.0%	63.6%
Other	7.7%	25.0%	6.1%

**Table 7: Factors outside working properties that influence choice**

Factors outside working properties	UK	Europe	North America
Experience/familiarity	100.0%	58.3%	100.0%
Health and safety considerations	73.1%	25.0%	60.6%
Available equipment/lack thereof (e.g. Spray booth/vacuum table)	61.5%	25.0%	57.6%
Correspondence to object (e.g. cellulose for barkcloth)	61.5%	50.0%	45.5%
Availability – specific (e.g. Studio stock)	50.0%	8.3%	30.3%
Availability – general (e.g. Commercial availability)	38.5%	41.7%	45.5%
Price	3.8%	8.3%	15.2%
Other	-	-	-

To allow for broader additions and qualifications to be made to the multiple choice questions above, the first of the final free text questions asked conservators what factors would prompt them to choose an adhesive treatment over other forms of support or consolidation. Overwhelmingly respondents cited the condition of the object, followed by its structure and composition: many cited shattered silks, painted surfaces, and certain weave structures such as satin weave. Nearly 40% of the answers made reference to an adhesive being considered when stitching would be too damaging or simply impossible, both indicating adhesives are still often considered only after stitching is ruled out, but also harkening back to the work of Jedrzejewska (1981), one of the only published studies that recognised the negative effects of stitching. Further weave structures mentioned were gauze and tulle, both candidates for adhesive treatments because of the negative visual impact of stitching. Existing presence of adhesives, whether original or from previous conservation, were also mentioned as factors in favour of adhesive use, especially if the same material could be used again. Other factors often mentioned were the need for overall support, access,

and aesthetics. Time was also mentioned in both positive and negative contexts, indicating some respondents viewed adhesive treatments as faster than other forms of support, while others were firm in the denial of this claim: “not to save time - using adhesives does not save time!” Having worked with a collection that often required adhesive treatments that ensured she was extremely experienced in their use, Vivian Lochhead confirmed this statement, saying that “the preparation and application of an adhesive treatment doesn’t necessarily make it faster than a stitched treatment if you’re going to do it thoroughly and with the same degree of care.”<sup>109</sup>

### **3.4.6. Attitudes and experience concerning adhesive use**

When asked how they would describe their experience of using adhesives, the majority of respondents stated that they were generally comfortable with their use, or at least comfortable and confident once they had gained sufficient experience. Those who stated that they found adhesives challenging were divided between those who left the statement bald, and those who qualified it by saying that only their initial experience was challenging, that infrequent use led to rusty skills, or that the learning curve was steep due to the number of variables involved. The learning curve was the overarching theme of the answers, where those who described comfort and confidence cited professional training, workshops, and assistance from colleagues and supervisors, and the more problematic aspects were development and maintenance of skills, time to research and experiment, and ethical considerations: “once I became comfortable with the ‘language’ of adhesives, it became easier;” “The practical process is straight forward but reaching the decision on the most appropriate adhesive takes time, testing and careful consideration;” and finally, “comfortable with techniques I am familiar with. Challenging for whether or not to use them at all.” All of the professionals interviewed expressed feeling fortunate for where they trained and worked for their comfort with adhesives, both Zenzie Tinker and Elizabeth-Anne Haldane for their work and training at the V&A, where a great deal of the major research on adhesives was carried out, Fiona Watt for her training at the CTC, the successor of the TCC where pioneering work was also carried out, Vivian Lochhead for her longstanding work at the People’s History Museum and its banner collection, and Misa Tamura for her training as an object’s conservator, where adhesives are more established in practice.

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<sup>109</sup> Lochhead, interview.

Based on these personal experiences, it is not surprising that the importance of practice and testing was the overwhelming answer given when respondents were asked for advice for others who are in the process of developing a practice of using adhesives. In detail, respondents urged others to practice at every opportunity, read case studies and current research, communicate with fellow professionals, build a reference library of samples, and accept that the investment of time necessary to build confidence.

As in the original study, “there is still a degree of inbuilt prejudice against their use which is not encountered in other areas of conservation.”<sup>110</sup> A significant number of responses in various free text areas of the current survey indicated a more general belief in the unsuitable and irreversible nature of adhesives with varying degrees of finality: “Use them sparingly and only when other approaches are impossible;” “I do not like it. So I would not advise it;” “last resort only - not used in my practice where traditional methods can be used;” “I would discourage using adhesive on textiles. Most anything else should be fine as long as it is easily reversible.” Answers such as this final quote, stating preferences for “anything else,” indicate a continuing distrust and aversion to adhesives in general. The preceding quote indicates a continuation of the dichotomy between the subjective categories of ‘traditional’ and ‘modern’ methods. Other respondents suggested this discomfort may be the result of a lack of the training and experience established by the survey as so vital, one stating “it's a shame that people are afraid of conservation treatments because of lack of hands on experience and hide behind the invented ethics of ‘conservation is more preventative these days.’” As previously noted, the changes in attitudes to adhesives have occurred rapidly enough to be encompassed by an individual career, and the very real concerns of previous decades may still be influencing both those professionals and possibly those who trained or are working under them. This may even be present on an institutional level, but as formal training with adhesives has now been incorporated into most programmes, the remaining apprehension is unlikely to be passed on to those who recently trained.

#### **3.4.7. Looking to the future**

Calls for increased communication and more opportunities to address lack of experience have been suggested as ways in which to reduce unease around adhesives, and the answers to the question “what resources would improve or advance your experience of using

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<sup>110</sup> Hillyer et al., “Evaluating the use of adhesives,” 44.

adhesives?” showed a great deal of consensus in their suggestions. Workshops were by far the most suggested solution, as they provide the three key elements, practical experience, professional guidance, and opportunities for contact with other professionals for communication and skill sharing. Zenzie Tinker has built up significant experience in this field: having studied adhesives in her training and helped establish the UKIC Adhesives Section and associated forums, she was one of the organisers of the 2002 collaborative workshop “Adhesives Today” between the V&A, BM, and CCI, where participants were targeted for their own expertise to maximise the skill sharing outputs of the event.<sup>111</sup> Tinker has since run workshops in the UK and internationally, and it is significant to note that the workshops grew from requests for Tinker to share her expertise, especially in places and organisations that had traditionally eschewed adhesives.<sup>112</sup> In the current survey, events such as the “Adhesives Today” workshop were cited by several respondents as models for desired resources. Two respondents specifically asked for an Icon “Back to Basics” course on the topic. However, the downside of formal workshops is that not everyone has access to them, due to time, finances, or location. Citing these reasons, published guidance was the other overwhelming suggestion, especially where details of technique were concerned. “A good manual specifically for textiles would also be a great help - this might include case studies - similar to *Chemical Principles of Textile Conservation*.”

Along with personal practical experience, the overarching theme was a desire for more opportunities for communication in any format, especially of practice and techniques: “Sharing of practice - knowledge exchange. [...] It can be offered in a range of formats;” “any means of conveying nuanced details of technique would be useful.” Videos were suggested, perhaps in the line of Richard Wolber’s videos that remove the physical access barrier to conferences. Perhaps a reintroduction of the type of informal use of mailing lists for queries and other communication seen in Part 1 would provide accessible skill sharing as well. Addressing both the need for published guidance and communication, especially with experts in the field, Zenzie Tinker also noted that the time had perhaps come for a manual of adhesive techniques to work alongside more science-orientated resources. She even suggested she might take on the project herself, which would undoubtedly be of significant benefit to the field.<sup>113</sup>

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<sup>111</sup> Tinker, interview.

<sup>112</sup> Ibid.

<sup>113</sup> Ibid.



While some apprehension surrounding adhesives is still in evidence, this study showed the profession in general has reached a more moderate conclusion that adhesives are yet another technique to be used when appropriate, no lesser or greater than other techniques. “To me there is no dogma (‘To glue or not to glue’). Adhesives today are one among many treatment options to be evaluated on a case by case bases.” When asked if they had any further comments to make, the most repeated comment respondents made was that adhesives were a ‘valid’ and ‘legitimate’ treatment option that all conservators should consider, despite the challenges the practice presented (or sometimes because of them). In answer to the opening question of this study, whether the profession had truly reached a comfortable understanding of adhesives and settled them into place in the conservation toolbox, the participants responded in the same language: “it is a valuable treatment to have in your bag of tricks;” “an excellent and versatile tool to have in your arsenal!”

#### 4. Conclusion

As an area of conservation that depends on modern materials which are under constant change due to conservation research on suitability, commercial changes to formulas, and availability, debate, research and re-evaluation will be constant as well. Reviewing literature of the period under study in Hillyer et al. illustrated the time as the “watershed in attitudes to the use of adhesives,”<sup>114</sup> where many conservators were refining their understanding and use of adhesives in practice, and scientific studies were being carried out to address the most pressing concerns. The inclusion of adhesives in textbooks and manuals was sporadic before Hillyer et al., but the change in attitude across the profession as a whole can be marked by the inclusion and thorough coverage of adhesives in both general and specialist literature published in the current period.

The reciprocal relationship of ideology and practice in the current moment has many conservators recognising the long timeframes of conservation work in looking back constructively and objectively at previous work to learn and not only improve our current practice, but ensure it accomplishes the broader goal of aiding future generations of professionals. Re-evaluation on the scale of a single treatment, as in case studies, to that of the practice at large, as in studies like this one and Hillyer et al., have illustrated a development of positive attitudes toward adhesives and a kinder approach to past conservation treatments that benefit the profession as a whole. Improvements in documentation, communication, and creation and utilisation of new sources are all ongoing, as shown in the literature and the survey. The results of the survey were particularly strong in recommending the importance of further improvements in communication and accessibility of information. Further material in many formats (workshops, manuals, videos, etc.) to facilitate the improvement of practical skills and further personal experience with adhesives received the highest endorsements. Calls for improvements do not compete with the notion that textile conservators have reached a comfortable understanding of the value of adhesive treatments in their repertoire of tools, but rather reinforce it, as continued professional development is a key aspect of our field.

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<sup>114</sup> Hillyer et al., “Evaluating the use of adhesives,” 44.

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## Appendix A: University of Glasgow Ethical Approval



14 June 2018

Dear Marika,

### **Ethics Application 100170121: Ethics Approval**

With many thanks to you for attending to the changes requested earlier, I am pleased to report that ethical approval is given for your research. You should note the following actions, which are required as part of the process of research monitoring:

- It is your responsibility to inform, as appropriate, your supervisor, advisor or funding body of the outcome of your Ethics application. You should also indicate successful receipt of ethical clearance on all consent and interview information forms as well as on the acknowledgements page of your dissertation project (suggested wording: 'ethical clearance for this project has been granted by the College of Arts Research Ethics committee [date of approval letter]').
- We advise that you will need to make it clear to participants that there will be no impact if they choose either not to participate in the interviews or to allow use of the resulting materials. Without this reassurance, you are potentially in a coercive position towards them where they may feel that they have no choice about participation.
- An end of project report is required by the Ethics Committee. A brief report should be provided within one month of the completion of the research, giving details of any ethical issues which have arisen. (A paragraph or two will usually be sufficient – this could also be a copy of your reflective appendix, as it would be good practice to incorporate some comment on your handling of the ethical issues associated with the project there.) This is a condition of approval and in line with the committee's need to monitor the conduct of research.

In addition, please note that any unforeseen events which might affect the ethical conduct of the research – or which might provide grounds for discontinuing the study – must be reported immediately in writing to the Ethics Committee. The Committee will examine the circumstances and advise you of its decision, which may include referral of the matter to the central University Ethics Committee or a requirement that the research be terminated.

Information on the College of Arts Ethics policy and procedures is available for consultation at <http://www.gla.ac.uk/colleges/arts/research/ethics>.

Yours sincerely,

**Dr James R. Simpson**

Ethics Officer, College of Arts

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## **Appendix B: Interview consent forms**

Interviews were conducted to support the development of the research and supplement conclusions drawn from the survey data. Given the timeframe of the overall project, the interviews, while recorded, were not transcribed. The audio files will be stored in accordance with the data management plan (Appendix C).

**1. Consent form: Zenzie Tinker**



**2. Consent form: Fiona Watt**

**3. Consent form: Elizabeth-Anne Haldane**



## 5. Consent form: Vivian Lochhead



### CONSENT TO THE USE OF DATA University of Glasgow, College of Arts Research Ethics Committee

I understand that Marika Kesler is collecting data in the form of recorded interviews and completed questionnaires for use in an academic research project at the University of Glasgow.

I understand that the research focusses on practical experience of the use of adhesives in textile conservation as well as general attitudes and concerns surrounding their use.

The research will involve surveying practicing textile conservators to document current attitudes toward adhesives, methodologies of use, methods of application in practice, and review current methods of evaluating the quality of adhesive films. The structure of the survey and interviews will follow and build on that of the following study: Lynda Hillyer, Zenzie Tinker, and Poppy Singer. "Evaluating the Use of Adhesives in Textile Conservation. Part 1: An Overview and Survey of Current Use." *The Conservator* 21 (1997): 37-47. It is the aim of this project to update this key source to account for changes in availability of commercial adhesives and development of techniques in their use.

#### **I give my consent to the use of data for this purpose on the understanding that:**

- I understand that all materials will be treated as confidential and stored securely (recordings and print materials: lockable storage; electronic materials: on secured drives/ user accounts).
- I understand that the taped material and transcripts will be retained in secure storage for up to ten years, while transcripts will also be collated to form an appendix to the research document.
- I understand that the material will be retained in secure storage for use in future academic research.
- The material may be used in future publications, both print and online. Tick as appropriate:
  - I agree to take part in the above study on the condition I remain anonymous. I understand that information and remarks may be used in publications resulting from the project.
  - OR
  - I agree to take part in the above study as a named participant. I understand that I will be allowed to see and approve pre-publication drafts of any studies in which I am cited.

Name of Participant    Vivian Lochhead                      Date    18/6/2018

Signature    Vivian Lochhead

Researcher    Marika Kesler    Date    18/6/2018

Signature    Marika Kesler

#### **Researcher's name and email contact:**

Marika Kesler:

#### **Supervisor's name and email contact:**

Margaret Smith:

#### **Department address:**

School of Culture and Creative Arts, 8 University  
Gardens

## **Appendix C: Data Management Plan**

### **Data Management Plan for Research Project:**

#### **“Adhesive use in textile conservation: an update on recent developments and current practice”**

##### **1. What data will be created?**

This project will produce internationally representative survey data targeted at textile conservators in the United Kingdom, United States, Canada, Europe, Australia and New Zealand covering the topic of adhesive use in their professional practice. Close to 80 respondents anonymous answers to multiple-choice as well as free text questions will be collected using the Jisc Online Surveys system supported by the University of Glasgow. The data will be stored and analysed both using the built-in tools in Online Surveys as well as in Microsoft Excel spreadsheets.

##### **2. How will the data be documented and described?**

The data will be initially documented by Jisc Online Surveys and stored according to their Information Security Management System (ISMS).<sup>115</sup> The capture methods and original survey format and questions will be contained within the dissertation both in the main text and in appendices.

##### **3. How you will manage ethics and intellectual property?**

The privacy of research participants has been ensured both by negotiating informed consent through consent to the use of data statements on all survey responses and the anonymity of the survey ensured by the structure used in its creation. Ethical considerations were drafted and approved by the University of Glasgow Ethics Committee and associated documentation will form an appendix to the dissertation document. As is established policy with dissertations, delayed dissemination will place an embargo on the datasets and associated interpretation until one year after completion of the dissertation to allow for potential publications by the researcher, both the study and associated dataset will be made public using the Enlighten system after this point. All respondents to the survey agreed to participate knowing their responses would be anonymous and the data would potentially be used in future research and publications.

##### **4. What are the plans for data sharing and access?**

The dataset will be used by the primary researcher, Marika Kesler, and available for access by the research supervisor, Margaret Smith, during the research and embargo period. The data will form the basis of a report comprising one of two parts of the researcher's dissertation in partial fulfilment of the MPhil Textile Conservation course at the University of Glasgow. After the completion of this academic project, it is the intention of the researcher to publish a shorter report based on the dissertation research as a whole to ensure

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<sup>115</sup> <https://www.onlinesurveys.ac.uk/help-support/online-surveys-security/>

dissemination of the outcomes of the research. The datasets will then be open access to support this publication.

Data in Enlighten: Research Data, the University of Glasgow's Data Repository, will be issued with a Digital Object Identifier (DOI). This can be included as part of a data citation in publications, allowing the datasets underpinning a publication to be identified and accessed. DOIs will also be linked with appropriate records in Enlighten: Publications, the University's publication repository, to enhance visibility of datasets

Metadata about datasets held in the University Registry will be publicly searchable and discoverable and will indicate how and on what terms the dataset can be accessed.

Information about datasets from the Registry will be displayed on researcher profile pages on the University of Glasgow webpages which will also increase the visibility of the datasets.

### **5. What is the strategy for long-term preservation and sustainability?**

During the course of the dissertation research data downloaded by the researcher will be encrypted for storage on portable media and deposited to both a secure external hard drive and the University's institutional research data repository (Enlighten) in association with the dissertation upon its completion.

To ensure long term accessibility to the data, the results of the survey will be retained in both the widely-used MS Excel (.xls/.xlsx) format as produced by Jisc Online Surveys for raw data as well as in PDF format in the documentation of cross-referenced data presented in the associated dissertation work. The dissertation itself will be stored cross-referenced with this data in a PDF format as well.

In using the University of Glasgow's Enlighten system, the data will be kept for at least ten years in accordance with the University's Code of Good Practice in Research.

## **Appendix D: Survey Invitation**

### **Invitation to participate in research survey on adhesive use in textile conservation**

**Study Title:** MPhil. Textile Conservation Dissertation – ‘Adhesive use in textile conservation: recent developments and current practice.’

**Researcher:**

**Supervisor:**

**Invitation:** You are invited to take part in a research questionnaire in conjunction with a Masters dissertation from the Centre for Textile Conservation and Technical Art History, University of Glasgow. Please take time to read the following information and consider whether or not you would like to take part. You are welcome to contact the researcher or supervisor for any additional information or clarification of the information provided here.

Thank you for your time and consideration.

#### **What is the purpose of the study?**

To provide both an overview of professional attitudes towards, and developing practice of, adhesive use in the conservation of textiles within the last 20 years, as well as a snapshot of current practice.

This research aims to build on and update a key resource in the field: Lynda Hillyer, Zenzie Tinker, and Poppy Singer, "Evaluating the Use of Adhesives in Textile Conservation. Part 1: An Overview and Survey of Current Use." *The Conservator* 21 (1997): 37-47.

#### **Why have I been chosen?**

You have been asked to complete the questionnaire on account of your profession and possible first-hand experience of using adhesives in the conservation of textiles. It would be most beneficial to this research if, alongside textile conservation specialists, practising conservators who work with textiles participated. The questions should reflect your practice when treating textiles, both in isolation or as part of composite objects. In addition, it would be valuable if those who do not routinely use adhesives in practice still provided data to reflect their experiences.

#### **Do I have to take part?**

You are not obliged to take part, but your participation would be greatly appreciated and your time valued.

Questionnaire participants will remain anonymous in both printed and online versions of the final research document. Your answers will be discussed and compared to answers by other participants without prejudice.

#### **Survey format and logistics**

The questionnaire is composed of four parts, the first three are multiple choice and require answers to each question. The final free text section does not require answers, but any information or further comments you wish to share would be gratefully received. It should take approximately 15-20 minutes to complete.

The survey will close on the 13th of July, 2018.

A short report on the results will be made available by the 31st of August, 2018.

**To complete the survey, please follow the link below.**

<https://glasgow-research.onlinesurveys.ac.uk/adhesive-use-in-textile-conservation>

Please share this invitation with colleagues and anyone whose input you feel would be beneficial.

Thank you for your participation!



## Appendix E: Questionnaire

Included below are all of the elements of the questionnaire exclusive of Jisc Online Surveys formatting.

### **Part 1: Consent to the use of data**

University of Glasgow, College of Arts Research Ethics Committee

I understand that Marika Kesler is collecting data in the form of completed questionnaires for use in an academic research project at the University of Glasgow.

I understand that the research focusses on practical experience of the use of adhesives in textile conservation as well as general attitudes and concerns surrounding their use.

#### **I give my consent to the use of data for this purpose on the understanding that:**

- all materials will be treated as confidential and stored securely (recordings and print materials: lockable storage; electronic materials: on secured drives/ user accounts).
- the taped material and transcripts will be retained in secure storage for up to ten years, while transcripts will also be collated to form an appendix to the research document.
- the material will be retained in secure storage for use in future academic research.
- the material may be used in future publications, both print and online.

I agree to anonymously take part in the above study. I understand that information and remarks may be used in publications resulting from the project.

### **Part 2: Background Information**

1. Where are you located?

United Kingdom	
Europe	
United States	
Canada	
Australia and New Zealand	
Other (please specify)	

2. What is your specialism/job description?

Textile Conservator	
Organics Conservator	
Conservator, other specialism (please specify)	
Student (please specify specialism)	
Other (please specify)	

3. Where do you work?

Private practice	
Small institution	
Large institution	
Freelance/short contracts	
Other (please specify)	

4. Where did you train?

Formal course	
Apprenticeship/Internship	
On the job/Experiential training	
Other (please specify)	

5. What type of objects/collections do you work with?

Mixed	
Textile-only	
Historical	
Modern	
Local history	
Archaeological	
Other (please specify)	

6. Do you currently or have you previously used adhesives in practice?

Yes	
No – Please skip to Part 4	

### **Part 3: Adhesive Use**

1. How would you describe your proficiency level with adhesives?

Novice	
Advanced beginner	
Competent	
Proficient	
Expert	

2. On average, in what percentage of textile conservation treatments have you used adhesives?

0-20	
20-40	
40-60	
60-80	

Would you like to qualify your answer? Please comment below:

3. Which of the following adhesives have you used in treating textiles within the last twenty years, which adhesives do you currently use, and which are most preferred? (Check all that apply)

Adhesive	Within the last 20 years	Currently use	Preferred
Acryloid B-72 HMG Adhesive			
Acryloid B-44 (Paraloid B-44)			
Acryloid B-72 (Paraloid B-72)			
Acryloid B-48N (Paraloid B-48N)			
Acryloid B-67 (Paraloid B-67)			
Beva 371			
Beva 371 Film			
Beva 371 Gel			
Beva 371 Solution			
Beva Tex			
Conservation Adhesive (B72 in acetone)			
Jade R			
Jade 403N			
Evacon R, EVA			
Lascaux P550-40TB			
Lascaux 360HV			
Lascaux 303HV			
Lascaux 498HV			
Lascaux Polyamide Textile Welding Powder 5350			
Lascaux Hydro-Grund/Hydrosealer			
Mowilith 50			
Mowilith DMC2 (Clariant T1601)			
Mowilith DM5			
Paraloid F-10			
Plextol B500			
Plextol M630			
Adhesive Rhoplex WS24 (Primal WS24)			
Texicryl 13-002			
Texicryl Acrylic Adhesive			
PVA Resin Solid Vinapas			
Vinapas EP1			
Vinamul 3252			
Vinamul 3254			
Klucel G			

Klucel E			
Klucel L			
Klucel HPC			
Carboxymethyl cellulose			
Methyl cellulose			
Wheat starch			
Rice starch			
Arrowroot/sodium alginate			
Funori			
Starch paste (unspecified)			
Stadex starch blend			
Gelatin			
Isinglass			
Unspecified animal glue			
Little or no adhesive ever			
<b>Other</b> – please specify:			

If you frequently use mixtures, please provide further detail:

4. What physical and working properties most influence your choice of adhesive?

Performance in ageing tests	
Flexibility (handle and drape)	
Bond strength	
Heat sealing temperatures	
Alkalinity/acidity of adhesive	
Solubility	
Retention of colourants	
Glass transition temperature ( $T_g$ )	
Reversibility	
Other – please specify:	

5. What factors outside working properties influence your choice of adhesive?

Experience/familiarity	
Health and safety considerations	
Available equipment/lack thereof (ie. Spray booth/vacuum table)	
Correspondence to object (e.g. cellulose for barkcloth)	
Availability – specific (e.g. Studio stock)	
Availability – general (e.g. Commercial availability)	
Price	
Other – please specify:	

6. What method do you use to apply or reactivate adhesives to your objects?

Spatula Iron	
Flat iron	
Spatula & flat iron	
Vacuum hot table	
Irons & vacuum hot table	
Low pressure vacuum table (cold lining)	
Solvent activation	
Solvent activation & low pressure table	
Direct wet application	
Direct, semi-dry application	
Other – please specify:	

7. Which support substrates have you used?

Silk crepeline	
Silk habotai	
Silk net	
Polyester crepeline (e.g. Stabiltex)	
Paper	
Tissue	
Fine cotton	
Nylon net	
Nylon gossamer (e.g. Cerex)	
Spun-bonded polyester (e.g. Hollytex)	
Other – please specify:	

8. Which method do you use to prepare your cast adhesive supports?

Polythene	
Polyester film (Melinex/Mylar/etc.)	
Stretcher	
Teflon coated glass fibre cloth	
Silicone release paper/polyester film	
Other – please specify:	

9. How do you apply your adhesive to your support substrate (casting)?

Brush	
Sponge	
Spray	
Roller	
Other – please specify:	

Part 4: Attitudes and experience concerning adhesive use

1. What factors would prompt you to choose an adhesive treatment over other forms of support or consolidation? (e.g. Condition or composition of object, time, object role, etc.)
2. How would you describe your experience of using adhesives (including training and testing)? (e.g. Easy, difficult, comfortable, challenging, etc.)
3. What resources would improve or advance your experience of using adhesives? (e.g. Formal training, workshops, published guidance, further detail in case studies, etc.)
4. What advice do you have for others who are in the process of developing a practice of using adhesives?
5. Do you have any further comments about adhesive use in textile conservation?

Thank you!

Thank you for completing this survey. The results of the research will be made available upon request in a short report after the completion of the full dissertation by the 31st of August 2018. Please retain the contact information for Marika Kesler below if you would like a copy of this report.

|

## **Appendix F: Questionnaire Results**

Below are the full results of the survey presented in the manner deemed most compatible with the interpretation of the data found in the text. The below format is a document generated by Jisc Online Surveys of the full results cross-referenced against the location of the respondents. In free text responses, each respondent is associated with an anonymised ID number which can be cross-referenced using the digital files associated with this work. For all data in digital format, please see associated files available through Enlighten.

# Adhesive Use in Textile Conservation

Showing 79 of 79 responses

Showing **all** responses

Showing **all** questions

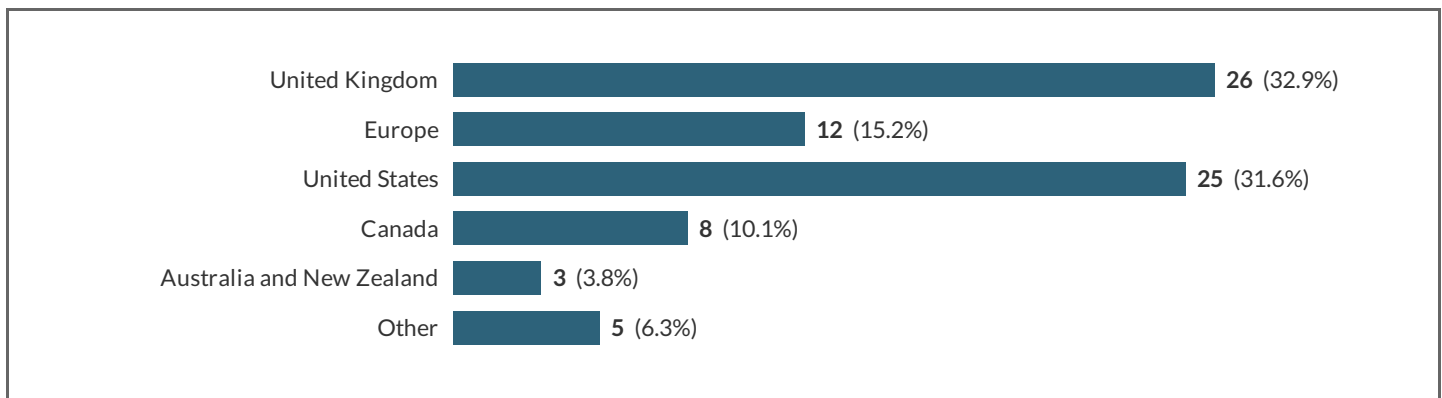
Response rate: 79%

**1** Please indicate your agreement below:

Please indicate your agreement below:	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		
I agree to anonymously take part in the above study. I understand that information and remarks may be used in publications resulting from the project.	26	12	25	8	3	5	0	79
No answer	0	0	0	0	0	0	0	0
<b>Totals</b>	<b>26</b>	<b>12</b>	<b>25</b>	<b>8</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>79</b>

Question	Response count
2	79
1	79

**2** Where are you located?





2.a If you selected Other, please specify:

Showing all 5 responses	
Southeast Asia	<a href="#">375671-375662-36553658</a>
Asia	<a href="#">375671-375662-36576225</a>
Argentina	<a href="#">375671-375662-36589683</a>
Argentina	<a href="#">375671-375662-36589773</a>
Argentina	<a href="#">375671-375662-36675657</a>

3 What is your specialism/job description?

What is your specialism/job description?	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		
Textile Conservator	23	9	19	7	3	5	0	66
Organics Conservator	1	1	2	2	0	0	0	6
Conservator, other specialism	0	1	4	1	0	0	0	6
Student, please add specialism in 'other' below	2	1	0	0	0	0	0	3
Other	1	3	1	1	0	0	0	6
No answer	0	0	0	0	0	0	0	0
<b>Totals</b>	<b>27</b>	<b>15</b>	<b>26</b>	<b>11</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>87</b>

Question	Response count
2	79
3	79

3.a If you selected Other, please specify:

Showing all 6 responses	
textile conservation	375671-375662-36544567
art historian	375671-375662-36556748
Paper conservator, working on textile bindings	375671-375662-36713950
ethnographic and archaeological	375671-375662-36766425
Retired	375671-375662-36866122
Textile conservation	375671-375662-37009500

**4** Where do you work?

Where do you work?	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		
Private practice	5	2	11	2	0	2	0	22
Small institution	1	5	5	2	0	1	0	14
Large institution	16	4	8	3	0	2	0	33
Freelance/Short contracts	0	0	0	0	1	0	0	1
Other	4	1	1	1	2	0	0	9
No answer	0	0	0	0	0	0	0	0
<b>Totals</b>	<b>26</b>	<b>12</b>	<b>25</b>	<b>8</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>79</b>

Question	Response count
2	79
4	79

**4.a** If you selected Other, please specify:

Showing all 9 responses	
Private practice and Freelance/Short contracts	<a href="#">375671-375662-36622558</a>
Retired	<a href="#">375671-375662-36866122</a>
Textile Conservation	<a href="#">375671-375662-36935946</a>
I am a public servant but work for both government and private clients	<a href="#">375671-375662-36949037</a>
Public servant working for State and Private Clients	<a href="#">375671-375662-36949061</a>
Still studying	<a href="#">375671-375662-37009500</a>
University	<a href="#">375671-375662-37185661</a>
Small institution, now retired	<a href="#">375671-375662-37241617</a>
Large institution and Private practice	<a href="#">375671-375662-37094029</a>

**5** Where did you train?

Where did you train?	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		
<b>Formal course</b>	23	10	21	8	3	3	0	68
<b>Apprenticeship/Internship</b>	2	2	3	3	0	3	0	13
<b>On the job/Experiential training</b>	2	2	2	2	0	2	0	10
<b>Other</b>	0	0	1	0	0	0	0	1
<b>No answer</b>	0	0	0	0	0	0	0	0
<b>Totals</b>	<b>27</b>	<b>14</b>	<b>27</b>	<b>13</b>	<b>3</b>	<b>8</b>	<b>0</b>	<b>92</b>

Question	Response count
2	79
5	79

**5.a** If you selected Other, please specify:

Showing 1 response	
Undergraduate and graduate degrees in Textile Science. Internships during undergraduate/graduate work.	<a href="#">375671-375662-36622558</a>

6 What type of objects/collections do you work with?

What type of objects/collections do you work with?	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		
Mixed	11	5	14	5	1	2	0	38
Textile-only	16	9	15	3	2	4	0	49
Historical	3	3	11	4	0	0	0	21
Modern	2	2	6	2	0	0	0	12
Local history	2	2	5	2	0	0	0	11
Archaeological	1	2	6	2	0	0	0	11
Other	1	2	2	0	0	0	0	5
No answer	0	0	0	0	0	0	0	0
<b>Totals</b>	<b>36</b>	<b>25</b>	<b>59</b>	<b>18</b>	<b>3</b>	<b>6</b>	<b>0</b>	<b>147</b>

Question	Response count
2	79
6	79

6.a If you selected Other, please specify:

Showing all 5 responses	
Textile and costume as well as other fibre based media: basketry; contemporary fibre.	<a href="#">375671-375662-36622558</a>
Historical textile bindings	<a href="#">375671-375662-36713950</a>
ethnographic	<a href="#">375671-375662-36766425</a>
social history, textiles, painted textiles	<a href="#">375671-375662-37241617</a>
Paintings	<a href="#">375671-375662-37339989</a>

7 Do you currently or have you previously used adhesives in practice?

Do you currently or have you previously used adhesives in practice?	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		

<b>Yes</b>	26	10	25	8	3	4	0	76
<b>No - you will be routed to part 4</b>	0	2	0	0	0	1	0	3
<b>No answer</b>	0	0	0	0	0	0	0	0
<b>Totals</b>	<b>26</b>	<b>12</b>	<b>25</b>	<b>8</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>79</b>

Question	Response count
2	79
7	79

**8** How would you describe your proficiency level with adhesives?

How would you describe your proficiency level with adhesives?	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		
<b>Novice</b>	0	0	0	0	0	3	0	3
<b>Advanced beginner</b>	6	1	3	3	2	0	0	15
<b>Competent</b>	7	5	13	3	0	1	0	29
<b>Proficient</b>	11	4	5	2	1	0	0	23
<b>Expert</b>	2	0	4	0	0	0	0	6
<b>No answer</b>	0	2	0	0	0	1	0	3
<b>Totals</b>	<b>26</b>	<b>12</b>	<b>25</b>	<b>8</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>79</b>

Question	Response count
2	79
8	76

**9** On average, in what percentage of textile conservation treatments have you used adhesives?

On average, in what percentage of textile conservation treatments have you used adhesives?	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		
<b>0-20%</b>	16	7	22	6	2	3	0	56

20-40%	4	1	2	1	1	1	0	10
40-60%	5	0	1	0	0	0	0	6
60-80%	1	1	0	0	0	0	0	2
80-100%	0	1	0	1	0	0	0	2
No answer	0	2	0	0	0	1	0	3
<b>Totals</b>	<b>26</b>	<b>12</b>	<b>25</b>	<b>8</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>79</b>

Question	Response count
2	79
9	76

9.a Would you like to qualify your answer?

Showing all 38 responses	
I have used an adhesive treatment on only four objects to date.	<a href="#">375671-375662-36508556</a>
only used when no other method of mechanical (sewing included) would suffice	<a href="#">375671-375662-36529929</a>
I rarely use adhesives, as I see them most often as a "last resort" for degraded silks. I do use them in other instances on mixed media textiles or consolidation of paint layers.	<a href="#">375671-375662-36531135</a>
I rather use mechanical means, i.e. sewing components together	<a href="#">375671-375662-36545019</a>
I rarely use adhesives in my treatments	<a href="#">375671-375662-36545408</a>
I have worked with upholstery on 3-D objects, so many of the "textiles" I have used adhesives on are leather. Others are woven or felted. Substrates to which they are adhered are leather, fabric and wood.	<a href="#">375671-375662-36541504</a>
At the time of the survey I have not completed a large number of textile treatments independently (perhaps 25?) but of these, two were carried out using adhesives, so proportionately that would be around 8-10% of my treatments.	<a href="#">375671-375662-36553658</a>
Used only where stitching is impossible.	<a href="#">375671-375662-36576225</a>
Conservation treatments take many forms: compensation for loss, crease reduction, cleaning etc. Stabilization is only one small part. Then within that, more of my treatments have been stitched rather than with adhesives. Adhesives are only used in circumstances where stitching would a) be harmful to the piece, b) provide insufficient support, or c) produce negative aesthetic results.	<a href="#">375671-375662-36579959</a>
If an object can be stitched, that is a preferable treatment to adhesives.	<a href="#">375671-375662-36569504</a>
My institution tries not to use adhesives because many objects are on open display so I rarely get the chance to practice using them.	<a href="#">375671-375662-36590523</a>
It depends on the material and the degradation. With degraded silk I use adhesive more than 75% of the time but with degraded cotton less than 25% of the time.	<a href="#">375671-375662-36623839</a>
As types of objects sent to me for treatment vary over the years, there might be years with a	<a href="#">375671-375662-36623891</a>

higher or much lower percentage.	
I've been a textile conservator for 15 years and ive only used adhesive about 10 times	375671-375662-36636003
I have only used adhesives in textile treatments where stitching is not an option die to the nature of the object- generally where an adhesive-cast support system is required	375671-375662-36664439
I work on complex large projects where the textile is in a fragile condition and stitching alone does not provide sufficient support	375671-375662-36673672
Many of the objects that come to the workshop do not require adhesive treatment	375671-375662-36710866
Books must be opened so using adapted adhesives is better than using needles.	375671-375662-36713950
I use adhesives much less now than used to do. A curator from one of my major client museums doesn't like adhesives so I use other support methods more.	375671-375662-36743334
It was the norm when I was a pre-program intern (>30 years ago). BEVA was particularly popular	375671-375662-36766425
I use adhesive sparingly, and generally only when stitching is not an option.	375671-375662-36933005
Every treatment this year required adhesives. Prior to this year, I had not used adhesives in textile conservation treatments	375671-375662-36935946
I would generally only use and adhesive techniques if the textile was so badly degraded or extremely fine	375671-375662-36949037
A large number of treatments involve cleaning only.	375671-375662-36989145
Adhesives is really the very last choice. Prefer to have the object safely stored within the best environment and supported to keep it in shape. In case of display, advise the curators to choose another object which is more suitable regarding its condition, handling, transport, etc. Adhesives are also applied in small bits to prevent the textile from moving and to be able to treat, i.e. stitching the textile on the internal support. A weak adhesive will be used.	375671-375662-36999285
Find adhesive coated silk crepeline reactivated (Klucel or Lascaux) very useful for some local quick repairs; also work on barkcloth and plant fibre textiles where starch and paper repairs good - also paper/starch/klucel tabs on archaeological textiles occasionally.	375671-375662-37008984
I have used adhesive only when stitching treatment was not possible	375671-375662-37109988
I very rarely use adhesives on objects, due to the lack of fume hood, proper storage for solvents, and proper disposal system at my job. But it is an area I would like to expand on if the funds become available.	375671-375662-37115298
I tend to use adhesive with non-woven textile while with woven textile I have tended to use net-encasing. This might be to do with the fact that, as a non-textile conservator, I have never carried out conservation of (woven) textile material that was severely deteriorated/structurally compromised.	375671-375662-37168202
This is a difficult figure to quantify but I often find whether an adhesive treatment is applicable or not often relates to the object type.	375671-375662-37185661
Several small treatments but only one large adhesive treatment	375671-375662-37192274
Initial 13 years of career worked with varied collections of textiles, including costume, some requiring adhesive support, then approx. 27 years working with a social history collection, which held many painted items and required more used of adhesives.	375671-375662-37241617
It is a very rare instance.	375671-375662-37295160

As paintings conservator, I frequently use adhesives to adhere canvas to another support (if necessary), single threads of paint layer to canvas	375671-375662-37339989
Adhesives are a last resort in my opinion and only used when other methods are not satisfactory	375671-375662-37629296
We would always use an adhesive if it were the appropriate treatment choice and have no hesitation in doing so once we have thought through the options.	375671-375662-37646659
I use adhesives only when they will provide the best outcome for the object. They are always something that might be used if needed.	375671-375662-37653815
Only when textile is too fragile to stand stitching without adhesive support.	375671-375662-37672427

**10** Which of the following adhesives have you used in treating textiles within the last twenty years, which adhesives do you currently use, and which are most preferred? (Check all that apply)

**10.1** Acryloid B-72 HMG Adhesive

Acryloid B-72 HMG Adhesive	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		
Within the last 20 years	0	1	2	1	0	1	0	5
Currently use	0	0	0	0	0	0	0	0
Preferred	0	0	0	0	0	0	0	0
No answer	26	11	23	7	3	4	0	74
<b>Totals</b>	<b>26</b>	<b>12</b>	<b>25</b>	<b>8</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>79</b>

Question	Response count
2	79
10.1	5

**10.2** Acryloid B-44 (Paraloid B-44)

Acryloid B-44 (Paraloid B-44)	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		
Within the last 20 years	0	0	0	0	0	0	0	0
Currently use	0	0	0	0	0	0	0	0



<b>Preferred</b>	0	0	0	0	0	0	0	0
<b>No answer</b>	26	12	25	8	3	5	0	79
<b>Totals</b>	<b>26</b>	<b>12</b>	<b>25</b>	<b>8</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>79</b>

Question	Response count
2	79
10.2	0

**10.3** Acryloid B-72 (Paraloid B-72)

Acryloid B-72 (Paraloid B-72)	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		
<b>Within the last 20 years</b>	7	3	11	0	1	1	0	23
<b>Currently use</b>	2	1	5	0	1	0	0	9
<b>Preferred</b>	1	0	1	0	0	0	0	2
<b>No answer</b>	17	9	13	8	1	4	0	52
<b>Totals</b>	<b>27</b>	<b>13</b>	<b>30</b>	<b>8</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>86</b>

Question	Response count
2	79
10.3	27

**10.4** Acryloid B-48N (Paraloid B-48N)

Acryloid B-48N (Paraloid B-48N)	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		
<b>Within the last 20 years</b>	0	0	0	0	1	0	0	1
<b>Currently use</b>	0	0	0	0	0	0	0	0
<b>Preferred</b>	0	0	0	0	0	0	0	0
<b>No answer</b>	26	12	25	8	2	5	0	78
<b>Totals</b>	<b>26</b>	<b>12</b>	<b>25</b>	<b>8</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>79</b>

Question	Response count
2	79
10.4	1

**10.5** Acryloid B-67 (Paraloid B-67)

Acryloid B-67 (Paraloid B-67)	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		
Within the last 20 years	0	0	1	1	1	0	0	3
Currently use	0	0	0	0	0	0	0	0
Preferred	0	0	0	0	0	0	0	0
No answer	26	12	24	7	2	5	0	76
<b>Totals</b>	<b>26</b>	<b>12</b>	<b>25</b>	<b>8</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>79</b>

Question	Response count
2	79
10.5	3

**10.6** Beva 371

Beva 371	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		
Within the last 20 years	5	3	10	2	0	0	0	20
Currently use	4	1	6	0	0	0	0	11
Preferred	2	1	2	0	0	0	0	5
No answer	19	9	13	6	3	5	0	55
<b>Totals</b>	<b>30</b>	<b>14</b>	<b>31</b>	<b>8</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>91</b>

Question	Response count
2	79
10.6	24

**10.7** Beva 371 Film

Beva 371 Film	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		
Within the last 20 years	11	2	11	4	1	3	0	32
Currently use	13	6	11	1	3	1	0	35
Preferred	3	1	3	0	0	0	0	7
No answer	7	5	9	3	0	2	0	26
<b>Totals</b>	<b>34</b>	<b>14</b>	<b>34</b>	<b>8</b>	<b>4</b>	<b>6</b>	<b>0</b>	<b>100</b>

Question	Response count
2	79
<b>10.7</b>	<b>53</b>

**10.8** Beva 371 Gel

Beva 371 Gel	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		
Within the last 20 years	1	0	3	0	0	0	0	4
Currently use	1	0	0	0	0	0	0	1
Preferred	0	0	1	0	0	0	0	1
No answer	25	12	21	8	3	5	0	74
<b>Totals</b>	<b>27</b>	<b>12</b>	<b>25</b>	<b>8</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>80</b>

Question	Response count
2	79
<b>10.8</b>	<b>5</b>

**10.9** Beva 371 Solution

Beva 371 Solution	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		

SOLUTION	Where are you located?						answer	
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		
Within the last 20 years	3	0	2	3	0	0	0	8
Currently use	4	2	1	0	0	0	0	7
Preferred	2	0	0	0	0	0	0	2
No answer	22	10	23	5	3	5	0	68
<b>Totals</b>	<b>31</b>	<b>12</b>	<b>26</b>	<b>8</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>85</b>

Question	Response count
2	79
<b>10.9</b>	<b>11</b>

**10.10** Beva Tex

Beva Tex	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		
Within the last 20 years	0	0	1	0	0	0	0	1
Currently use	1	0	3	0	1	0	0	5
Preferred	0	0	1	0	0	0	0	1
No answer	25	12	22	8	2	5	0	74
<b>Totals</b>	<b>26</b>	<b>12</b>	<b>27</b>	<b>8</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>81</b>

Question	Response count
2	79
<b>10.10</b>	<b>5</b>

**10.11** Conservation Adhesive (B72 in acetone)

Conservation Adhesive (B72 in acetone)	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		

<b>Within the last 20 years</b>	2	1	3	2	1	0	0	9
<b>Currently use</b>	2	0	1	0	0	0	0	3
<b>Preferred</b>	1	0	1	0	0	0	0	2
<b>No answer</b>	22	11	22	6	2	5	0	68
<b>Totals</b>	<b>27</b>	<b>12</b>	<b>27</b>	<b>8</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>82</b>

Question	Response count
2	79
<b>10.11</b>	<b>11</b>

**10.12** Jade R

Jade R	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		
<b>Within the last 20 years</b>	0	0	2	0	0	0	0	2
<b>Currently use</b>	0	0	2	0	0	0	0	2
<b>Preferred</b>	0	0	1	0	0	0	0	1
<b>No answer</b>	26	12	22	8	3	5	0	76
<b>Totals</b>	<b>26</b>	<b>12</b>	<b>27</b>	<b>8</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>81</b>

Question	Response count
2	79
<b>10.12</b>	<b>3</b>

**10.13** Jade 403N

Jade 403N	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		
<b>Within the last 20 years</b>	0	0	4	4	1	0	0	9
<b>Currently use</b>	0	0	4	1	0	0	0	5

<b>Preferred</b>	0	0	2	0	0	0	0	2
<b>No answer</b>	26	12	18	4	2	5	0	67
<b>Totals</b>	<b>26</b>	<b>12</b>	<b>28</b>	<b>9</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>83</b>

Question	Response count
2	79
<b>10.13</b>	12

**10.14** Evacon R, EVA

Evacon R, EVA	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		
<b>Within the last 20 years</b>	2	0	1	0	0	0	0	3
<b>Currently use</b>	1	1	0	0	0	0	0	2
<b>Preferred</b>	1	1	0	0	0	0	0	2
<b>No answer</b>	23	11	24	8	3	5	0	74
<b>Totals</b>	<b>27</b>	<b>13</b>	<b>25</b>	<b>8</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>81</b>

Question	Response count
2	79
<b>10.14</b>	5

**10.15** Lascaux P550-40TB

Lascaux P550-40TB	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		
<b>Within the last 20 years</b>	1	1	1	0	0	0	0	3
<b>Currently use</b>	1	1	0	0	0	0	0	2
<b>Preferred</b>	0	1	0	0	0	0	0	1
<b>No answer</b>	25	11	24	8	3	5	0	76
<b>Totals</b>	<b>27</b>	<b>14</b>	<b>25</b>	<b>8</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>82</b>

Question	Response count
2	79
<b>10.15</b>	<b>3</b>

**10.16** Lascaux 360HV

Lascaux 360HV	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		
Within the last 20 years	12	4	12	5	0	3	0	36
Currently use	13	5	10	1	2	1	0	32
Preferred	6	3	8	2	3	0	0	22
No answer	4	5	9	2	0	1	0	21
<b>Totals</b>	<b>35</b>	<b>17</b>	<b>39</b>	<b>10</b>	<b>5</b>	<b>5</b>	<b>0</b>	<b>111</b>

Question	Response count
2	79
<b>10.16</b>	<b>58</b>

**10.17** Lascaux 303HV

Lascaux 303HV	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		
Within the last 20 years	5	1	1	1	0	1	0	9
Currently use	16	3	3	2	0	3	0	27
Preferred	9	1	0	1	0	0	0	11
No answer	9	9	21	5	3	2	0	49
<b>Totals</b>	<b>39</b>	<b>14</b>	<b>25</b>	<b>9</b>	<b>3</b>	<b>6</b>	<b>0</b>	<b>96</b>

Question	Response count
2	79
<b>10.17</b>	<b>30</b>

10.18 Lascaux 498HV

Lascaux 498HV	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		
Within the last 20 years	10	3	11	5	0	2	0	31
Currently use	22	6	11	2	2	3	0	46
Preferred	14	4	8	2	3	0	0	31
No answer	2	5	9	2	0	1	0	19
<b>Totals</b>	<b>48</b>	<b>18</b>	<b>39</b>	<b>11</b>	<b>5</b>	<b>6</b>	<b>0</b>	<b>127</b>

Question	Response count
2	79
<b>10.18</b>	<b>60</b>

10.19 Lascaux Polyamide Textile Welding Powder 5350

Lascaux Polyamide Textile Welding Powder 5350	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		
Within the last 20 years	0	1	0	1	0	0	0	2
Currently use	0	1	0	1	0	0	0	2
Preferred	0	0	0	1	0	0	0	1
No answer	26	10	25	6	3	5	0	75
<b>Totals</b>	<b>26</b>	<b>12</b>	<b>25</b>	<b>9</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>80</b>

Question	Response count
2	79
<b>10.19</b>	<b>4</b>

10.20 Lascaux Hydro-Grund/Hydrosealer

	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		



Lascaux Hydro-Grund/Hydrosealer	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other	No answer	Totals
Within the last 20 years	0	0	0	1	0	0	0	1
Currently use	0	0	0	0	0	0	0	0
Preferred	0	0	0	0	0	0	0	0
No answer	26	12	25	7	3	5	0	78
<b>Totals</b>	<b>26</b>	<b>12</b>	<b>25</b>	<b>8</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>79</b>

Question	Response count
2	79
10.20	1

10.21 Mowlith 50

Mowlith 50	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		
Within the last 20 years	3	0	2	1	0	0	0	6
Currently use	1	0	0	0	0	0	0	1
Preferred	0	0	0	0	0	0	0	0
No answer	22	12	23	7	3	5	0	72
<b>Totals</b>	<b>26</b>	<b>12</b>	<b>25</b>	<b>8</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>79</b>

Question	Response count
2	79
10.21	7

10.22 Mowlith DMC2

Mowlith DMC2	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		

<b>Within the last 20 years</b>	10	3	0	2	1	0	0	16
<b>Currently use</b>	1	1	0	0	0	0	0	2
<b>Preferred</b>	1	0	0	0	0	0	0	1
<b>No answer</b>	15	9	25	6	2	5	0	62
<b>Totals</b>	<b>27</b>	<b>13</b>	<b>25</b>	<b>8</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>81</b>

Question	Response count
2	79
<b>10.22</b>	<b>17</b>

**10.23** Mowlith DM5

Mowlith DM5	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		
<b>Within the last 20 years</b>	3	1	0	3	0	0	0	7
<b>Currently use</b>	0	0	0	0	0	0	0	0
<b>Preferred</b>	1	0	0	0	0	0	0	1
<b>No answer</b>	23	11	25	5	3	5	0	72
<b>Totals</b>	<b>27</b>	<b>12</b>	<b>25</b>	<b>8</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>80</b>

Question	Response count
2	79
<b>10.23</b>	<b>7</b>

**10.24** Paraloid F10

Paraloid F10	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		
<b>Within the last 20 years</b>	1	1	0	1	0	0	0	3
<b>Currently use</b>	0	1	0	0	0	0	0	1

<b>Preferred</b>	0	1	0	0	0	0	0	1
<b>No answer</b>	25	11	25	7	3	5	0	76
<b>Totals</b>	<b>26</b>	<b>14</b>	<b>25</b>	<b>8</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>81</b>

Question	Response count
2	79
<b>10.24</b>	<b>3</b>

**10.25** Plextol B500

Plextol B500	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		
<b>Within the last 20 years</b>	0	1	1	2	1	0	0	5
<b>Currently use</b>	0	0	1	0	0	0	0	1
<b>Preferred</b>	0	0	1	0	0	0	0	1
<b>No answer</b>	26	11	22	6	2	5	0	72
<b>Totals</b>	<b>26</b>	<b>12</b>	<b>25</b>	<b>8</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>79</b>

Question	Response count
2	79
<b>10.25</b>	<b>7</b>

**10.26** Plextol M630

Plextol M630	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		
<b>Within the last 20 years</b>	0	0	0	0	0	0	0	0
<b>Currently use</b>	0	0	0	0	0	0	0	0
<b>Preferred</b>	0	0	0	0	0	0	0	0
<b>No answer</b>	26	12	25	8	3	5	0	79
<b>Totals</b>	<b>26</b>	<b>12</b>	<b>25</b>	<b>8</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>79</b>

Question	Response count
2	79
10.26	0

10.27 Adhesive Rhoplex WS24 (Primal WS24)

Adhesive Rhoplex WS24 (Primal WS24)	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		
Within the last 20 years	0	0	1	1	1	0	0	3
Currently use	0	0	1	0	0	0	0	1
Preferred	0	0	0	0	0	0	0	0
No answer	26	12	24	7	2	5	0	76
<b>Totals</b>	<b>26</b>	<b>12</b>	<b>26</b>	<b>8</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>80</b>

Question	Response count
2	79
10.27	3

10.28 Texicryl 13-002

Texicryl 13-002	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		
Within the last 20 years	0	0	0	0	0	0	0	0
Currently use	0	0	0	0	0	0	0	0
Preferred	0	0	0	0	0	0	0	0
No answer	26	12	25	8	3	5	0	79
<b>Totals</b>	<b>26</b>	<b>12</b>	<b>25</b>	<b>8</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>79</b>

Question	Response count
2	79
10.28	0

10.29 Texicryl Acrylic Adhesive

Texicryl Acrylic Adhesive	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		
Within the last 20 years	0	0	0	0	0	0	0	0
Currently use	0	0	0	0	0	0	0	0
Preferred	0	0	0	0	0	0	0	0
No answer	26	12	25	8	3	5	0	79
<b>Totals</b>	<b>26</b>	<b>12</b>	<b>25</b>	<b>8</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>79</b>

Question	Response count
2	79
10.29	0

10.30 PVA Resin Solid Vinapas

PVA Resin Solid Vinapas	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		
Within the last 20 years	0	0	0	0	0	0	0	0
Currently use	0	0	0	0	0	0	0	0
Preferred	0	0	0	0	0	0	0	0
No answer	26	12	25	8	3	5	0	79
<b>Totals</b>	<b>26</b>	<b>12</b>	<b>25</b>	<b>8</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>79</b>

Question	Response count
2	79
10.30	0

10.31 Vinapas EP1

Vinapas EP1	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		

	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other	answer	
Within the last 20 years	6	0	0	1	0	0	0	7
Currently use	0	0	0	0	0	0	0	0
Preferred	0	0	0	0	0	0	0	0
No answer	20	12	25	7	3	5	0	72
<b>Totals</b>	<b>26</b>	<b>12</b>	<b>25</b>	<b>8</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>79</b>

Question	Response count
2	79
<b>10.31</b>	<b>7</b>

**10.32** Vinamul 3252

Vinamul 3252	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		
Within the last 20 years	12	3	1	0	0	0	0	16
Currently use	5	0	0	0	0	0	0	5
Preferred	4	0	0	0	0	0	0	4
No answer	12	9	24	8	3	5	0	61
<b>Totals</b>	<b>33</b>	<b>12</b>	<b>25</b>	<b>8</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>86</b>

Question	Response count
2	79
<b>10.32</b>	<b>18</b>

**10.33** Vinamul 3254

Vinamul 3254	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		
Within the last 20 years	2	0	0	0	0	0	0	2

<b>Currently use</b>	2	0	0	0	0	0	0	2
<b>Preferred</b>	0	0	0	0	0	0	0	0
<b>No answer</b>	22	12	25	8	3	5	0	75
<b>Totals</b>	<b>26</b>	<b>12</b>	<b>25</b>	<b>8</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>79</b>

Question	Response count
2	79
<b>10.33</b>	<b>4</b>

**10.34** Klucel G

Klucel G	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		
<b>Within the last 20 years</b>	14	6	16	3	1	0	0	40
<b>Currently use</b>	13	7	8	1	0	1	0	30
<b>Preferred</b>	7	2	7	1	0	0	0	17
<b>No answer</b>	3	3	5	4	2	4	0	21
<b>Totals</b>	<b>37</b>	<b>18</b>	<b>36</b>	<b>9</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>108</b>

Question	Response count
2	79
<b>10.34</b>	<b>58</b>

**10.35** Klucel E

Klucel E	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		
<b>Within the last 20 years</b>	1	1	0	0	0	0	0	2
<b>Currently use</b>	0	1	0	0	0	0	0	1
<b>Preferred</b>	0	1	0	0	0	0	0	1
<b>No answer</b>	25	11	25	8	3	5	0	77

<b>Totals</b>	<b>26</b>	<b>14</b>	<b>25</b>	<b>8</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>81</b>
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Question	Response count
2	79
<b>10.35</b>	<b>2</b>

**10.36** Klucel L

Klucel L	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		
Within the last 20 years	0	1	0	0	0	0	0	1
Currently use	0	0	0	0	0	0	0	0
Preferred	0	0	0	0	0	0	0	0
No answer	26	11	25	8	3	5	0	78
<b>Totals</b>	<b>26</b>	<b>12</b>	<b>25</b>	<b>8</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>79</b>

Question	Response count
2	79
<b>10.36</b>	<b>1</b>

**10.37** Klucel HPC

Klucel HPC	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		
Within the last 20 years	0	1	0	0	0	0	0	1
Currently use	0	1	0	0	0	0	0	1
Preferred	0	1	0	0	0	0	0	1
No answer	26	11	25	8	3	5	0	78
<b>Totals</b>	<b>26</b>	<b>14</b>	<b>25</b>	<b>8</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>81</b>



Question	Response count
2	79
10.37	1

10.38 Carboxymethyl cellulose

Carboxymethyl cellulose	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		
Within the last 20 years	8	4	5	0	0	2	0	19
Currently use	4	1	5	0	0	0	0	10
Preferred	1	0	1	0	0	0	0	2
No answer	15	8	19	8	3	3	0	56
<b>Totals</b>	<b>28</b>	<b>13</b>	<b>30</b>	<b>8</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>87</b>

Question	Response count
2	79
10.38	23

10.39 Methyl cellulose

Methyl cellulose	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		
Within the last 20 years	7	2	9	2	0	0	0	20
Currently use	6	2	6	1	2	0	0	17
Preferred	4	1	0	0	0	0	0	5
No answer	13	8	14	5	1	5	0	46
<b>Totals</b>	<b>30</b>	<b>13</b>	<b>29</b>	<b>8</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>88</b>

Question	Response count
2	79
10.39	33

10.40 Wheat starch

Wheat starch	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		
Within the last 20 years	12	3	10	2	0	0	0	27
Currently use	14	4	8	1	0	1	0	28
Preferred	8	3	1	0	0	0	0	12
No answer	5	8	12	5	3	4	0	37
<b>Totals</b>	<b>39</b>	<b>18</b>	<b>31</b>	<b>8</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>104</b>

Question	Response count
2	79
10.40	42

10.41 Rice starch

Rice starch	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		
Within the last 20 years	1	4	0	0	0	0	0	5
Currently use	0	3	0	0	0	0	0	3
Preferred	0	1	0	0	0	0	0	1
No answer	25	7	25	8	3	5	0	73
<b>Totals</b>	<b>26</b>	<b>15</b>	<b>25</b>	<b>8</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>82</b>

Question	Response count
2	79
10.41	6

10.42 Arrowroot/sodium alginate

Arrowroot/sodium	Where are you located?						No	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		

aiginate	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		
Within the last 20 years	3	1	0	0	0	0	0	4
Currently use	2	0	0	0	0	0	0	2
Preferred	1	0	0	0	0	0	0	1
No answer	21	11	25	8	3	5	0	73
<b>Totals</b>	<b>27</b>	<b>12</b>	<b>25</b>	<b>8</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>80</b>

Question	Response count
2	79
10.42	6

#### 10.43 Funori

Funori	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		
Within the last 20 years	3	2	1	0	0	0	0	6
Currently use	2	1	1	0	0	0	0	4
Preferred	0	0	0	0	0	0	0	0
No answer	22	10	24	8	3	5	0	72
<b>Totals</b>	<b>27</b>	<b>13</b>	<b>26</b>	<b>8</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>82</b>

Question	Response count
2	79
10.43	7

#### 10.44 Starch paste (unspecified)

Starch paste (unspecified)	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		
Within the last 20 years	2	1	2	1	1	0	0	7

<b>Currently use</b>	1	2	0	0	0	0	0	3
<b>Preferred</b>	0	0	0	0	0	0	0	0
<b>No answer</b>	23	10	23	7	2	5	0	70
<b>Totals</b>	<b>26</b>	<b>13</b>	<b>25</b>	<b>8</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>80</b>

Question	Response count
2	79
<b>10.44</b>	<b>9</b>

**10.45** Stalex starch blend

Stalex starch blend	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		
<b>Within the last 20 years</b>	0	0	0	0	0	0	0	0
<b>Currently use</b>	0	0	0	0	0	0	0	0
<b>Preferred</b>	0	0	0	0	0	0	0	0
<b>No answer</b>	26	12	25	8	3	5	0	79
<b>Totals</b>	<b>26</b>	<b>12</b>	<b>25</b>	<b>8</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>79</b>

Question	Response count
2	79
<b>10.45</b>	<b>0</b>

**10.46** Gelatin

Gelatin	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		
<b>Within the last 20 years</b>	2	2	0	1	0	0	0	5
<b>Currently use</b>	1	0	1	0	0	0	0	2
<b>Preferred</b>	0	0	0	0	0	0	0	0
<b>No answer</b>	23	10	24	7	3	5	0	72

<b>Totals</b>	<b>26</b>	<b>12</b>	<b>25</b>	<b>8</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>79</b>
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Question	Response count
2	79
<b>10.46</b>	<b>7</b>

**10.47** Isinglass

Isinglass	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		
<b>Within the last 20 years</b>	5	2	1	1	0	0	0	9
<b>Currently use</b>	4	2	1	0	0	0	0	7
<b>Preferred</b>	1	0	1	0	0	0	0	2
<b>No answer</b>	18	8	24	7	3	5	0	65
<b>Totals</b>	<b>28</b>	<b>12</b>	<b>27</b>	<b>8</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>83</b>

Question	Response count
2	79
<b>10.47</b>	<b>14</b>

**10.48** Unspecified animal glue

Unspecified animal glue	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		
<b>Within the last 20 years</b>	2	2	1	0	0	0	0	5
<b>Currently use</b>	0	0	1	0	0	0	0	1
<b>Preferred</b>	0	0	1	0	0	0	0	1
<b>No answer</b>	24	10	24	8	3	5	0	74
<b>Totals</b>	<b>26</b>	<b>12</b>	<b>27</b>	<b>8</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>81</b>

Question	Response count
2	79
<b>10.48</b>	<b>5</b>

**10.49** Little or no adhesive ever

Little or no adhesive ever	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		
Within the last 20 years	1	0	0	0	0	0	0	1
Currently use	1	0	1	1	0	1	0	4
Preferred	2	1	1	0	0	0	0	4
No answer	24	11	24	7	3	4	0	73
<b>Totals</b>	<b>28</b>	<b>12</b>	<b>26</b>	<b>8</b>	<b>3</b>	<b>5</b>	<b>0</b>	<b>82</b>

Question	Response count
2	79
<b>10.49</b>	<b>6</b>

**10.a** Other: please specify

Showing all 19 responses	
Above are the adhesives I have chosen for treatments due to their success in testing phases. All of which I would turn to again for future use.	375671-375662-36508556
Aquazol	375671-375662-36509928
Aquasol past 20 years and presently	375671-375662-36543350
rabbit skin glue	375671-375662-36544953
Animal glue used is fish glue (Lee Valley Tools).	375671-375662-36541504
Polyvinyl acetate resin AYAA/AYAC in ethanol	375671-375662-36546945
Aquazol	375671-375662-36576225
Impranil DLV	375671-375662-36569504
Ethulose (ethyl hydroxethyl cellulose)	375671-375662-36622558
Aquazol 50 and 200, use on synthetic materials for adhesive/consolidation, not as a cast adhesive	375671-375662-36623839
depending on material mix and condition into which object will return (including sometimes re-use). Lascaux 360 HV has recently changed formulation and seems less good to me than before.	375671-375662-36623891
Rice starch on support textile and Klucel G on old fabric.	375671-375662-36713950
Polyamid-Textil-Schweisspulver No 5060	375671-375662-36766425
mixture of Lascaux 360 and Lascaux 498 preferred	375671-375662-36962905
Mowilith DM427	375671-375662-36989145
AK- 72 in acetone	375671-375662-37056074
Note I have B72 used in treatment of metal and fish glue in stabilisation of wood materials associated with a textile that was conserved so I have not indicated these on this list. I am not sure the difference between Beva 371 and Beva 371 solution so I have indicated the solution as I normally use this and dilute as required. I have used have only funori in teaching but it is a consolidant that merits further investigation for use in textile conservation. I have tested the use of methyl cellulose as use for consolidation but decided not to use for the object in question as it did not produce the right properties I was looking for.	375671-375662-37185661
acrylics: Degalan P550, Degalan PQ 6111	375671-375662-37339989
Using the term "preferred" adhesive may give misleading information - we choose our adhesive on the basis of what is best for the job eg depending on object type/ collection, condition, treatment requirements etc	375671-375662-37646659

10.b If you frequently use mixtures, please provide further detail:

Showing all 38 responses	
Mix ratio of Lascaux adhesives, eg. 2:1. Klucel G with IMS	375671-375662-36508556
Lascaux 360:498 1:2	375671-375662-36509928

Lascaux 498 and 303 are frequently mixed at various ratios to manipulate the glass transition temperature and control the level of flexibility and tack.	375671-375662-36543350
Lascaux 360/498	375671-375662-36565884
Lascaux 498 with 360 in a ration of 2:1	375671-375662-36566240
Lascaux is usually used as a mixture of 303 and 498	375671-375662-36567185
Mixing Lascaux to get preferred properties	375671-375662-36576225
Lascaux 360 and 498 are generally used in mixtures, the proportion of which and the dilution with water depends on the application.	375671-375662-36579959
I frequently use a combination of Lascaux 303 and Lascaux 498.	375671-375662-36569504
Lascaux mixes	375671-375662-36586526
Lascaux 303 and 498	375671-375662-36589773
I have always mixed Lascaux depending on the object and environment it will be displayed (and either 303 or 360 depending on availability)	375671-375662-36623839
Lascaux 360HV+498 HV Funori + Gelatin or Funori + Isinglass	375671-375662-36623891
Mixtures of Lascaux 303 and 498.	375671-375662-36651130
Lascaux 360:498 in various ratios	375671-375662-36664439
Lascaux 498HV + Lascaux 360HV in a ratio of 1:2, or 1:1in soft water in percentages of 12% up to 25% Lascaux 498HV + Lascaux 303HV in a ratio of 1:2, or 1:1in soft water in percentages of 12% up to 25%  Klucel G 4% or 8%, mixed in soft water alone or 1:1 soft water and IDA	375671-375662-36673672
Mixes of Lascaux 498HV plus Lascaux 360HV in various ratios depending on use, now also with Lascaux 303HV instead since 360 is discontinued.	375671-375662-36679142
I often use a mix of Lascaux 303HV and 498HV at a ratio of 1:2	375671-375662-36710866
2:1 360:498HV Lascaux	375671-375662-36734696
Will use mixtures of Lascaux and Wheat starch, and mixtures of Lascaux 360 and 498 in varying proportions depending on need.	375671-375662-36743334
I treat a lot of basketry and matting, I am not sure if you would call them textiles but adhesives may be used for structural repairs on these woven materials.	375671-375662-36766425
Mowilith DMC2 and DM5, PhotoFlow (surfactant); diluted.	375671-375662-36866122
Lascaux 360HV:Lascaux498HV (1:1)	375671-375662-36933005
Lascaux 498 HV and Lascaux 303 HV	375671-375662-36935946
Frequently use a mixture of 50:50 mixture of Lascaux 360:Lascaux 490 at 15%.	375671-375662-36949037
prefer 1 part Lascaux 360 and 2 parts Lascaux 498 in 30 parts deionized water applied to a support fabric allowed to dry and then re-activated with heat.	375671-375662-36962905
3:1 Lascaux 498HV:360HV	375671-375662-36989145



Mix of Lascaux 303 and 498	<a href="#">375671-375662-37009500</a>
one of the mixtures I have frequently used is Klucel G 4% and Lascaux 360 (2): Lascaux 498 (1). However, I have tested different option before using any mixture according to the requirements (percentage might vary)	<a href="#">375671-375662-37109988</a>
Mix of Lascaux 360/498 in different ratios to achieve desired properties	<a href="#">375671-375662-37121149</a>
Mixtures commonly used is Lascaux 360HV and 498HV and more recently, use of 303HV when 360HV was discontinued. This is great as it allows more subtle manipulation of the adhesives properties.	<a href="#">375671-375662-37185661</a>
Lascaux 2:1 498:360	<a href="#">375671-375662-37192274</a>
Combinations of Mowilith DMC2 & DM5 Combinations of Lascaux acrylics 360 HV & 498 HV	<a href="#">375671-375662-37241617</a>
Lascaux 360 and 498 are typically used as a mixture	<a href="#">375671-375662-37298489</a>
I usually use mixtures of Lascaux 360hv and 498hv, diluted to a lower percentage in deionized water	<a href="#">375671-375662-37321977</a>
For thread-by-thread tear mending, we usually use a 1+1 mixture of wheat starch (13 %) and isinglass (20 %).	<a href="#">375671-375662-37339989</a>
combination of Lascaux adhesives, always with more of the 498 than the 360/303	<a href="#">375671-375662-37534803</a>
Lascaux 303 and 498 used in combinations - mixed according to how one wants the adhesive support to perform	<a href="#">375671-375662-37646659</a>

**11** What working properties most influence your choice of adhesive?

What working properties most influence your choice of adhesive?	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		
<b>Performance in ageing tests</b>	19	6	20	4	3	1	0	53
<b>Flexibility (handle and drape)</b>	24	8	22	7	3	3	0	67
<b>Bond strength</b>	24	6	20	5	2	3	0	60
<b>Heat sealing temperatures</b>	11	5	9	4	2	2	0	33
<b>Alkalinity/Acidity of adhesive</b>	5	1	4	1	0	1	0	12
<b>Solubility</b>	5	2	13	1	1	1	0	23
<b>Retention of colourants</b>	1	1	2	0	0	0	0	4
<b>Glass transition temperature (Tg)</b>	13	6	12	1	0	2	0	34

<b>Reversibility</b>	19	6	16	5	2	2	0	50
<b>Other</b>	2	3	2	0	0	2	0	9
<b>No answer</b>	0	2	0	0	0	1	0	3
<b>Totals</b>	<b>123</b>	<b>46</b>	<b>120</b>	<b>28</b>	<b>13</b>	<b>18</b>	<b>0</b>	<b>348</b>

Question	Response count
2	79
11	76

11.a If you selected Other, please specify:

Showing all 9 responses	
the requirement of the textile, H&S, method of application, what is going to happen to the textile	<a href="#">375671-375662-36541992</a>
Open working time.	<a href="#">375671-375662-36541504</a>
Availability – difficult and expensive to source conservation grade adhesives where I am located, and once opened the glue containers are more likely to age badly due to heat and humidity, so I generally avoid adhesives. The most easily available to me is Beva film.	<a href="#">375671-375662-36553658</a>
Tackiness or not to facilitate handling and placement.	<a href="#">375671-375662-36576225</a>
Instead of reversibility, I aim for retreatability. Many of the proprieties you mention depend on the future life of the object: mounted on a board / re-used/ in museum conditions / in extreme climate conditions (eg. church) / temperature fluctuations etc. I find it therefore impossible to say what is most important and thus ticked all the factors I routinely consider in my evaluation.	<a href="#">375671-375662-36623891</a>
application to the exact point of structural need	<a href="#">375671-375662-36766425</a>
Low risk of staining and/or darkening	<a href="#">375671-375662-37168202</a>
apart from the first two (performance... and flexibility...) it does not only depend on the textile; in combined objects it is important to choose which is best for all materials	<a href="#">375671-375662-37094029</a>
practicability	<a href="#">375671-375662-37339989</a>

12 What factors outside working properties influence your choice of adhesive?

What factors outside working properties influence your choice of adhesive?	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		
<b>Experience/familiarity</b>	26	7	25	8	3	4	0	73

Health and safety considerations	19	3	15	5	3	2	0	47
Available equipment/lack thereof (e.g. Spray booth/vacuum table)	16	3	14	5	1	3	0	42
Correspondence to object (e.g. cellulose for barkcloth)	16	6	13	2	2	1	0	40
Availability – specific (e.g. Studio stock)	13	1	5	5	1	3	0	28
Availability – general (e.g. Commercial availability)	10	5	12	3	0	4	0	34
Price	1	1	3	2	0	1	0	8
Other	0	0	0	0	0	0	0	0
No answer	0	2	0	0	0	1	0	3
<b>Totals</b>	<b>101</b>	<b>28</b>	<b>87</b>	<b>30</b>	<b>10</b>	<b>19</b>	<b>0</b>	<b>275</b>

Question	Response count
2	79
12	76

12.a If you selected Other, please specify:

No responses

13 What method do you use to apply adhesive to, or reactivate adhesive on, your objects?

What method do you use to apply adhesive to, or reactivate adhesive on, your objects?	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		
Spatula iron	23	6	21	6	3	2	0	61
Flat iron	5	4	3	2	0	1	0	15
Spatula & flat iron	2	5	4	2	0	0	0	13
Vacuum hot table	9	1	1	1	1	0	0	13
Irons & vacuum hot table	2	0	0	1	1	0	0	4
Low pressure vacuum table (cold lining)	0	2	1	1	0	1	0	5

<b>Solvent activation</b>	23	7	17	2	1	3	0	53
<b>Solvent activation &amp; low pressure table</b>	0	3	1	0	2	2	0	8
<b>Direct, wet application</b>	13	4	12	2	0	1	0	32
<b>Direct, semi-dry application</b>	10	5	11	3	0	3	0	32
<b>Other</b>	0	1	1	0	0	0	0	2
<b>No answer</b>	0	2	0	0	0	1	0	3
<b>Totals</b>	<b>87</b>	<b>40</b>	<b>72</b>	<b>20</b>	<b>8</b>	<b>14</b>	<b>0</b>	<b>241</b>

Question	Response count
2	79
13	76

13.a If you selected Other, please specify:

Showing all 2 responses	
Adhesive sprayed on support, dried, then heat activated.	<a href="#">375671-375662-36546945</a>
depending on object: injection	<a href="#">375671-375662-37094029</a>

14 Which support substrates have you used?

Which support substrates have you used?	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		
<b>Silk crepeline</b>	24	9	21	7	3	2	0	66
<b>Silk habotai</b>	3	3	11	0	1	1	0	19
<b>Silk net</b>	4	0	4	2	0	0	0	10
<b>Polyester crepeline (e.g. Stabiltex)</b>	12	4	16	5	3	3	0	43
<b>Paper</b>	16	4	12	2	2	0	0	36
<b>Tissue</b>	3	1	9	1	1	0	0	15
<b>Fine cotton</b>	0	3	7	1	0	1	0	12
<b>Nylon net</b>	10	4	16	1	0	1	0	32

<b>Nylon gossamer</b>	3	0	4	0	0	0	0	7
<b>Other</b>	2	2	0	2	0	1	0	7
<b>No answer</b>	0	2	0	0	0	1	0	3
<b>Totals</b>	<b>77</b>	<b>32</b>	<b>100</b>	<b>21</b>	<b>10</b>	<b>10</b>	<b>0</b>	<b>250</b>

Question	Response count
2	79
14	76

14.a If you selected Other, please specify:

Showing all 7 responses	
polyester multifilament hayward, sailcloth, terytex	<a href="#">375671-375662-36544953</a>
I was not able to source crepeline so used silk organza instead	<a href="#">375671-375662-36553658</a>
Non-woven polyester (Reemay)	<a href="#">375671-375662-37192274</a>
threads (e.g. cotton, silk, polyester)	<a href="#">375671-375662-37094029</a>
canvas, polyester non-woven	<a href="#">375671-375662-37339989</a>
Polyester net	<a href="#">375671-375662-37629296</a>
Reemay	<a href="#">375671-375662-37646659</a>

15 Which material or method do you use to prepare your cast adhesive supports?

Which material or method do you use to prepare your cast adhesive supports?	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		
<b>Polythene</b>	25	4	7	3	2	1	0	42
<b>Polyester film (Melinex/Mylar/etc.)</b>	6	5	13	3	1	3	0	31
<b>Stretcher</b>	2	2	5	1	0	0	0	10
<b>Teflon® coated glass fibre cloth</b>	3	4	9	3	1	1	0	21
<b>Silicone release paper/polyester film</b>	10	5	14	1	2	3	0	35
<b>Other</b>	0	1	4	0	0	0	0	5

No answer	0	2	0	0	0	1	0	3
<b>Totals</b>	<b>46</b>	<b>23</b>	<b>52</b>	<b>11</b>	<b>6</b>	<b>9</b>	<b>0</b>	<b>147</b>

Question	Response count
2	79
15	76

15.a If you selected Other, please specify:

Showing all 5 responses	
The support fabric will be a material that is compatible with the object being adhered to. e.g. cotton muslin.	<a href="#">375671-375662-36529786</a>
Have not used cast supports.	<a href="#">375671-375662-36541504</a>
Glass plate	<a href="#">375671-375662-36565884</a>
Sometimes I use glass. If its a small support I'll just use a glass weight that I can easily wash afterwards rather than dealing with the Teflon roll.	<a href="#">375671-375662-36743334</a>
depending on adhesive: glass plates	<a href="#">375671-375662-37094029</a>

16 How do you apply your adhesive to your support substrate?

How do you apply your adhesive to your support substrate?	Where are you located?						No answer	Totals
	United Kingdom	Europe	United States	Canada	Australia and New Zealand	Other		
Brush	20	10	20	7	2	3	0	62
Sponge	3	1	2	2	0	1	0	9
Spray	5	6	7	0	0	1	0	19
Roller	21	5	10	3	3	3	0	45
Other	0	2	1	1	0	0	0	4
No answer	0	2	0	0	0	1	0	3
<b>Totals</b>	<b>49</b>	<b>26</b>	<b>40</b>	<b>13</b>	<b>5</b>	<b>9</b>	<b>0</b>	<b>142</b>

Question	Response count
2	79
16	76

16.a If you selected Other, please specify:

Showing all 4 responses	
tube	<a href="#">375671-375662-36545019</a>
most often spatula when using heat-set adhesives	<a href="#">375671-375662-36544953</a>
depending on adhesive: spatula, dentist's tools,..needles	<a href="#">375671-375662-37094029</a>
I am increasingly working with adhesive meshes (fine, dry adhesive nets of pure adhesives like methyl cellulose or ininglass that are activated in situ)	<a href="#">375671-375662-37339989</a>

17 What factors would prompt you to choose an adhesive treatment over other forms of support or consolidation? (e.g. Condition or composition of object, time, object role, etc.)

Showing all 77 responses	
Usually the condition and stability of the object dictates whether or not an adhesive is used. More often used on silk where the silk itself is so fine and brittle that couching for example further weakens the textile, or is too fragmentary to only stitch though. Where adhesive is applied, additional support stitching is carried out.	<a href="#">375671-375662-36508556</a>
drape of fabric, bond strength required, condition of textile, textile material, if stitching is also required	<a href="#">375671-375662-36509928</a>
Condition, physical structure of the object and the ability to safely manipulate it.	<a href="#">375671-375662-36529929</a>
The condiiton of the object determines whether I use an adhesive. For example, silk broadcloth which is much too fragile to support stitching, will necessarily need to be adhered to.	<a href="#">375671-375662-36529786</a>
No other means of providing a safe support for extremely fragile textile; composition of textile object	<a href="#">375671-375662-36531135</a>
Need for overall or widespread support. Potential damage from stitched repair. Display requirements. Time. Budget.	<a href="#">375671-375662-36536102</a>
I've used Beva on carrier fabrics when the object, usually silk, is shattered and has to be vertical, bear its own weight, and sometimes bear other weight such as heavy embroidery.	<a href="#">375671-375662-36537033</a>
would consider a stitched treatment first but, if stitching more damaging or not possible would look for suitable adhesives	<a href="#">375671-375662-36541992</a>
Condition - overall level of damage and fragmentation.	<a href="#">375671-375662-36543350</a>
Really would try to avoid using adhesive. Maybe if an adhesive was used in a previous treatment and it cannot be removed/reduced safely.	<a href="#">375671-375662-36545019</a>
This would take too long to answer. A variety of factors- noy sure to understand the question or distinction. I choose local consolidation when the support is stable, strong enough and can still play its role as support. Otherwise I use consolidation. What is the distinction you make between using an adhesiue and opting for consolidation? For me they are not necessarily two different things? I use adhesives to consolidate. (?)	<a href="#">375671-375662-36544953</a>
condition of the object, no alternatives in TR	<a href="#">375671-375662-36545408</a>

Bleed through, materials involved, set time, removability.	375671-375662-36541504
Condition and material of object	375671-375662-36546945
heavily damaged silks, any painted textile requiring structural support, gauze or tulle where a stitched support might be very visible, leather objects - material, condition and the required presentation of the object in a museum	375671-375662-36544567
If the fabric is too fragile (eg shattering and powdery) for a stitching or encapsulated solution, AND (importantly) the client feels it is more important that the textile's visual integrity is retained, because even if the adhesive is supposedly reversible it will probably not be possible to do so without further damaging the textile. I would also limit the use of adhesives by complementary use of stitching wherever possible.	375671-375662-36553658
Condition and time	375671-375662-36565884
Condition of the object, access to the area of damage, intended use. Also, the original method of construction if, for example, adhesives are already present and stitching is inappropriate, such as on a screen or a fan.	375671-375662-36566240
Condition/fragility of object, stitch treatment not possible, extra support layer necessary (adhesive crepline), method of display	375671-375662-36567185
Condition of the object	375671-375662-36570764
Condition and desired use of an object	375671-375662-36571261
Removability, access, impossibility to stitch, painted surfaces or previous repairs where removal of lightly adhered supports would cause less damage when a full treatment can be carried out.	375671-375662-36576225
The condition of the object is foremost: if an object requires stabilization to be displayed safely and stitching would be insufficient or would cause damage. Aesthetic conditions are also a factor, if a sheer overlay is needed, one applied with adhesive (particular on the bias to avoid optical effects) is often less noticeable than hemmed or frayed crepline.	375671-375662-36579959
Whether the object can be stitched through without causing damage, combined with time available for the treatment.	375671-375662-36569504
Condition Expected future use	375671-375662-36586526
Fragile silk condition, mixed composition of object, fans	375671-375662-36589683
Fragility of the object - using adhesives if not other alternatives will provide support	375671-375662-36590523
condition and composition of the object, time	375671-375662-36589773
Condition and composition of object Ability to withstand stitched treatment Future roll of object	375671-375662-36609111
Extremely fractured/brittle fabric that will be homed in an extremely clean and moderate levels temperature/relative humidity stable environment.	375671-375662-36622558
Condition of object, how it will be displayed/stored including environmental limits (rH, temperature) and way of display (e.g. vertical with little support)	375671-375662-36623839
Textiles: when too brittle to use stitching. Objects: when originally put together with adhesive (e.g. fan made from feathers). In my opinion, time is not a factor. And object role: my experience is, that adhesive treatments do not hold when object is to be reused.	375671-375662-36623891



I've used adhesive if a textile is fragile and its not possible to stitch an object.	375671-375662-36636003
Condition. I would use adhesive if there was not other option.	375671-375662-36651130
Have mainly used in conjunction with painted textiles where stitching would not have been possible or where the textile was too weak to support stitching. Have also used on a textile that was been previously treated with an adhesive support.	375671-375662-36660505
If the item were too fragile for stitching i.e. shattered silk, or was not a flat object i.e. a fan or similar. Time would also be a factor if there were an exhibition deadline and large scale patching was necessary, or a quick mount system was required	375671-375662-36664439
Where the textile is very fragmentary and/or one major structural element i.e. the warp or the weft is failing. Adhesive treatment is needed to stabilize a fabric that has no structural strength. In these instances I would also use a stitched treatment - where appropriate to help with the longevity of treatment especially as I tend to treat textile which will be 'working' and/or open display in an historic house. I tend to use adhesive treatment on silk objects only as silk is more brittle by nature and more likely to shatter and split becoming less easy to stitch and give provide adequate even support.	375671-375662-36673672
I have used Beva film (16mn) because it is not soluble in water - this allowed me to consolidate very brittle and fragile applied decoration on a very soiled and stiff 400 year old textile where the applied decoration, which had originally been stitched in place had fallen off and historically stuck back with water soluble animal glue which was also now brittle and insecure. We removed the animal glue and secured the pieces with Beva film, which allowed us to wash the textile, removing soiling and adhesive residues, but keeping the decoration in place. These textile were bed hangings form an historic house so had to work for their living.	
Object's condition and composition.	375671-375662-36675657
I generally prefer non-adhesive, stitched repairs (such as encapsulation with silk crepeline) for textiles, but if the piece is too fragile to stitch into or has a surface finish that prevents stitching, I will use adhesives. I may combine adhesive backings with stitched repairs for extra strength on objects like three-dimensional mounted costumes. I am more likely to use adhesives on composite objects as well (for example on elements like leather and feathers).	375671-375662-36679142
condition	375671-375662-36706389
Condition of object - ability to stitch without damaging the textile. Structure of the object - access to the damaged area	375671-375662-36710866
Composition of object, with scientific study before	375671-375662-36713950
If it was appropriate for the object	375671-375662-36734696
Definitely condition, and like I said, client's wishes.	375671-375662-36743334
condition of object, need for attention, if prior adhesive repairs were present	375671-375662-36766425
Condition of object, time.	375671-375662-36866122
When other less interventive treatments sre unsuitable due to the condition of the object	375671-375662-36920453
When stitching is in appropriate; if the textile is too fragile to stitch into or if its sturcture precludes stitching, ie: there's a paint film or continuons mat of fibers that would be compromised by sewing holes,	375671-375662-36933005
if the textile was too fragile to be repaired by stitching or would be damaged by stitching	375671-375662-36935946
Generally only use it if the textile is extremely degraded or very fine and therefor not suitable	375671-375662-36949037

for a stitching technique	
If a stitched repair is not possible due to its condition eg shattered silk I use adhesives to provide a supportive patch (which I may also combine with stitching); If working on an object eg bark cloth I would use adhesive rather than stitching; if an object/textile has a painted surface that would be disrupted by stitching I use adhesive.	375671-375662-36949061
flexibility, condition of object, access to issue to be addressed,	375671-375662-36962905
Condition plays a big factor. If I need to support severely degraded fabric and can't sew a support to it do to advanced deterioration then I will use an adhesive to attach the support. Will also use adhesive where needed to attach a fill in something such as leather or bark-cloth	375671-375662-36965525
condition, effectiveness and visibility in comparison to stitching	375671-375662-36989145
Condition of the object	375671-375662-36999285
Fragility and ability to withstand stitching. Scale of support. 3D nature of object.	375671-375662-37009500
If stitching not appropriate - either due to condition (eg brittle silk), tightness of weave structure, composition of object (eg non woven barkcloth)	375671-375662-37008984
If there is no other solution	375671-375662-37056074
condition of the object / impossibility to stitch treatment	375671-375662-37109988
Condition- specifically if stitching supports are not possible due to instability of the textile.	375671-375662-37115298
-Condition of object means it cannot sustain a stitched treatment. -Since we deal with primarily costume, the object can be disassembled where treatment is needed without loss of original stitching and information	375671-375662-37121149
Condition (textile too fragile to stitch) and if textile will remain flat.	375671-375662-37123568
Condition primarily. Visual impact of stitched support and time also factors. Not first choice of support.	375671-375662-37138682
Composition/construction of object	375671-375662-37168202
Support requirements of an object will inform choice. I would use it if it would provide the best means to stabilise an object. Often time is not a consideration as it does not often make a significant difference.	375671-375662-37185661
Type of deterioration e.g shattered silk where stitching into the silk is not an option	375671-375662-37192274
Condition of object: Textile may be too deteriorated to withstand being punctured by needle & thread. Surviving fragments of textile may be tiny and difficult to confine/support by stitching without risk of further breakage. Paint or other surface decoration means stitched methods would risk dislodging or damaging the surface decoration.	375671-375662-37241617
mainly the condition of an object or its composition (e.g. if a textile had originally been glued to a surface I would try to use - the same if possible - glue again)	375671-375662-37094029
No other alternative. The textile object is too fragile to stitch and pressure mounting is not appropriate.	375671-375662-37295160
Condition of objects; object construction; accessibility of area to be treated; artistic or cultural significance related to aesthetic priorities for treatment	375671-375662-37298489
Most important is usually the condition of the object. I generally only go to adhesives if the object is too weak to support with stitching, or if the stabilization requires extra strength, and a combination of adhesive and stitching support seems appropriate.	375671-375662-37321977

condition and composition of object, time, previous treatment of other parts of a series	375671-375662-37339989
The condition of the object and type for example most often use adhesives for highly patterned/pictorial objects and those where stitching is not appropriate eg painted silks	375671-375662-37534803
weak textile that would not support stitching methods	375671-375662-37629296
Condition - eg if too weak to stitch without the addition of an adh support. Weave eg satin weave Surface eg watered silk or printed. Need to reduce amount of stitching necessary if amount needed would be damaging to object or too unsightly - but not to save time - using adhesives do not save time!	375671-375662-37646659
Condition of object Object role/ display post treatment	375671-375662-37653815
Condition of object.	375671-375662-37672427

**18** How would you describe your experience of using adhesives (including training and testing)? (e.g. Easy, difficult, comfortable, challenging, etc.)

Showing all 77 responses	
Challenging at first, but once practiced and a personal techniques is found it is very straightforward.	375671-375662-36508556
comfortable	375671-375662-36509928
Challenging (depending upon the project and because of my reluctance to go this route)	375671-375662-36529929
The experience has been a good one - learned from professional workshops on this topic. Adhesives are an essential tool for today's conservator, in my view.	375671-375662-36529786
Challenging, sometimes time consuming and ultimately comfortable.	375671-375662-36531135
I received very little adhesives training in the early 1990s, as they were on a down swing. Everything I've learned has come from experimenting, reading, and working with colleagues.	375671-375662-36536102
I learned from Howard Mailand in a course at the Campbell Center. I've never used cast film, although he did teach that as well, because I've exclusively used it for very thin materials that I feel the sprayed backing fabric method is probably more reversible on. I find it pretty easy to do, although my sprayed fabrics never come out quite as nice and even as Howard's.	375671-375662-36537033
straight forward where it has been demonstrated. would like to use solvent activated adhesives but, while there is little information on working methods	375671-375662-36541992
Adhesives are never easy. You become more comfortable over time but do tend to become set in a pattern of using familiar adhesives.	375671-375662-36543350
very comfortable	375671-375662-36545019
It was the most challenging aspect when I started training and working as a young professional. I asked my supervisors to provide more focused training and opportunities to help me vary my methods and materials, and increase my ability according to object needs a f	375671-375662-36544953
not my preferred choice, last resource	375671-375662-36545408
Sometimes frightening and anxiety-producing, but so far not disastrous.	375671-375662-36541504

Very comfortable	375671-375662-36546945
I have had a course on adhesives, I thought it was challenging from a technical standpoint, but an interesting option that I'm open to	375671-375662-36544567
I am very apprehensive about using adhesives due to lack of experience and training, but I have to say when I have used them it was perfectly straightforward and I hope to continue using them with ease in the future.	375671-375662-36553658
Challenging due to time requirement for testing but now comfortable	375671-375662-36565884
Enjoyable, mostly comfortable but sometimes challenging, particularly in the use of the associated solvents.	375671-375662-36566240
It all depends on the object and its condition. Working with adhesive can range from fairly easy to challenging.	375671-375662-36567185
difficult/challenging because of questionable reversibility	375671-375662-36570764
I was lucky to get a good grounding with adhesives while training, this has developed through my practice to include different techniques and types of adhesive. I would say I am quite comfortable with the process now.	375671-375662-36571261
Tricky, challenging, time consuming, decisions are subjective based on each casting as amount of adhesives used can be difficult to control.	375671-375662-36576225
I received substantial opportunity to experiment with adhesives during training and used them on a number of supervised treatment projects, allowing me to build competence and confidence in their use.	375671-375662-36579959
Challenging at first, because there is such a wide range available, all with different properties, but once I became comfortable with the "language" of adhesives, it became easier.	375671-375662-36569504
Challenging because usually textile is in poor condition	375671-375662-36586526
challenging, difficult to find the right concentration, useful anyway	375671-375662-36589683
I do not use them enough so feel slightly daunted about using the correct one and base my decisions on my limited experience but more so the experience of colleagues	375671-375662-36590523
Challenging, complicated sometimes,	375671-375662-36589773
Comfortable generally but do seek advice from paper conservators 're use and application of starch pasted	375671-375662-36609111
Comfortable due to training, education and testing. On-going learning over the years about adhesives available (pros; cons).	375671-375662-36622558
It is a challenging process with many variables but easy to test and adapt.	375671-375662-36623839
Challenging.	375671-375662-36623891
It easy to apply but I have concerns about its long term effects so only choose them as a last resort	375671-375662-36636003
Comfortable, but sometimes challenging.	375671-375662-36651130
I believe the results can be quite variable and are very dependent on training and experience. You sometimes seem to use the same materials and techniques but different people will get different results, so I would say quite challenging, requiring a lot of testing.	375671-375662-36660505
Between comfortable and difficult - I am comfortable with the method I most commonly use, which is casting on silk crepe line with Lascaux, however I might find other methodologies or	375671-375662-36664439

materials challenging and tend to avoid these if my preferred method is not suitable	
I tend to do quite large scale treatments on curtains and bed hangings - applying adhesive crepeline films. I and my colleagues have developed a method and have good equipment (a hot suction table) which means I am quite comfortable in applying an adhesive treatment. My initial training was at the TCC - Univ of Southampton and a good grounding in a variety of adhesives. My main experience has been in my current work with the National Trust. Smaller treatments can be more fiddly - but good preparation/testing makes a great difference in the ease of use.	<a href="#">375671-375662-36673672</a>
Challenging at first.	<a href="#">375671-375662-36675657</a>
I am comfortable using adhesives with textiles but I have not perfected my technique yet, so I am still sometimes frustrated and have problems when applying adhesive to support fabrics (uneven application, too much or too little adhesive deposited).	<a href="#">375671-375662-36679142</a>
challenging	<a href="#">375671-375662-36706389</a>
During training I was able to test a lot of adhesives which was a lot of information to process. I have found the application can be challenging, especially on a 3D object, but this experience has given me confidence in using adhesive treatments.	<a href="#">375671-375662-36710866</a>
difficult, challenging	<a href="#">375671-375662-36713950</a>
this is very object dependent but generally comfortable	<a href="#">375671-375662-36734696</a>
Easy - don't rally have any problems using them.	<a href="#">375671-375662-36743334</a>
comfortable with techniques I am familiar with. challenging for whether or not to use them at all.	<a href="#">375671-375662-36766425</a>
Comfortable, but depends upon the object and its condition.	<a href="#">375671-375662-36866122</a>
Usually a treatment of last resort dependng on object can be easier and quicker than other treatments, such as full stitched support, sometimes very difgicult and chllenging Always aware that although apparently "reversible" most adhesive treatments are carried out on objects that are on 'their last legs' and tgst reversing the treatment though possible would further damage objects, particulalry adhesives that require the use of solvents to reverse/remove	<a href="#">375671-375662-36920453</a>
My early work in conservation was as a paper conservator, so I have a level of comfort and experience with starch paste that is somewhat unique among textile conservators; sometimes these methods and materials are useful and appropriate in the context of textiles.	<a href="#">375671-375662-36933005</a>
challenging but in a positive way. I like trying to find the exact right fit of object to adhesive and I will experiment more when I can.	<a href="#">375671-375662-36935946</a>
Fairly comfortable	<a href="#">375671-375662-36949037</a>
My training with adhesives was only v briefly discussed at uni. However, I have attended a 3 day workshop on Lascaux with Zenzie Tinker which was excellent! My use of other adhesives has been based on previous experience of colleagues in my lab.	<a href="#">375671-375662-36949061</a>
comfortable, easy	<a href="#">375671-375662-36962905</a>
comfortable, but always learning new things	<a href="#">375671-375662-36965525</a>
Limited experience for textiles but comfortable with what I have used. More familiar with use for leather.	<a href="#">375671-375662-36989145</a>
It is still challenging especially knowing the history of using adhesives in textiles, not always positive! Apolving adhesives although tested is not easy. one still does not know how the	<a href="#">375671-375662-36999285</a>

object and the adhesive behave after many years.	
Easier with practice - need manual experience and a lot of testing.	375671-375662-37009500
Comfortable	375671-375662-37008984
Challenging	375671-375662-37056074
comfortable	375671-375662-37109988
My minimal use of adhesives were mostly time consuming- details like keeping the grain straight on the crepeline substrate while applying Beva film to it.	375671-375662-37115298
-Challenging but rewarding. -Finding surrogate test materials that exhibit similar condition issues, fabrication, composition, etc is challenging. -There is still no real good way to treat 3D objects with adhesives without taking them apart and treating each area as a flat textile.	375671-375662-37121149
Challenging. Always so much more to learn and finding time for testing/research is not easy.	375671-375662-37123568
Varied. Often used in 70' and 80's less often now	375671-375662-37138682
Comfortable as far as with the knowledge that it is retreatable and stable in long-term	375671-375662-37168202
Use of adhesives are complex because of the number of variables in terms of choice and methods of application. Despite this, it is an important option for stabilisation. I was taught about adhesives and application methods when I did my conservation training back in the 1990s. I have continued to develop my use of them in practice and more recently in teaching. Students have effectively applied adhesive to a cotton support where a strong bridge was required e.g. to repair a hinge on a box.	375671-375662-37185661
Challenging. The practical process is straight forward but reaching the decision on the most appropriate adhesive takes time, testing and careful consideration.	375671-375662-37192274
Apprenticeship type training with plenty of practical experience of adhesives preparation and use, followed by many years of practical application instilled a degree of familiarity and confidence with adhesives most frequently used. Probably less comfortable with adhesives infrequently used. Being consistent in preparation and application to the substrate textile proved vital. Practice along with first hand instruction from a proficient and patient tutor proved invaluable at the training stage.	375671-375662-37241617
no general answer possible; depending on object, condition, ...	375671-375662-37094029
As I do it so rarely I don't feel I have a good routine.	375671-375662-37295160
comfortable with a variety of adhesives and applications, but use these infrequently in my practice	375671-375662-37298489
Generally comfortable. The biggest challenges are usually change in drape or flexibility. Appearance (sheen/glossiness) can also be difficult, as can application with larger adhesive treatments.	375671-375662-37321977
varying, depending on adhesive. comfortable with methyl cellulose, gelatin, iniglass	375671-375662-37339989
Good experience through my initial training on the RCA/V&A conservation course working with experts in adhesive practice.	375671-375662-37534803
comfortable	375671-375662-37629296
I view adhesive techniques as one of the many techniques textile conservators have at their disposal. The challenges with adhesives are that we use them less so it is less easy to keep ones	375671-375662-37646659

skill set, confidence and knowledge current	
Challenging	375671-375662-37653815
comfortable	375671-375662-37672427

19 What resources would improve or advance your experience of using adhesives? (e.g. Formal training, workshops, published guidance, further detail in case studies, etc.)

Showing all 76 responses	
I learn best from seeing and practicing over reading or attending lectures. Therefore any kind of workshops on new techniques and materials would appeal to me personally. It also provides a chance to share experiences with other professionals in a relaxed and informal environment.	375671-375662-36508556
more ageing test studies	375671-375662-36509928
More published guidance	375671-375662-36529929
All of the above are needed, but for myself, workshops are the best, as I need demonstration plus the chance to experiment in a supervised setting.	375671-375662-36529786
Published articles or books, workshops - formal training at CTC (professional development) and other post-grad textile cons programs.	375671-375662-36531135
I am happy with my options and will probably continue to evolve just by reading and learning from colleagues.	375671-375662-36536102
workshops and chance to talk to others, particularly about working methods that don't really show up in photographs.	375671-375662-36541992
Workshops. Published testing and guidelines.	375671-375662-36543350
all of the above	375671-375662-36545019
Necessarily practical experience and practice - whether through workshops or supervision,. Workshops sometimes tend to focus on just one adhesive or group of adhesive,s and one type of technique or object. Difficult to help really improve and see different cases, improve not only manual skill but judgment as well.	375671-375662-36544953
more training, more details in processes and case studies	375671-375662-36545408
Workshops	375671-375662-36541504
further testing of adhesives and supports	375671-375662-36546945
all of the above would be great, at stage probably particularly more hands on experience such as further formal training and a workshop	375671-375662-36544567
Published guidance (especially with videos!) would be fantastic. I definitely rely heavily on a few case studies which provide more detail and I wish there were more of them out there.	375671-375662-36553658
Workshops and published guidance	375671-375662-36565884
I received a pretty broad training but maybe don't have enough practice to advance. That's the key.	375671-375662-36566240
Workshops, publications on adhesives in current use, case studies on different	375671-375662-36567185



adhesives/different substrates/different types of objects	
published guidance, workshops	375671-375662-36570764
Further detail in case studies is always useful, sharing knowledge is really beneficial. I think workshops are great for new products and methods.	375671-375662-36571261
Constant updates on new adhesives and Long term testing. More time to developing testing before use. Practicing more often.	375671-375662-36576225
The opportunity to actually use them in my current work situation. Although I feel very comfortable with them, my supervisor is conservative and does not permit their use which is, in my opinion, the result of her lack of experience and training with them. Frankly, it's a shame that people are afraid of conservation treatments because of lack of hands on experience and hide behind the invented ethics of "conservation is more preventative these days." There was an AIC talk or panel to this effect a number of years ago and I am in agreement.	375671-375662-36579959
all of the above suggested, but I find workshops the most helpful because they give you a chance to try different adhesives in crazy combinations and dilutions that you may not have a call for in your lab.	375671-375662-36569504
Published guidance with well written good details. Published Video would be excellent	375671-375662-36586526
Workshops, publications, formal training only on textiles	375671-375662-36589683
Published guidance and case studies	375671-375662-36590523
Formal training, workshops, publications	375671-375662-36589773
ICON back to basics workshops or similar Conferences on breadth of use of adhesives and developments	375671-375662-36609111
I use all those mentioned (formal training; workshops; published guidance; further detail in case studies) as well as reaching out to presenters and authors for more specifics and information.	375671-375662-36622558
Further detail in case studies is always the most important to tell exactly what others did for repetition or expansion. Time for testing.	375671-375662-36623839
continued testing (as in articles of CCI), published or online case studies. For colleagues who have not yet gone through workshops: certainly workshops.	375671-375662-36623891
workshops publications of case studies	375671-375662-36636003
Probably workshops and using them more in practice.	375671-375662-36651130
I think a mix of the above would be good, formal training and workshops are very useful and more published guidance and case studies are also very valuable.	375671-375662-36660505
More informal sharing between practitioners of preferred methods (i.e. on social media or similar platforms), especially in regard to perspectives on workability	375671-375662-36664439
I am interested in doing a course on adhesive - like the course done at the British Museum/V&A Adhesives Today workshop, 22-26 April 2002. A good manual specifically for textiles would also be a great help - this might include case studies - similar to Chemical Principles of Textile Conservation	375671-375662-36673672
Further detail un case studies and formal training.	375671-375662-36675657
As much as I like workshops I would prefer published guidance and case studies as this would be easier for more conservators to access and consult.	375671-375662-36679142



back to basics course	375671-375662-36706389
Workshops specialising in particular adhesive techniques would help to refresh knowledge and I find hands-on experience provides the ideal learning environment for me.	375671-375662-36710866
Workshops, publications	375671-375662-36713950
I would love to attend a workshop of recent techniques and methods	375671-375662-36734696
Workshops exploring new products is always useful.	375671-375662-36743334
workshops and articles	375671-375662-36766425
Further detail from other practioners, experience.	375671-375662-36866122
More practical experience of other adhesives I have liitle experience of - seeing how someone else 'does' it! I have used a lot of Beva 371 and even cast my own films but only possible because i was taught over a period how to handle and 'know' this material. A lot of adhesive use is about experience and 'finesse' and quite differeng from what I was taught during my training	375671-375662-36920453
The success of adhesive treatments is largely dependent upon the skill with which they are applied, so any means of conveying neuanced details of technique would be useful.	375671-375662-36933005
Workshops would be ideal and further detail in case studies	375671-375662-36935946
It is always good to have opportunities to refresh knowledge learn more about new techniques through workshops and published guidance.	375671-375662-36949037
Further training would be beneficial - particularly focused on actual objects and complex real life scenarios	375671-375662-36949061
workshops, case studies with more specifics, follow up case studies (i.e. assessing past treatments)	375671-375662-36962905
Workshops, published guidance, and case study details would all be extremely helpful. Especially in keeping up with new products, advances, and with learning new techniques/methods.	375671-375662-36965525
published guidance and workshops	375671-375662-36989145
I think more specialised training and workshops (hands-on). More publications on new methods, new materials, discoveries, etc.	375671-375662-36999285
Practical workshops for application.	375671-375662-37009500
Practical Workshops where people share tips on applications (the CCI/V&A/BM adhesives workshop c15 years ago was excellent model); informal sharing opportunities; more shared information on current developments in adhesives and adhesive testing. More publication/sharing of honest looking back at old adhesive treatments.	375671-375662-37008984
Workshop if any	375671-375662-37056074
training / published guidance / case studies / other conservator's experience	375671-375662-37109988
Workshops and published guidance.	375671-375662-37115298
Workshops, published guidance, case studies	375671-375662-37121149
Workshops, published guidance, more detail in published case studies would all help.	375671-375662-37123568
workshops	375671-375662-37138682

Training (formal and informal), workshops and published guidance	<a href="#">375671-375662-37168202</a>
Sharing of practice - knowledge exchange. Sharing of concerns about problems with removal of adhesives, ageing, discontinued adhesives as well as developments in application techniques would all be useful. It can be offered in a range of formats.	<a href="#">375671-375662-37185661</a>
Further experience in practical application of adhesives, this could include workshops but mostly on the job experience is best.	<a href="#">375671-375662-37192274</a>
Initial formal training for good basics and introduction to types of adhesives and uses. Workshops are extremely useful, especially to demonstrate preparation and application techniques and to introduce different adhesives to a wider audience. Published technical notes and case studies are also extremely valuable for researching possible options and refining practical details when faced with complex issues.	<a href="#">375671-375662-37241617</a>
apart from carrying out tests myself: probably further detail in case studies	<a href="#">375671-375662-37094029</a>
Hands on workshop. I did take one from our professional organization, but it was a disaster. The instructor was horrible.	<a href="#">375671-375662-37295160</a>
workshops, published guidance, further detail in case studies	<a href="#">375671-375662-37298489</a>
I would love to have more choices when it comes to adhesives. I am always interested in case studies, especially when they look at long-term success of adhesive treatments, and introduce different adhesives from what I have used in the past.	<a href="#">375671-375662-37321977</a>
guided practical experiences (workshops), own test series, published guidance, further detail in case studies	<a href="#">375671-375662-37339989</a>
always very useful to read of case studies and new adhesives being trialed, it is also important to continually review past treatments	<a href="#">375671-375662-37534803</a>
more opportunity to learn from colleagues and sharing of what has been done	<a href="#">375671-375662-37629296</a>
All of the above. Generally we need to share our experience to learn from each other and be open to discussing successes and failures	<a href="#">375671-375662-37646659</a>
Formal training, case studies, printed materials	<a href="#">375671-375662-37653815</a>
Workshops, further detail in case studies.	<a href="#">375671-375662-37672427</a>

**20** What advice do you have for others who are in the process of developing a practice of using adhesives?

<b>Showing all 66 responses</b>	
They are not always the best solution, and in many ways are a last resort for preserving textiles. Adhesives require patience. Testing is very important, but sometimes what is successful in tests the object rejects. This is generally no reflection on you. Spend time practicing how you apply adhesives, and with what tools for the different types, ie. Brush for klucel, roller for Lascaux, spray for BEVA, not too much, not too little, and even application throughout.	<a href="#">375671-375662-36508556</a>
practice makes perfect	<a href="#">375671-375662-36509928</a>
Read all that you can of case studies, and attend appropriate workshops.	<a href="#">375671-375662-36529786</a>
Work with or seek out the best conservators who are most practiced - with the most recent methods, and who have a history of using adhesives and have seen the aging process. Recent publications and talking with other conservators is imperative	<a href="#">375671-375662-36531135</a>

publications and talking with other conservators is imperative.	
Hands-on practice with guidance, or making a sample set with study textiles are very helpful.	375671-375662-36536102
test, try out different strengths and become familiar with working methods and methods of application	375671-375662-36541992
Talk to conservators with high levels of proficiency. (Zenzie Tinker, Elizabeth Anne Haldane etc.)	375671-375662-36543350
I would discourage using adhesive on textiles. Most anything else should be fine as long as it is easily reversible.	375671-375662-36545019
Work with experienced conservators who have used them on different objects, for different needs, in different treatment protocols, to perform different functions.	375671-375662-36544953
Learn to use the most effective materials. If appropriate equipment is not available, do not use!	375671-375662-36546945
I think I am more in need of advice than able to provide it.	375671-375662-36553658
Test test test	375671-375662-36565884
Test as much as you can. Test on dummy objects, get experience. Be very aware of health and safety issues when using solvents.	375671-375662-36566240
If you have the chance to test out different methods and materials, there are so many variables from making solutions through to re-activation it can be daunting but it will help to feel confident with your treatments later on so it is really worth the investment of time.	375671-375662-36571261
Test widely and go through a few rounds of testing before making a decision. Try not to let bias affect experimental results. Use as similar materials as possible to actually artefact.	375671-375662-36576225
Test copiously on non-accessioned textiles (sourced from thrift stores and study collections) until you are comfortable with their working properties. Test out different parameters in a scientific way until you understand what effects each has: adhesive type, concentration, reactivation method, reactivation time, etc.	375671-375662-36579959
Making tables, trees, and spreadsheets for myself helped me a great deal in becoming familiar with the different groups of adhesives and their properties.	375671-375662-36569504
1. Take workshops 2. Make many mockups 3. Practice, attempting to repeat case studies.	375671-375662-36586526
Testing, read more, check out experiences	375671-375662-36589683
Go on testing	375671-375662-36589773
Plenty of practice using a variety of adhesives	375671-375662-36609111
Determine the environmental conditions of where the treated object will be housed and make appropriate adhesive choice (or choose not to use an adhesive) of those conditions.	375671-375662-36622558
Test and try everything available, and just because it doesn't work once doesn't mean it will never work and vice versa. There are many variables.	375671-375662-36623839
I have a table where I list what I want the object / adhesive to be able to withstand, and tables of all my previous adhesive treatments/testings evaluated for flexibility and tensile strength / peel strength. I do this testing with standard size samples weighted with a glass plate on the edge of a table top and with the peel strength method described by Karsten, Irene; Down, Jane (2005); "The effect of adhesive concentration, reactivation time, and pressure on the peel strength of heat and solvent-reactivated Lascaux 360/498 HV bonds to silk." in: 14th	375671-375662-36623891

<p>personal experience of materials and current researches. <a href="#">Lectures 2007</a>, ICOM Committee for Conservation, The Hague, 12-16 September 2005: preprints (ICOM Committee for Conservation). Verger, Isabelle (Editor); pp. 927-935</p>	
Share you experiences	<a href="#">375671-375662-36636003</a>
Like most things in conservation, go slowly.	<a href="#">375671-375662-36651130</a>
Lots and lots of testing and practice and if possible working with someone who has more experience. Reading up the literature on the subject, looking at case studies etc.	<a href="#">375671-375662-36660505</a>
Experiment with ratios when using adhesive mixtures	<a href="#">375671-375662-36664439</a>
Get good advice, if possible see and work with someone for methods and tips - read papers and before applying the adhesive prepare very well!	<a href="#">375671-375662-36673672</a>
Learn from an experienced conservator, and consult sources like CCI's Adhesive Compendium to help choose which materials to use for treatments.	<a href="#">375671-375662-36679142</a>
ask others, make notes and take photos, test and don't be afraid to try	<a href="#">375671-375662-36706389</a>
Practise as much as you can, with as many different adhesives as you can, to get a good understanding of the adhesive properties and to build up confidence in the technique before applying adhesives to an historical object.	<a href="#">375671-375662-36710866</a>
Be sure about safety for the object	<a href="#">375671-375662-36713950</a>
Always test before use.	<a href="#">375671-375662-36743334</a>
Think about what you want the adhesive to do, and exactly where do you need it.	<a href="#">375671-375662-36766425</a>
Research experience of others, research in area.	<a href="#">375671-375662-36866122</a>
Look at what more experinced people are doing, lots of practice, casting good to films is not thsst easy, done badly and it will cause problems for the treatment and the object	<a href="#">375671-375662-36920453</a>
Use them sparingly and only when other approaches are impossible; in practice, adhesive treatments of textiles are not readily reversible due to the nature of textiles--their fragility and porosity.	<a href="#">375671-375662-36933005</a>
I would definitely avoid adhesive techniques for textiles that are not in environmentally controlled conditions, particularly in tropical environments as I have seen old adhesive repairs become very yellow and insoluble. I think that they should be used with caution and only when a stitching techniques is not suitable.	<a href="#">375671-375662-36949037</a>
Practice, and be open to trying new techniques. I wish I had the availability of time & space to be able to test and trial adhesive treatments and develop greater familiarity with their properties so I could use them with greater confidence.	<a href="#">375671-375662-36949061</a>
do a lot of mock-ups on a variety of substrates. Workshops that allow for exploration help a lot.	<a href="#">375671-375662-36962905</a>
Take care. Test first. Think it through.	<a href="#">375671-375662-36965525</a>
Become familiar with adhesives by making your own samples and researching. Test the different application methods and compile samples.	<a href="#">375671-375662-36989145</a>
Test a wide range of adhesives, not only few. One can always have a surprise, even after practising for years. Be sure of the TG. One doesn't know where the object will be stored (that is most of its lifetime) or displayed in the future.	<a href="#">375671-375662-36999285</a>
Testing is vital.	<a href="#">375671-375662-37009500</a>

NOT to automatically rule them out - definitely have their uses, but use sparingly. I have generally found that often need to have combination of stitching and adhesive for long term success - many earlier adhesive patches do seem to fail and start peeling off at the edges, particularly on costume items or large textiles frequently manipulated. Play around with admixtures (starch/mc with acrylics) to tailor properties. Personally I find I am now looking more towards using less Lascaux/Beva if possible, returning to more stitched solutions.	<a href="#">375671-375662-37008984</a>
I do not like it. So I would not advise it	<a href="#">375671-375662-37056074</a>
looking at every case scenario / condition and make a judgement for every individual case	<a href="#">375671-375662-37109988</a>
I think my experience is minimal enough that I'm not the best person to offer advice.	<a href="#">375671-375662-37115298</a>
test on surrogate materials both the adhesion process and the removal process.	<a href="#">375671-375662-37121149</a>
Follow through with MANY tests before proceeding to work on the object. Seek workshop/professional development opportunities.	<a href="#">375671-375662-37123568</a>
Choose the adhesive carefully for the materials.	<a href="#">375671-375662-37138682</a>
Application methods are as important as the choice of adhesive?	<a href="#">375671-375662-37168202</a>
Learn from others, practice application methods to ensure you achieve a consistent application, and keep up to date. One of challenges is management of changes to adhesive formulations and discontinued products. we all develop favoured adhesives to use. It is important to be flexible and adapt to changes in practice.	<a href="#">375671-375662-37185661</a>
To do lots of testing first! Also that the process of creating adhesive films has many variables which can produce slightly different results every time and therefore effect the properties of the film. These variables should be minimised where possible or you will get a different result between testing & the final product.	<a href="#">375671-375662-37192274</a>
Research different types of adhesives, get to know what may be suitable for different applications. Search case studies and published literature. Speak to textile conservators who have experience of adhesives use. Get lots of practice in preparation and application.	<a href="#">375671-375662-37241617</a>
never hesitate to ask colleagues for their experience	<a href="#">375671-375662-37094029</a>
You must repeat, repeat, repeat. It is the only way to develop proficiency. It is the same way with dyeing. You must perform these duties on a regular basis.	<a href="#">375671-375662-37295160</a>
It's important to read up on published literature, but also to experiment with surrogate materials before treating cultural heritage	<a href="#">375671-375662-37298489</a>
I have found using mock-ups with a variety of adhesive choices, concentrations, substrates, and reactivation methods are very helpful for making treatment choices.	<a href="#">375671-375662-37321977</a>
continuous practical studies, repeated test series with different adhesives and substrates	<a href="#">375671-375662-37339989</a>
to read as much as possible and practice a lot before treating the object. Also good to look at actual examples of treatments and adhesive films to understand how they should look as there are a lot of variables.	<a href="#">375671-375662-37534803</a>
last resort only - not used in my practice where traditional methods can be used.	<a href="#">375671-375662-37629296</a>
Practice practice practice! And build up a series of samples much in the way one builds a personal dye sample folder. Use these samples each time one is considering an adhesive method and run tests every time one considers an adhesive treatment. With much experience one gains an idea of which adhesive will probably work best but the % strength and application method needs to be tested each time in order to assess what will work best each time.	<a href="#">375671-375662-37646659</a>

Practice and ask advice when needed	375671-375662-37653815
Consult more experienced colleague.	375671-375662-37672427

**21** Do you have any further comments about adhesive use in textile conservation?

Showing all 56 responses	
I will always prefer activation by heat over solvents, as even with extraction solvents in the air cause me to feel unwell. I have found heat activation to be more precise, and easier to replicate, ie temperature and time can be managed much more easily than solvent on blotter.	375671-375662-36508556
Just be sure that you know how well they age over time, and know their reversibility.	375671-375662-36529786
I fear it's use by some conservators is not judicious and well-thought out. I strongly urge conservators with whom I come into contact regarding the subject to learn as much about adhesives through workshops, reading and consulting colleagues as much as possible.	375671-375662-36531135
I'd love to see a conference or session revisiting adhesive treatments from decades past.	375671-375662-36536102
I use a disposable Preval sprayer for applying the Beva to the carrier fabric. This means I don't have to fuss with cleaning it out of our lab airbrush, which is little used but otherwise only used for water-based paints. But the Preval sprayers aren't as evenly controllable as a good airbrush. Advice on best methods of spraying with minimum fuss would be appreciated.	375671-375662-36537033
always test new batches of adhesive in case they are a slightly different composition from the last	375671-375662-36541992
It is much less common and used with a much lighter touch than 20 or 30 years ago. We tend to use more carbohydrate based adhesives and use more solvent reactivation than in the past.	375671-375662-36543350
Try not to use adhesives on textiles.	375671-375662-36545019
all my comments apply to paintings conservation, not just textile conservation.	375671-375662-36544953
I think we can do it better now than they were doing it in the 50's, so people should consider it as a legitimate treatment option	375671-375662-36544567
I certainly would like to see more papers and discussions on the reversing of previous adhesive treatments. I have seen a lot of very thick and hardened (non conservation standard) treatments in potential projects which I haven't yet taken on, so I am quite concerned about how to reverse them.	375671-375662-36553658
I don't do practical textile conservation any more for several years now; therefore I cannot answer concretely	375671-375662-36556748
Want to learn more. Look forward to survey results.	375671-375662-36565884
The use of adhesives is a valid treatment option and not only a last resort.	375671-375662-36566240
I am very open to the topic. It is often more useful than sewing. It needs more research.	375671-375662-36570764
Although I don't see any treatment as fully reversible I am always concerned about the prospect of removing conservation adhesive treatments, especially as in many cases an adhesive support is the last resort to hold a fragile textile together, it is worth considering how difficult it may be to remove a support before you think about applying it.	375671-375662-36571261
Practice won't be as often as adhesive is used as a last resort where stitching cannot be used. Yet knowledge and actual use is crucial when necessary so one is confident to proceed and	375671-375662-36576225



know how and what adhesives to test when making a decision. Read all available literature but know that every artefact is different and experimenting is important . Adhesives should not be used out of just comfort , tradition and availability .	
An excellent and versatile tool to have in your arsenal!	<a href="#">375671-375662-36579959</a>
Using adhesive on an object can be intimidating because there is more that could go wrong than with stitch treatments, but it is a valuable treatment to have in your bag of tricks.	<a href="#">375671-375662-36569504</a>
Prep is so time consuming.... therefore: 1. A commercially available ultra-thin film would be great. 2. A commercially available light-bond or nap-bond product would be great.	<a href="#">375671-375662-36586526</a>
it can be useful in many cases	<a href="#">375671-375662-36589683</a>
I would welcome more up to date published studies and guidance	<a href="#">375671-375662-36590523</a>
It is a possible solution when silk is very fragile or when objects are made with mixed materials	<a href="#">375671-375662-36589773</a>
I use adhesives as a last resort so do not undertake treatments very often. Always do plenty of testing first	<a href="#">375671-375662-36609111</a>
With adhesives I almost always use it in combination with stitching. The adhesive first provides just enough support to allow a stitching treatment to happen, but many adhesive treatments on their own fail at some point especially at the edges and stitching prevents this.	<a href="#">375671-375662-36623839</a>
To me there is no dogma ("To glue or not to glue"). Adhesives today are one among many treatment options to be evaluated on a case by case bases.	<a href="#">375671-375662-36623891</a>
I'm interested in adhesive treatments to textiles that go on open display.	<a href="#">375671-375662-36636003</a>
no.	<a href="#">375671-375662-36651130</a>
I think there is definitely a place for their use in textile conservation but I try to limit it to objects where there is no other option. There are always concerns about the ageing of the adhesives and removing them when necessary. We still need a lot more work doing in this area.	<a href="#">375671-375662-36660505</a>
More research in to the aging properties of such treatments and the level of intervention may be needed	<a href="#">375671-375662-36664439</a>
I would prefer to use stitched treatments, but adhesive films, when used well provide very good all over support and in some cases actually allow a stitched treatment/support to be undertaken. I have recently discovered the use of 2gm Japanese tissue in giving surface support to very brittle textiles/applied decoration (applique), in conjunction with Klucel G and has been really useful and much less interventive than the stitching alone which was causing damage. We also used this treatment to infill losses in the applied decoration.	<a href="#">375671-375662-36673672</a>
I find attitudes towards adhesive use varies from conservator to conservator, depending on who they trained with and learned from, so there are few 'standard practices' that everyone will do. Personally I was trained primarily in artifacts conservation so I use regularly use adhesive treatments on other materials. While these methods do not translate perfectly to textiles I am still comfortable using adhesives.	<a href="#">375671-375662-36679142</a>
they should be considered.....but not always appropriate	<a href="#">375671-375662-36706389</a>
Adhesives can be very useful in textile conservation. Lack of equipment in the workshop can effect/reduce choices (e.g. insufficient fume extraction, lack of hot-table) but, when adhesives are the best treatment for the object, this does not prevent the treatment from being carried out.	<a href="#">375671-375662-36710866</a>

it is not harmless	<a href="#">375671-375662-36713950</a>
It is equally important to learn how to recognize and remove old adhesives	<a href="#">375671-375662-36766425</a>
Proceed with caution!	<a href="#">375671-375662-36866122</a>
If an adhesive treatment is a treatment of last resort make sure it is properly done, that a good bond is created between the object and the adhesive substrate otherwise there is no point in the treatment in the first place	<a href="#">375671-375662-36920453</a>
The idea of consolidation v. support; we tend to avoid impregnating textiles with adhesives, but sometimes tiny bits of an adhesive (ie: methyl cellulose) can be useful stabilizing deteriorating surface embellishments.	<a href="#">375671-375662-36933005</a>
Although I would always consider stitching techniques first adhesives do have their place and should never be ruled out. I would like to think that the profession has got to the point where adhesive are seen as a useful tool and not excluded just on principal. Surely we have moved on from this old debate.	<a href="#">375671-375662-36949037</a>
Stitching is still my preferred technique as it is what I'm most familiar with. However, there is definitely, a place for both stitching and adhesive treatments. I wish I had the availability of time & space to be able to test and trial adhesive treatments and develop greater familiarity with their properties so I could use them with greater confidence.	<a href="#">375671-375662-36949061</a>
Challenge of knowing when and how commercially available products change and how that will affect the resulting treatment (thinking of old Beva vs. newer Beva - I see this discussed frequently in paintings forums but not in textile ones.)	<a href="#">375671-375662-36962905</a>
In the past there was a workshop offered by Canadian Conservation Institute on adhesives for textiles and leather. I did not take the workshop myself but have referred to the course materials and samples as a key reference.	<a href="#">375671-375662-36989145</a>
I would like to see more research/experimentation into the consolidation of textiles (or are you more focussing on adhesive supports?) Very interesting developments in the use of nanocelluloses as possible consolidants. What about other nano technologies. More investigation into the problems with very soft powdering silk embroidery threads, as well as brittle silk.	<a href="#">375671-375662-37008984</a>
No o	<a href="#">375671-375662-37056074</a>
Not at this time.	<a href="#">375671-375662-37115298</a>
I believe adhesives have their place in costume conservation, but usually the manipulation needed for dressing/undressing the finished object limits the usefulness of the adhesive repair.	<a href="#">375671-375662-37123568</a>
It was often used in the wrong situation in the past and got a bad reputation. However it is a valuable treatment method and should not be dismissed. Wisely used for the correct object it can be a visually and structurally excellent support method.	<a href="#">375671-375662-37138682</a>
It is important for us to continue to share successful and less successful treatments to enable us to develop our use of adhesives in practice. We have learnt a great deal from pioneers in the use of adhesives and those that have continued to explore their use. Also important work done in ageing of adhesives is essential to informing our understanding of textiles.	<a href="#">375671-375662-37185661</a>
Monitor objects after treatment; adhesives may not follow specified characteristics and once the object leaves the conservator they have no control over the conditions to which the textile is subject. Adhesives may significantly affect the flexibility and drape of the textile compared to a stitched treatment and the end result may prove to be inappropriate. An adhesive introduces an additional component to the object; it may deteriorate at a different rate to the	<a href="#">375671-375662-37241617</a>



<p>textile or compromise its longevity if poorly or unsympathetically executed. That said, for some textile objects an adhesive treatment to hold together the last fragile remnants may be the only option available at the time of treatment that will allow it to be studied or displayed safely and which ensures the textiles survival.</p>	
<p>Adhesives are important tools for textiles conservators to consider. Like all treatment options, they are not suitable for all object or situations. I think textile conservation will benefit from growth in scientific analysis of treatment materials and techniques, and I look forward to more studies into adhesive properties and potentials</p>	<p><a href="#">375671-375662-37298489</a></p>
<p>I am currently working on adhesive meshes used for canvas bonding in paintings conservation. Currently, I am in contact with some textile conservators that are about to test the meshes. It might possibly be a suitable approach to use adhesives with less heat and reduced amount of solvents.</p>	<p><a href="#">375671-375662-37339989</a></p>
<p>It is a treatment that is relatively rare but requires a lot of expertise to do well so we would always start with tests and carry out samples prior to each treatment to check all details before commencing with the object. We would always test on something similar to the object in weight etc to make sure we are choosing the most appropriate adhesive/adhesive mix.</p>	<p><a href="#">375671-375662-37534803</a></p>
<p>we need to encourage people to share what they have learned even the treatments that are less than successful so that the field can have more knowledge on this subject.</p>	<p><a href="#">375671-375662-37629296</a></p>
<p>Using adhesives well starts with good assessment of the condition of the object followed by careful consideration of one's choice of adh and choice of application method. In my experience thermoplastic adhesives are almost always fully reversible - and reversibility is very important. Other forms of adhesive or method eg wheat starch treatments or some solvent reactivation techniques are not. The bond between object and support can be broken or "reversed" but if the adhesive itself has penetrated the fibres or weave structure it can do so in a way that is irreversible. The advantage of the adhesive sitting as a distinct film between the object and the support cannot be overstated. This factor can often out weigh the disadvantage of an heat application for a very short time during application. Solvent reactivation acts in an entirely different way - sometimes one wants that way (eg when needing to create an adh support over a 3d form or when needing a very strong, penetrative bond) but often one does not.</p>	<p><a href="#">375671-375662-37646659</a></p>
<p>Virtually no interventive treatment in textile conservation is fully reversible - this has been used as an excuse for not using them for too long.</p>	<p><a href="#">375671-375662-37653815</a></p>