

Digital Modeling of Western State Constitutional Conventions by Undergraduates: Extending the Quill Project

Digital Humanities Advancement Level III Grant

A. Introduction

The Center for Constitutional Studies at Utah Valley University is seeking NEH support for a major expansion of its undergraduate-led digital modelling of state constitutional conventions. Building upon our completion of an interactive edition of the Utah convention records of 1895, an accomplishment enabled by our partnership with the University of Oxford-based Quill Project, we want to enlarge the Quill data set of state constitutional conventions by ourselves modeling three more western state conventions. We also want to enlarge the data set by persuading other institutions to undertake similar modeling projects. We believe that the way in which the principles of American government were received, transformed, and implemented in the American west is an important but under-studied part of our nation's constitutional heritage. And from a methodological perspective, we believe that this project will serve as a prime example of how digital humanities can enable undergraduates to take a leading role in collaborative research projects of long-lasting value.

NEH support of \$325,000, with an added match of \$50,000, will permit the Center for Constitutional Studies (CCS) to hire five part-time student employees for thirty-two months; these students will model three state constitutional conventions. For purposes of research-focus further explained below, CCS will select conventions from western states, specifically, from the territories that achieved statehood during the 1864-1911 window. The conventions within those parameters that are our top three choices are those of Wyoming, Idaho, and Washington, but we may adjust this choice depending on the quality of the records available. NEH assistance will also permit CCS to hold, towards the end of the thirty-two-month grant, a conference designed to encourage other American universities and colleges to digitally model a constitutional convention of their home state using the Quill platform, to provide training and counsel for schools we have already convinced to do so (such as Arizona State University), and to share our research findings. The grant will also fund research and conference travel. Finally, it will permit CCS to purchase a new server for the Quill Project platform to be housed at UVU, which will provide a fundamental upgrade in the program's user-friendliness.

The digital modelling technique that is in the process of being developed by the [Quill Project](#) radically improves our ability to study the creation of negotiated and multi-authored texts, such as constitutional documents. The Parliamentary (or "quasi-Parliamentary") processes used in conventions are complex, and leave records that are difficult to interpret. Thus, many of these records have been ignored. Even the best-known record of this kind, James Madison's *Notes on the Debates in the Federal Convention*, is difficult to use. Most typically, readers turn to it for quotes from the more famous delegates, but if they turn to it with the intention of following the development of the Constitution's draft, they find it is often hard to keep track of what clause is being voted upon or debated, or to understand what might be at stake at any given point. By contrast, the interactive edition of a convention's records produced by the Quill modeling allows the user to quickly see every change being

made. Additionally, the Quill software provides a useful visualization language, and various [search and analytic tools](#).¹

Based on past experience, we know that the student modeling work at the heart of this project will require our partners at the Oxford Quill team to more fully develop their software, and often due to feedback from our students. That is, the work will reveal how well or not the platform functions to model actual conventions. Thus, by increasing the number of conventions modelled by Quill, we know we will be indirectly contributing, and often through quite specific recommendations, to needed “enhancing” of the Quill platform’s software. To use the relevant NEH DHAG language, we will be helping to develop Quill’s “experimental, computationally-based methods [and] techniques.” Our requested grant assistance is unique in that it will allow students of a United States institution to undertake important research, which while not by strict definition work that *itself* advances these sorts of digital methods and techniques, will be work vital to allowing its British partner to properly do so. Overall, our project will spur academic humanities research and digital advancement in tandem.

B. Enhancing the Humanities, Part One: Reviving the Study of State Constitutionalism

B-1: State Constitutionalism

America’s early embrace of the idea of constitutionalism, and the resulting documents and patterns of government, have been extremely important to the development of modern democracy. One of the unique features of American constitutionalism has been each state’s careful creation of a distinct constitution. And yet, despite the 235 conventions held for the writing of new state constitutions (quite a few states held conventions subsequent to their initial one), this aspect of the American political tradition has been little studied. As the historian Christian Fritz noted, “little attention has been devoted by constitutional historians to the evolving constitutional thought of delegates to state constitutional conventions.”²

This neglect removes one-half of the story of American constitutionalism from view. It warps our perspective of political and constitutional history, and especially regarding the eras in which state power relative to that of the federal government was more pronounced. It likely also warps and handicaps efforts to restore aspects of the older system of federalism, by reducing debates about federalism to ones about policy arenas and U.S. Supreme Court decisions. It obscures from citizens’ view the substantial power their predecessors had over the nuts-and-bolts of government structure, and the deliberative care their delegates took to get that structure right.

The Center for Constitutional Studies wants to prod scholars to reverse this pattern of neglect. It seeks to do so by means of technology that is changing the study of historical documents, and whose cutting-edge nature is quickly recognized and appreciated by today’s students. It seeks to make more institutions of higher education aware of this unique opportunity to rectify a serious gap in scholarship,

¹ The elements of Quill’s visualization language can be grasped by examining the “icon key” on Quill’s home page, and by viewing the video available at the “user’s guide” tab, esp. from 3:20-5:00. See also Appendix I.

² Christian G. Fritz, “The American Constitutional Tradition Revisited: Preliminary Observations on State Constitution-Making in the Nineteenth-Century West.” *Rutgers Law Journal* 25 (Summer 1994): 952-53.

and to invite them to join us in modeling state constitutional conventions. To do this, we must be making substantial headway into the research ourselves, demonstrating that the effort is not prohibitively difficult, and that its fruits are worthwhile.

Once a state constitutional convention has been modeled, there are several immediate benefits. First and foremost, that convention becomes much easier to study, both for the general public looking to explore the process, and for scholars, legal professionals, and public servants conducting more targeted research. For public servants of all three branches of state government, greater knowledge of the drafting debates behind particular provisions allows better understanding of the original meaning of the language utilized. For all users, the interactive edition results in greater familiarity with the respective constitution.

Second, the records of the respective convention become more organized and accessible. Our experience with Utah's convention, and exploratory research by our students and by the Pembroke Quill team, suggest that many, if not all, state convention records are in sub-standard condition. Key documents are missing from the main record, have not been transcribed, or are unavailable in a computer-readable format. As explained below, modeling work can help correct this.

Third, the more state conventions are modeled, the more the comparative tools of the Quill platform may be utilized. More broadly, a new research area in what political scientists call Comparative Constitutionalism, one which compares constitutional *conventions*, opens up.

B-2: A Western Research Focus

CCS's main aim is to increase the modeling of American state conventions generally. As we interest others in undertaking this work, we will welcome the modeling of conventions from every region and time period. However, we feel it strategic at this time to concentrate our own work on the conventions of the western states.

The Quill methodology was first applied at the state-level to the Utah convention because CCS became the main stateside partner with Quill, and we wanted to appeal to the interest of our students and supporters, most of whom are Utah residents. For the Oxford Quill team, the initial interest in Utah's convention was to learn how much modification of their methodology and digital technology would be required to capture the work of a late-nineteenth-century state convention, given that the platform had so far only been used to model the 1787 records of the Federal Convention. And our work on Utah's convention has suggested a number of avenues for Quill development, including refinement of visualizations and analytical tools, the use of AI to assist with the generation of infographics, and natural language processing to assist with the comparison of different conventions.

Our work on the Utah records also brought to the fore substantive historical questions: what were the range of options considered by western state constitutional framers when it came to questions of fundamental rights, the basic structure of governmental institutions, and the powers retained by the citizens to shape future constitutional developments? What role did Congress have in shaping the first constitution of a new state? How much language was borrowed from neighboring states and more recent conventions?

Many of these questions could be answered with greater certainty if the database of convention records held by the Quill project could be expanded to include those from states most comparable to Utah: the territories in the west which acquired statehood in the period from the Civil War to 1911.³ This would also permit a more fundamental question to be addressed: how were the ideas of American republican government that had been forged by the states of the East Coast received and transformed by the territories of the American west? These research questions highlight how our proposal directly fits the NEH's encouragement, in recognition of the 250th anniversary of American Independence, of projects that "explore the experiences of states and communities beyond the original colonies in joining the nation," and which "explore...foundational documents in the making of U.S. history."

C. Project History

C-1: The Quill Project

The Quill Project is a digital-humanities project focused on understanding the negotiation of constitutions and other legal texts, and is led by Dr Nicholas Cole, a Senior Research Fellow at Pembroke College, University of Oxford. Cole is a political historian who specializes in post-Independence America, but who also has an interest in software-driven analysis. Using a study of parliamentary manuals and an adaptation of algorithms developed to support multi-user text editing, Cole and the Pembroke Quill team developed a digital platform that can model conventions. Details of the project's methodology were published in 2017 and 2018.⁴ As part of pursuing their core research questions, Cole and his colleagues in the UK (including Dr Alfie Abdul-Rahman, a lecturer in Computer Science at the Department of Infomatics, Kings College London) continue to refine the methodology and technology, and to create custom visualizations, data-mining, search, and comparison tools.

The project's flagship work modeled the 1787 United States constitutional convention. An initial version of this model—created with intensive collaborative work with CCS UVU students--was published in 2016. This year, the Pembroke Quill team will publish a model of the Congress's negotiations on the United States Bill of Rights, that is, Amendments I-X, and the CCS Quill team will do the same with the negotiations on the Reconstruction Amendments, that is, Amendments XIII-XV. Though the history of American constitutions is the primary focus of the Quill Project, the potential exists to explore a broader and international range of historic negotiations.

³ As Arizona State University has commenced work on the Arizona records (1910), the remaining state conventions with extant records that fit our western parameters are those of Nevada (1864), Nebraska (1871), Colorado (1875-76), South Dakota (1885), North Dakota (1889), Washington (1889), Montana (1889), Idaho (1889), and Wyoming (1889). We are presently uncertain whether adequate records exist for the conventions of Oklahoma (1906-1907) and New Mexico (1910). See John Dinan, *The American State Constitutional Tradition*, (2006), 5-9, 25-28. Hawaii's and Alaska's conventions took place more than forty years after this 1860-1910 era of Western constitution-making, and other seemingly comparable Western conventions, such as those of California (1849), Kansas (1855), Minnesota (1857), and Oregon (1857) were held prior to the commencement of the Civil War and thus, in our judgment, are better compared with the conventions of that era. .

⁴ Nicholas Cole, Alfie Abdul-Rahman, and Grace Mallon, "A Framework for Modelling and Visualizing the US Constitutional Convention of 1787" in *The International Journal on Digital Libraries* (November, 2018). An earlier version of this paper won the Vannevar Bush Best Paper Award at the Joint Conference on Digital Libraries, 2017.

C-2: CCS and Its Partnership with Quill

[The Center for Constitutional Studies](#), launched in 2012, is a non-partisan academic institute promoting U.S. constitutional literacy, both among UVU students, and among the Utah communities. It also seeks to encourage scholarly research and exchange on American constitutionalism. Our main activities besides our partnership with Quill are holding [scholarly conferences](#), the Federalism Index Project, and the promotion of UVU's Constitutional Studies minor. In the future we expect to additionally provide training and resources for K-12 teachers. We are largely funded by independent donors.

While we have spoken above about a "Pembroke Quill team" and a "CCS Quill team," the Quill Project and the Center for Constitutional Studies are independent entities housed at their respective institutions. Pembroke College and UVU have a Memorandum of Understanding that governs the partnership between Quill and CCS. The independence of each means that while the UVU student worker teams utilize the Quill platform, publish their models upon it, and weekly communicate with Dr. Cole via Skype for guidance and mutual feedback, they remain employees of CCS.

Due to a personal connection made by UVU's former president Mathew Holland with Dr. Cole, CCS explored possibilities for cooperation with Quill, and began working with it in 2015, with the result that CCS student workers helped model the records of the 1787 Convention. In early 2017, a new group of student workers, under the supervision of Dr. Carl Eric Scott, CCS's assistant director and the project coordinator for this grant, began work on the [Utah convention of 1895](#), which was completed this April.

The CCS Quill team has now begun the modeling of the negotiations that produced the three Reconstruction amendments, and they should complete this work in the fall, and begin modeling two more state constitutional conventions. All of that student work will be funded by private donors, as it has been in the past. The directors of CCS are confident about the quality and progress of this work, but looking forward, we realize that if we must rely solely upon the continued support of our current donors, we will at best be doubling our past pace of Quill work. We strongly believe, however, that the time is right to exponentially expand this work, the better to set the stage for the comparative Quill analysis of western conventions possible with a larger data set, and the better to encourage other institutions to follow in our footsteps.

We also believe it is worth noting the uniqueness of this partnership. Here is one of the world's oldest and most prestigious universities, partnering with a young and open-enrollment university, and finding that the research work done by its students is of the highest quality. As an example of what this means, the two key student leaders on the CCS Quill team have background stories perhaps surprising for researchers doing cutting-edge scholarly work: one is a Peruvian immigrant, and the other worked as a hair-stylist before coming back to school at UVU.

D. Environmental Scan: Comparable Digital Projects

Compared to other digital editions of constitutional materials, those published on the Quill platform are of *conventions* or *negotiations*, and model the *entire* records concerning these. They thus focus on the evolution of texts through a process of formal debate, rather than on the final texts only.

They also provide far more than digital resources which make texts available, or even those (rare) resources which summarize the main flow of convention debate for teaching purposes.⁵ Quill editions may be used alongside, and do provide links to, traditional projects which digitize constitutional records, but they are fundamentally distinct in terms of what they do. Examples of these more traditional projects include the Constitutional Sources Project, the Avalon Project version of Madison's notes, and the Comparative Constitutions Project.⁶ In sum, no comparable digital platforms exist to present the work of constitutional conventions in the way that Quill does. And because our modelers do not make the sorts of judgments necessary for summarization, but instead follow a set of rules for modeling, it is the most appropriate platform by which to neutrally present the conduct of the negotiations at a constitutional convention.

UVU is Quill's primary institutional partner, and besides ASU, its only one working in the United States. At present, CCS student workers are nearly the only persons outside the Pembroke team who know how to create digital editions using the Quill platform, and who can train others to do so.

E. Enhancing the Humanities, Part Two: A Model for Undergraduate Research

The other way in which this project will enhance the humanities does not concern the actual area of research, but the way it provides a unique methodological model. CCS's partnership with Quill has managed to create an environment in which undergraduate students are able to collaborate with each other and with academic mentors on substantive research questions and on the production of the digital edition. Their contribution transcends menial tasks of cataloguing, meta-data production, transcription and proof-reading, and instead creates opportunities for students to help to shape the conduct of the research, the organization of the project, and much more.

"Undergraduate Research" in the humanities is understood principally as a teaching-aid, and a way of 'socializing' undergraduate students to the wider academic culture of the university. At elite universities, the research projects undertaken by undergraduates are typically short in duration, conducted principally independently, and relatively rarely result in published material — the student is considered more as an apprentice learning to conduct a small research project than as a colleague making a substantive contribution to a broader program of research. This contrasts with the opportunities often available to students in lab-based science subjects, in which it is not uncommon for undergraduate researchers to join research groups to conduct projects that contribute to the work of the wider team, and in that way to contribute to projects that will extend beyond the undergraduate study of any one student.

The collaboration of UVU and Oxford has evolved into a political history project that puts into practice many of the opportunities that have often been anticipated as a consequence of the digital turn in humanities methodologies, but which have rarely been instituted in practice. While the wider research question and the methodology adopted were set by the academics who lead the project, the

⁵ The most impressive example of the latter is the work Gordon Lloyd has done on the 1787 Convention with his "[Four-Act Drama of the Constitutional Convention](https://teachingamericanhistory.org/resources/convention/lloyd/)," for the Teaching American History website. <https://teachingamericanhistory.org/resources/convention/lloyd/>

⁶ For more, see Nicholas Cole and Alfie Abdul-Rahman, "The Quill Platform: Lessons from a Year of Collaborations." *Proceedings of ACM/IEEE Joint Conference on Digital Libraries (JCDL)* (June 2018), p. 3, and esp. notes 4-5, and 16-18.

contribution of undergraduate researchers has evolved from data-entry, software-testing, and verification tasks, to a model of collaboration that is far more similar to lab-based research. CCS has provided an environment in which students can learn from their peers and enjoy a considerable freedom to self-organize. As the number of students working the project has grown (from three to eight, due to an increase in private donations) the students have learned to organize themselves to make efficient use of their time, dividing the tasks of archival research, digitization, transcription, record-keeping, and interpretation.

One of the discoveries of the project is that the cycle of working to model the convention using the official journal as a base, but then consulting other official papers or contemporary accounts in order to make sense of the journal, encourages students to become familiar with a range of sources, with the problems of interpretation of source material, and with the choices faced by the editors of digital editions. In time, we expect to be able to build upon this model to help students to publish the substantive findings of their research, but for the moment they have certainly learned to contribute collectively, and as colleagues, to the production of an innovative digital edition. Finally, the students have gained a much greater familiarity with the practical workings of constitutionalism than most undergraduates in politics or history, even to the extent of mastering a good deal of Parliamentary procedure.

An additional discovery is that a significant portion of the Quill Project's ongoing digital innovations have resulted from interactions with the student-researchers at UVU. These include the creation of completely new visualizations to support improved work-flows or targeted at particular audiences, AI techniques for data discovery, as well as fundamental changes to the underlying data model to better capture unanticipated features of the archives being investigated. The further development of the necessary Quill Platform tools for analysis and presentation will thus depend to a large degree on an increased pace of modeling work and an expanded data-set. CCS students will take part of a special research opportunity through this project, with all the benefits to their own education and to the neglected field of state constitutional studies that we have described, but they will also be contributing to the advancement of an important digital humanities platform.

F. Work Plan

We seek funding for at 32-month project commencing February 1, 2020 and concluding September 30, 2022. Work will take place in three stages. There will be overlap between the final two stages.

Stage 1: February 1, 2020 to March 31, 2020

This stage centers on establishing the foundational elements required to complete the state constitutional models. Stage 1 comprises five key tasks.

- 1) Prior to February 1, 2019 the Co-Project Director (Co-PD) will select two students from among existing UVU Center for Constitutional Studies (CCS) Quill Project undergraduate student research assistants to serve as student co-leaders for the Western State Constitutional Conventions Project student research team. (***February 1, 2020 to February 29, 2020***)
- 2) The Co-PD, UVU's Systems Administration Director, and our Project Consultant will acquire and install an upgraded server and duplicate the Quill Project data from University of Oxford server onto

the new Utah Valley University server. The UVU Office of Information Technology will provide ongoing support for the server. **(February 1, 2020 to February 29, 2020)**

- 3) Under the supervision of the Co-PD and Project Consultant, the two student co-leads will perform on-site and online research of state archives to amass all needed convention records. **(February 1, 2020 to February 28, 2020)**
- 4) When archival materials are not already in a usable digital format, a transcription service provider will be contracted to convert source material into a digital format compatible with the Quill platform. **(March 1, 2020 to March 31)**
- 5) During the transcription process, the Co-PD will oversee the hiring of three student research assistants. **(March 1, 2020 to March 31)**

Stage 2: April 1, 2020 to January 31, 2021

Work will shift to the creation of the digital model for the state constitutional conventions. This is by far the most labor intensive and time-consuming piece of the project. It is broken into the three repeating phases as follows.

- 1) Modeling – The five-student research team will work its way through the constitutional convention day by day, committee by committee, marking up and coding the digitized archival records to create the interactive model of the convention. **(April 1, 2020 to May 31, 2022)**
- 2) Review – After completing the initial digital model of the constitutional convention, the student team will conduct a comprehensive read-through of the materials for each model to confirm the accuracy of the record and the functionality of the coding, making corrections as needed. **(November 1, 2020 to January 31, 2021)**
- 3) Research and Transcription – As the review progresses, the student co-leads, Co-PD, and Project Consultant will begin the archival research on the second state constitutional convention. As archival materials are gathered that are not already in a usable digital format, a transcription service provider will be contracted to convert source material into a digital format compatible with the Quill platform. **(January 1, 2021 to February 28, 2021)**
- 4) Modeling – The five-student research team will work their way through the second constitutional convention to create the interactive model. **(March 1, 2021 to September 31, 2021)**
- 5) Review – After completing the initial digital model of the constitutional convention, the student team will conduct a comprehensive read-through of the materials for each model to confirm the accuracy of the record and the functionality of the coding, making corrections as needed. **(September 1, 2021 to October 31, 2021)**
- 6) Research and Transcription – As the second review progresses, the student co-leads, the Co-PD, and Project Consultant will begin the archival research on the third state constitutional convention. As archival materials are gathered that are not already in a usable digital format, a transcription service provider will be contracted to convert source material into a digital format compatible with the Quill platform. **(October 1, 2021 to November 30, 2021)**
- 7) Modeling – The five-student research team will work its way through the third and final constitutional convention to create the interactive model. **(December 1, 2021 to June 30, 2022)**
- 8) Review – After completing the initial digital model of the third constitutional convention, the student team will conduct a comprehensive read-through of the materials for each model to confirm the accuracy of the record and the functionality of the coding, making corrections as needed. **(July 1, 2022 to August 31, 2022)**

Stage 3: November 1, 2021 to September 30, 2022

With the digital models nearly ready for public use, attention will move to sharing the newly developed resources, promoting their use, and encouraging broad participation in Quill Project state convention modeling. This will be accomplished through the series of promotional activities, preparation for which will begin before Stage 2 is completed. Meanwhile, the student researchers will continue work on the third state convention model. Work will proceed as follows:

- 1) The Project Coordinator (PC) and Project Director (PD) in collaboration with the three completed states, organize public launch events to announce public access to each state's Quill model **(November 1, 2021 to September 30, 2022)**
- 2) The PC, PD, and Project Consultant organize and host a conference **(November 1, 2021 to September 23, 2022)** to:
 - a. Inform attendees about the Quill Project generally and the western state constitutional convention initiative specifically.
 - b. Present the new state constitutional convention models, findings from the modeling process, and initial findings on the use of the Quill platform to compare western constitutions.
 - c. Train academics, librarians, and legal professionals in research use of the Quill platform.
 - d. Encourage other institutions to partner with Quill in developing their respective state's constitutional convention interactive model.
- 3) The Co-PD, student co-leads, and Project Consultant create online tutorials for the use of the Quill platform by academics and legal professionals. **(July 1, 2022 to September 30, 2022)**

Risks & Mitigation Efforts

The primary risk we face is maintaining fully staffed and trained student research teams. For the last six months, CCS has maintained a team of eight highly competent and productive student researchers working on Quill Project digital modeling. We turned away qualified applicants the last time we hired student researchers. We have also budgeted for a very competitive student wage. Thus, we are confident we will hire and retain the necessary number and caliber of student researchers. CCS has also committed to reassigning two of our present Quill Project student researchers to the NEH funded student research teams to ensure that the new student researchers are trained and led well.

There is also the risk that only poor quality or incomplete state convention records exist, which could slow the archival processing or even render a model altogether untenable. We have verified with state archives in Wyoming, Idaho, Washington, Nevada, Colorado, Nebraska, and South Dakota that they possess both their respective constitutional convention's journal and the relevant secondary records. Only an on-site archive visit can determine the quality of the record, however. If an archive visit reveals the record of any of our preferred state conventions to be inadequate, we will work our way down our list of western conventions until we find three that can be modeled quickly and completely. A one-day on-site archive visit will be sufficient to determine the viability of a state's convention record, so the process of finding alternative conventions should not delay the timeline.

Evaluation

CCS has secured the basic agreement, subject to later reconsideration given the project's time-span, of eight outside scholars to evaluate the results of this project. These scholars, listed on our participants page, are mostly experts in state constitutionalism, and one is expert in the digital presentation of historical documents. Some of these experts will come to our conference, and will evaluate the panel or talk given at the conference which reports the comparative findings on western conventions.

With respect to the main evaluation task, the review of the digital editions, we envision each of the evaluators spending half a day exploring the digital models, and then answering a set of questions. Evaluative criteria used for framing these questions will include:

- value of the digital edition to their field.
- overall usability of the platform.
- research projects scholars might pursue using the digital edition.
- recommendations for the next steps CCS should take in the study of state constitutionalism.

G. Final Product and Dissemination

This project will result in three digital editions of western state constitutional conventions available at www.quillproject.net. As is the case with all Quill Project models, access to the western state convention editions will be free and open to all public users. CCS will leverage UVU's marketing and communications infrastructure to publicize the launch of each convention model. Through official channels, CCS will make the respective state's public servants, legal professionals, and history scholars aware of the new resource. Similarly, CCS will continue to explore ways to promote and facilitate the scholarly community's and the general public's use of the Quill site. Our efforts to do so will be multiplied as we convince new institutional partners to join our research work.

This project will also result in a conference, in which prospective and current institutional partners in the research movement will be able to learn more about the Quill modeling generally, and will receive training targeted to their participants' level of familiarity with the platform. Additionally, this conference will be an opportunity for explaining to the public and to the relevant scholarly and legal communities the work on state constitutionalism accomplished under the grant, and to highlight the comparative findings.

CCS follows all UVU regulations regarding equality of opportunity and access for disabled students. In the design of their software and platform, the Quill Project uses web standards that are compatible with screen-reading technology, though the visualizations it provides pose a particular challenge for which there is no ready solution. Quill has designed the visualizations with the needs of color-blind and partially-sighted individuals in mind.

CCS and the Quill Project are committed to making the models, editions and ancillary materials related to each state convention studied as part of this project available as open-access resources. The software platform itself is the intellectual property of the Quill Project and for operational reasons is not currently available as open source software. One reason is that the platform's features are being continuously refined. Both CCS and Quill have displayed an eagerness to work with other institutions, to foster academic exchange, and to welcome one-and-all into the modeling research work.