A UX design project for a transparent news platform

Keni Wu
kw7304@rit.edu

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A UX design project for a transparent news platform

BY

Keni Wu

A Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of Master of Fine Arts in Visual Communication Design

School of Design
College of Art and Design
Rochester Institute of Technology
Rochester, NY
August 7, 2020
Committee Approval

Adam Smith
Chief Advisor
Associate Professor
Director of Visual Communication Design program
School of Design, College of Art and Design

Date

Hye-Jin Nae
Associate Advisor
Assistant Professor
School of Design, College of Art and Design

Date
Abstract

In recent years, fake news has been dominating real news on the Internet. It misleads the public, stirs up and intensifies social conflicts. Online news readers crave the truth than ever. However, it is difficult for them to identify fake news from massive information on the Internet. This paper seeks to help online news readers make more informed and confident judgments on fact-checking by building a transparent news platform. This platform collaborates with news publishers to provide evidence and publish news articles on the desktop software. It also includes a news website which creates an engaging and understandable experience for online news readers to track evidence, obtain detailed information, and make judgments on fact-checking. The conceptual project is based on user experience research. Competitive analysis and literature review are used to find the effective strategy. Content analysis on current fact-checking workflow, and interviews with different users were conducted to discovering the pain points and needs of users. Based on the research result, objectives for the news websites and the desktop software are established. To achieve the goal, information visualization is used to make the appropriate design. Then, usability testing on six online news readers, a journalist, and an editor was conducted to evaluate the project and its impact.

Keywords  Fake news; User experience; Information visualization; Fact-checking
**Introduction**

In recent years, fast-growing social media has changed information sharing among Internet users. Every social media user can share information without the filtering of authority or the third agency. This open, decentralized and unregulated cyberspace leads to the emergence of massive fake news, which refers to news that is verifiably false and is intentionally generated to mislead readers. Since the 2016 U.S. presidential election, fake news even has been dominating real news. Countless internet users have been deceived by fake news without realizing it. And many of them reshare it to others, which accelerates the dissemination of fake news. Finally, fake news misleads more people, influence people’s opinions, stirs up and intensifies social conflict.

In this unprecedented age of fake news, online news readers crave the truth than ever. However, it is so difficult for them to identify fake news, especially maliciously fabricated fake news. And countless information from different sources further increase the difficulty of finding reliable evidence to spot fake news. Therefore, how to help online news readers identify fake news has become a crucial problem. The solution to the problem will contribute to building a clean and true network environment. It is further conducive to maintaining social stability.

This paper seeks to help online news readers make more informed and confident judgments on fact-checking by building a transparent news platform. This platform includes two parts: a desktop software for news publishers and a news website for online news readers. News publishers provide evidence and connect news and evidence, and publish news articles on the desktop software. Then, on the engaging and understandable news platform, online news readers can read the news, track evidence, obtain detailed evidence information, and make more informed and confident judgments on fact-checking.

The conceptual project is based on user experience research. In the context section, related literatures and existed solutions are reviewed to find an effective strategy. A basic concept is proposed based on the strategy. Then in the evolution section, content analysis on current fact-checking workflow and interviews with different users were conducted to discover the pain points and needs of users. Nine online news readers between 17 and 40 years old, three journalists between 27 and 32 years old, and two editors participated in the interview. Three behavioral profiles are made as the conclusion of the research. Based on it, objectives for the news websites and the desktop software are established. Workflows and wireframes further promote the design process. To achieve the goal, design languages, including information visualization, are used to make the appropriate design. The body of work section deeply explains the final design outcome. The outcome and impacts are evaluated in the evaluation& discussion section by usability testing.
So far, many strategies have been proposed to help online news readers identify fake news. One well-known strategy is to raise public awareness of how to discern fake news. Facebook promoted tips for spotting fake news and launched an advertising campaign to raise awareness of fake news in 2017. But this method is not as effective as people think. Research from Dominik Stecula et al. showed that fake news is hard to spot, even well-educated students cannot discern fake news successfully.

Alerting users to fake news is also a strategy. Facebook once added “Disputed” tags to flag questionable stories. However, using general warnings (telling users that the news story is uncertain) rather than specific warnings (directly pointing out it is fake news) makes it less effective. Sometimes it even has the opposite effect that it entrenches users’ deeply held beliefs.

Another promising strategy is to provide more information to audiences so that they can decide for themselves what to trust. Facebook designed “context button” to provide more background and information on the publishers and links that appear in News Feed. YouTube made a fact check information panel to connect users with authoritative sources like Encyclopedia Britannica and Wikipedia. However, both of them are far from having solved this problem effectively. Fake news verification is still a complicated task for their users. Users need to spend a lot of time reading the related information and filtering useful parts. And the limited information may not be enough to help them make judgments. Lazer et al. pointed out that the original source of the news is the key to identify fake news. He proposed to use blockchain to help users trace the source of news, so that users can make more informed decisions on fact-checking and combat the fake news. Based on this concept, The New York Times conducted an experiment called “The News Provenance Project” to help their audiences obtain the origins of journalistic content. This experiment starts with the photo. It uses blockchain to maintain the record of photos’ origins: when, where and by whom it was taken, who published it and how it has been used across a network of news outlets. This project helps users make more informed judgments on fake photos by showing the information of the original photo and its dissemination history.

Existing research suggests that helping users trace the source of the news is the most effective way to help readers identify fake news. The experiment made by The New York Times is a successful application. The information of the original photo and its spread history enable audiences to make judgments based on knowing more about the photo. However, this experiment is restricted in the photo, which just has a small amount of information. This paper seeks to extend the exploration to news articles which include several text fragments, pictures and videos. The basic design concept is to build a transparent news platform, collaborating with news publishers to provide news articles with evidence for online news readers. Then, online news readers can see the connection between the news article and evidence clearly, track the evidence, and obtain detailed information of the evidence. Based on the information, online news readers
are able to make more informed and confident judgments on fact-checking. To create an engaging and understandable experience for users, user experience researches are made in evolution section.

Evolution

Methodology

Phase I: Content analysis

Through collecting information and going through the process of fact-checking, the current fact-checking workflow was made. (Appendix A, page 7) It includes four steps, read the news, collect evidence, summarize information and make the judgment. In the four steps, Collecting evidence is so time-wasting that readers need to spend a lot of time searching online to find related news from massive information. It is also difficult for online news readers to filter useless information. Based on the information they collected, readers need to compare all the information and summarize useful evidence.

Phase II: Interview

Interviews with different users were conducted to discovering their pain points and needs. The detailed information of the participators and interview questions are included in the expanded thesis defense. It is separated into three parts: interviews with nine online news readers (Appendix A, page 8-10), interviews with three journalists (Appendix A, page 25), and interviews with two editors (Appendix A, page 44).

According to the interview results with nine online news readers, all participants had doubts about the authenticity of the news and conducted fact-checking. Five of them think that finding evidence is time-consuming and boring. Four of them think the process of finding evidence is really confusing. They need to read a lot of useless information and filter out useful information. And only one of them can always make confident judgments on fact-checking. Insufficient information and the inability to determine the evidence's authenticity are important reasons why most of them cannot make confident judgments on fact-checking. They believe that the information of the original evidence, dissemination history, pictures, recordings, and videos with detailed information (e.g., when, where, by whom it was provided, whether it has been edited) could help them to make more confident judgments.

Interviews with journalists show that the information they have mainly comes from the global news agency, investigation, and other news articles. In terms of the online information, they feel that massive useless information on the Internet wastes too much time. For them, time is everything. They need to collect information as soon as possible to complete the report.
Through the interview with editors, they are responsible for refining the news completed by journalists and publishing news. They also need to make sure that the news article is accurate. For them, accuracy is the most important thing.

Phase III: Behavioral profile
Based on the results of content analysis and interviews with different users. Three behavioral profiles are made to promote the design process.

(Appendix A, page 11) As an online news reader, Kate I. Thomas wants to get evidence quickly and easily and have detailed information of the evidence to make confident judgments. She also wants the process of fact-checking can be engaging and easy-to-understand.

(Appendix A, page 26) For the journalist, Kenneth Sullivan, time is the most important thing. He wants to collect evidence as soon as possible and connect news and evidence for readers efficiently.

(Appendix A, page 45) In terms of the editor, Juan Stevens, accuracy is really important. He wants to review news articles finished by journalists and check its evidence easily.

**Design process**
Phase I: identify the objectives
Based on the result of the research and the behavioral profile, three objectives of the news website are established:

1. Help readers see the connection between news and evidence clearly.
   Information visualization method is used to clearly show the connection between news and evidence.
2. Create an engaging and understandable evidence tracking experience for online news readers
   A user-friendly tracking system is built by an interactive infographic which allow readers to understand evidence’s composition and dissemination history easily, and find the original evidence quickly.
3. Help online news readers make more informed and confident judgments on fact-checking
   Sufficient information is provided to help readers make judgments. It includes reliability score, other users’ judgments, “cited by” information and detailed information about the evidence.

Three goals are also established for the desktop software:

1. Prepare for the evidence quickly
   Evidence collecting function is added to the desktop software to help journalists collect evidence from other news articles quickly and easily. Journalists can excerpt text fragments and collect evidence to their library. They can also upload their evidence.
2. Connect news and evidence efficiently


To provide evidence for online news readers, journalists need to connect news and evidence with connecting function when writing the news article.

3. Preview and publish news conveniently
   Editors can clearly review the news article with evidence finished by journalists by preview function. Then they can publish the news

Phase I: workflow
Based on the objective, the workflow for the news website and the desktop software was made. The workflow for the news website includes four steps, read the news, track evidence, check the evidence, and make a judgment. It simplifies the process of finding evidence, directly show evidence, and help users track evidence. Based on the detailed information of the evidence, readers can make more confident judgments on fact-checking (Appendix A, page 12). For journalists, the workflow is also separated into four steps, create a document, collect evidence, upload evidence, and connect evidence, which allows journalists to work efficiently (Appendix A, page 37). Editors’ workflow includes preview the news, modify the article, and publish the news (Appendix A, page 46).

Phase II: wireframe
Based on three workflows, wireframes for online news readers (Appendix A, 13), journalists (Appendix A, 28), and editors (Appendix A, 47) were made.

**Design language**
To create an engaging and understandable experience for news readers, a large amount of information is visualized by colors, infographics, and icons. Typography, visual hierarchy and interactive animations are also used to help users understand information.

Phase I: Color palette and typography (Appendix A, page 15)
In the project, a dark color is chosen as the main color to make users feel reliable and professional. To help users quickly distinguish between different levels of reliability, the author used three bright and engaging colors to express the reliability of different levels. Red represents unreliability (score 0-59), yellow represents controversial sources (score 60-79), and green represents reliability (score 80-100). In terms of the font, that author chose Helvetica, which is modern, user-friendly and suitable for reading.

Phase II: Infographic design
The process of tracking evidence contains a lot of information. It will be extremely complicated and confusing for online news readers, if displayed in the form of text. The author seeks to help online news readers understand the information quickly and easily through information visualization. First, the list of information which needs to be included in the infographic is made.

1. Basic information: News outlets which publish the news article, provide evidence or citing the news article; reliability score
2. The relationship between different sources: the connection between the text fragments and evidence, the relationship between the news article and all pieces of evidence, the relationship between the news article and other articles citing evidence from it.

3. The comparison of reliability

(Appendix A, page 16) To clearly express the connection between the evidence, the news article and other articles citing the news, arborescence is chosen as the basic chart. A series of deformations were made on it. Bright colors, round or rounded shape were used to make it more engaging and user-friendly. Finally, the right one was chosen, which shows the relationship between information more clearly than others.

(Appendix A, page 17) In this infographic, thickness, gradient on lines, and negative space are used to show the relationship. In the left infographic, the lines starting with different colors are gradually changed to yellow lines, which symbolizing that pieces of evidence with different reliability are combined to the central article. The yellow line from the central article to the outside represents that the news is cited by other news outlets. To highlight the difference between different reliability, the author divides reliability score into three levels, 0-59, 60-79 and 80-100. Red, yellow and green are used to represent the three levels. And the different thickness of the lines connecting evidence and the article also represents different reliability. The higher the reliability score, the thicker the line is. Through the color and the lines, users can quickly distinguish the reliability of different levels and have a rough understanding of the evidence composition of the current news article.

Phase III: Logo design (Appendix A, page 15)
Based on the style of the infographic, the author designed a logo. The logo uses trees as the basic graphic. It abstracts branches and leaves to symbolize the infographic. The leaves with different colors represent pieces of evidence with different reliability. And the branches with gradient represent the connection between evidence and news.

Phase IV: Icon design
Different icons are used to convey information quickly and efficiently to users (Appendix A, page 15). Three tree icons are designed to show different reliability (Appendix A, page 14). The leafy tree represents it is reliable, the tree without leaves (the yellow one) symbolizes controversial source, and the Sapling (the red one) means it is unreliable.

Phase V: Interactive animation
To better convey information to users, many interactive animations are used to help online news readers find evidence, track evidence and obtain information.
Body of Work

The website for readers
Through the design process, the final design was made. By information visualization, the website creates an engaging and understandable experience for online users readers to understand the relationship between the news article and evidence, and track evidence. Reliability score, other users’ judgments and detailed information about the evidence are also provided to help them make more informed and confident judgments on fact-checking.

(Appendix A, page 18)On the homepage, news articles of different categories are shown in the list. Reliability is provided to help users have a rough understanding of the news’s authenticity before reading it. Readers can also quickly go to different categories by navigation bar on the left side.

(Appendix A, page 19)When readers choose a news article, they will go to the news content page. It clearly shows the article's content to help readers read quickly. The reliability card on the right side shows reliability score, the quantity of the evidence, and articles that citing this article, helping readers build a rough understanding of the authenticity of the news. If readers have some doubts about this article, they can click the button on the top right to track the page.

(Appendix A, page 20)The tracking page provides news content, information of evidence, and an infographic. The infographic clearly shows the connection between the central article, evidence, and articles citing the central article. Different colors represent the reliability of different levels, helping readers know about the composition of the evidence quickly. The left part of the infographic is the trace panel, which includes information cards and judgment cards. It also shows the tracking history in the list form.

(Appendix A, page 21)The underlined text fragment in the news article indicates that it is connected with evidence. By clicking on the underlined text fragment, readers can quickly track the evidence and obtain detailed information of the evidence.

(Appendix A, page 22)This interactive infographic help readers track evidence easily, quickly, and engagingly. After finding the original evidence, readers can make their judgments on the evidence by the judgment card. Then, they can quickly go back to the first article by trace panel. Based on the comparison of the evidence and the news article, they can make the final judgment.

The software for publishers
A quick and efficient working space is made for publishers. (Appendix A, page 29)On the homepage, journalists can quickly create a new document by clicking the “new post” button. (Appendix A, page 31)Then they go to the writing page, on which they can connect news and evidence for readers. Before
writing the article, journalists need to collect evidence from other news articles. They can quickly switch to the searching page by the toolbar on the left side. (Appendix A, page 33) After typing in keywords and search in ClueTree, they will get the search result. By clicking on a news article, they can go to the news article page, which clearly shows the news and evidence (Appendix A, page 34). If they select a text fragment, the excerpt button will be shown on the screen. Journalists can click on the excerpt button to quickly collect the chosen sentence to the library. They can also click on the underlined text fragments to check its evidence (Appendix A, page 34). If they want to collect the evidence, they can select and drag the evidence card to the library (Appendix A, page 35-36). Journalists can also quickly upload their own evidence by dragging files to the library (Appendix A, page 39). After finishing preparing the evidence, they can start writing news and connect evidence and news by connecting function efficiently (Appendix A, page 41-43).

After journalists finish the draft, editors can clearly preview the news with evidence and publish the news (Appendix A, page 48).

**Evaluation & Discussion**

After finishing the design, usability testing was conducted on six online news readers, a journalist, and an editor. Through having interviews with them, feedbacks were collected. All of the six online news readers succeeded in tracking the original evidence and making the correct judgment. 5/6 of them gave positive feedback for this website. They think that this website makes it easy and interesting to track evidence and make confident judgments. Interviews were also conducted with a journalist and an editor. They believe that although this platform adds extra work for them to connect news and evidence, it helps them collect accurate information faster than before.

Based on usability testing, this project successfully solves the problem that it’s hard for online news readers to identify fake news. This conceptual project is of great significance. From the design perspective, this project made a series of explorations on information visualization. It explores how to express the connection between information and how to convey information to users through interactive animation better. From a social perspective, the solution to the problem contributes to diminishing the spread of fake news and building a clean and true network environment. It is further conducive to maintaining social stability.

However, due to the limitation of the technique, it is only a conceptual project. More researches and testing are needed to make it completer.
Conclusion

Through the design process, the author successfully solved the problem that it’s hard for online news readers to identify fake news by building a transparent news platform. This platform includes two parts: an efficient desktop software for news publishers and a news website for online news readers to do fact-checking. Firstly, news publishers provide evidence, connect news and evidence, and publish news articles on the desktop software. Then, online news readers can go through an engaging and understandable quick evidence tracking experience to obtain detailed evidence information by an interactive infographic on the news website. Other information, like reliability score, other users’ judgments are also provided to help online news readers make more informed and confident judgments on fact-checking.

In this project, the greatest challenge was the interactive infographic design, which contains a large amount of information. To clearly convey the information in infographic, the list of information which needs to be included is made. After analyzing the list, a conclusion is made that connections between the news article, evidence, and other articles citing the news are the most important part. To clearly express the connection, arborescence is chosen as the basic chart. A series of deformations were made on it. Bright colors, round and rounded shape, negative space were used to make it more engaging and user-friendly. Finally, the interactive infographic successfully conveys the information and helps users track evidence engagingly and understandably.

From the design perspective, this project made a series of explorations on information visualization. It explores how to express the connection between information and how to convey information to users through interactive animation better. From a social perspective, the solution to the problem contributes to diminishing the spread of fake news and building a clean and true network environment. It is further conducive to maintaining social stability.
References


Appendix A

ClueTree

A transparent news platform collaborating with journalists, to help online news readers make more informed and confident judgments on fact-checking

Keni Wu
Thesis process deck
VCD 2020, RIT
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Overview

Prompt
Help online news readers identify fake news from massive information

Problem
It is difficult for online news readers to identify fake news from massive information on the Internet.

Solution
I’m building a transparent news platform, collaborating with journalists, to empower online news readers to make more informed and confident judgments on fact-checking by helping them tracking evidence and obtaining detailed information engagingly and understandably.
ClueTree includes two parts:

A news website for online news readers to read news, track evidence and make judgments on fact-checking.

An efficient desktop software for news publishers to collect evidence, upload evidence, connect news and evidence, and publish news articles.
Part I

The Website
For Online News Readers
Objective

See the connection between news and evidence clearly
Clearly showing the relationship between the news, the evidence and articles citing the news by information visualization.

Experience engaging and understandable evidence tracking
Helping users track evidence quickly by an engaging and understandable interactive infographic.

Make informed and confident judgments on fact-checking
Providing reliability, cited by information, other users' judgments, evidence with detailed information to help users make confident judgments.
Analysis Of Current Fact-Check Workflow

**Step 1**
*READ NEWS*
1. Identify news outlets
2. Check publication date
3. Find unreliable parts

**Step 2**
*COLLECT EVIDENCE*
1. Search related articles
2. Find relevant parts
3. Collect evidence

**Step 3**
*SUMMARIZE INFO*
1. Compare all the evidence
2. Summarize

**Step 4**
*MAKE A JUDGMENT*
1. Compare the summarized evidence with the article
2. Make a judgment

**Time-wasting**
Readers need to spend a lot of time searching online to find related news from massive information.

**Difficult to filter useless information**
Readers need to compare all the evidence and summarize useful evidence.
**Interview**

**Participants**

Online interviews with 9 online news readers were conducted. The participants are between 17 and 40 years old.

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<th>No.</th>
<th>Age</th>
<th>Gender</th>
<th>Job</th>
<th>Frequency of reading news</th>
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<tr>
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<td>23</td>
<td>Male</td>
<td>Graduate student</td>
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<td>2.</td>
<td>24</td>
<td>Female</td>
<td>Graphic designer</td>
<td>Often</td>
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<td>31</td>
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Interview summary

7 interview questions were designed to discover the pain points and needs of online news readers.

Interview question

1. How often do you read news online?
2. Have you ever had doubts about the authenticity of the news you read?
3. Did you do a fact-check on it? How did you do fact-checking online?
4. Did you always make confident judgments on fact-checking? Why did you cannot make confident judgments?
5. What kind of information do you want to obtain to help you make a confident judgment?
6. How do you feel about doing fact-checking?
7. Did you meet any problems during fact-checking?
Interview

According to the interview results with nine online news readers, all participants had doubts about the authenticity of the news and conducted fact-checking. Five of them think that finding evidence is time-consuming and boring. They need to read a lot of useless information and filter out useful information.

And only one of them can always make confident judgments on fact-checking. Insufficient information and the inability to determine the evidence’s authenticity are important reasons why most of them cannot make confident judgments on fact-checking. They believe that the information of the original evidence, dissemination history, pictures, recordings, and videos with detailed information (e.g., when, where, by whom it was provided, whether it has been edited) could help them to make more confident judgments.

Interview summary

- **Whether can make confident judgments:**
  - 1 person can make confident judgments.
  - 8 people cannot make confident judgments.

- **How readers feel about doing fact-checking:**
  - 4 people feel time-consuming and boring
  - 5 people feel confused
  - 1 person can always make confident judgments.
  - 8 people cannot make confident judgments.
Kate I. Thomas

"I waste a lot of time doing fact-checking. But I still cannot make the judgment."

Kate wastes a lot of time searching for evidence online which is really boring. Then, she tries her best to filter out useful information. But she is confused about which are the evidence. Besides, she doesn't have detailed information about the evidence. She cannot make the judgment on fact-checking confidently. She feels so frustrated.

Personal needs
- Get evidence quickly and easily
- Have detailed information to make a confident judgment
- Make fact-checking engaging and easy-to-understand
**Workflow**

**Step 1**
READ NEWS
1. See the reliability and other readers' judgment
2. Check news outlets
3. Check publication date
4. Find unreliable parts

**Note:**
Provide reliability score to help users have a rough understanding of the authenticity of the news before finishing reading the article

**Step 2**
TRACK EVIDENCE
1. Show evidence
2. Track evidence
3. Find the original evidence

**Note:**
Simplify the process of finding evidence, directly show evidence and help users track evidence

**Step 3**
CHECK EVIDENCE
1. Check the original evidence
2. Check the detailed information about the evidence

**Note:**
Simplified the process of summarizing information, directly providing detailed information about evidence

**Step 4**
MAKE A JUDGMENT
1. Make a judgment on the evidence
2. Compare the evidence and the article
3. Make a judgment on the news article
**Design Process**

## Wireframe

- **Homepage**
- **News content**
- **Tracking**
- **Track evidence**
  - Track to another article
- **Make a judgment on evidence**
- **Evidence page**
- **Check evidence**
- **Evidence page**
- **Track evidence**
- **Return to the article**
- **Make a judgment on the article**
An easy-to-understand reliability score system is used to help readers have a rough understanding of the authenticity of the news.

Three tree icons are designed to show different reliability. The leafy tree represents it is reliable, the tree without leaves (the yellow one) symbolizes controversial sources, and the Sapling (the red one) means it is unreliable.
**DESIGN LANGUAGE**

**Design Element**

**Logo**

**Color palette**
- #15161B
- #5B5C5F
- #F9F9F9
- #F9B428
- #FD492D

**Icon**

**Typography**

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<td><strong>Captions</strong></td>
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</table>
To clearly express the connection between the evidence, the news article and other articles citing the news, **arborescence** is chosen as the basic chart. A series of deformations were made on it. Bright colors, round or rounded shape were used to make it more engaging and user-friendly.
Final Infographic

Explanation

The infographic help readers have a rough understanding of the evidence composition of the current news article.

In this infographic, thickness, gradient on lines and negative space are used to show the relationship.

In the left infographic, the lines starting with different colors are gradually changed to yellow lines, which symbolizing that pieces of evidence with different reliability are combined to the central article. The yellow line from the central article to the outside represents that the news is cited by other news outlets.
**Final Design**

**Homepage**

- **Navigation bar**
  - Help readers quickly go to the category they are interested in.

- **Search box**
  - Readers can search articles, news outlets, and journalists.

- **News list**
  - Show popular news articles in each category.

- **Reliability**
  - 3 different icons represent reliability of different levels. Help readers have a rough understanding of the authenticity of the news quickly.

- **Top stories**
  - Show popular news articles in each category.

- **For you**
  - Show popular news articles in each category.

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Keri Wu  
ClueTree - Process Deck  
Page 18
News Content

1. Homepage icon
   - Readers can go back to homepage by clicking on the icon.

2. News content
   - Show news content without evidence to help users read quickly.

3. Reliability card
   - Show reliability score, quantity of the evidence and quantity of articles that cite it, helping readers build a rough understanding of the authenticity of the news.

4. Judgment card
   - Show other readers’ judgments; let readers make their own judgments.

5. Show clue infographic
   - Go to tracking page, show the evidence and clue infographic.

The bodies of Kobe Bryant, his daughter Gianna, and seven other people killed in a helicopter crash in Calabasas, California on Sunday, Jan. 26, 2020. The coroner’s office announced that it had officially identified all nine victims killed in the crash, in addition to Bryant, 41, and his daughter Gianna, 13, the crash claimed the lives of Payton Chester, 13; Sarah Chester, 41; Alyssa Altobelli, 14; Keil Altobelli, 40; John Altobelli, 55; Christina Mauser, 38; and the helicopter’s pilot, Ara Zobayan, 50.

On Jan. 26, Kobe Bryant tweeted: “I have information that will lead by the name of History Channel. Kobe’s death was part of a world-wide conspiracy involving Hillary Clinton. It crashed about 30 miles northwest of downtown Los Angeles.

911 calls about the crash
**Tracking**

**What to know about Kobe Bryant crash investigation**

The bodies of Kobe Bryant, his daughter Gianna, and seven other people killed in a helicopter crash in Calabasas, California on Sunday, Jan. 26, 2020.

The coroner’s office announced that it had officially identified all nine victims killed in the crash. In addition to Bryant, 41, and his daughter, Gigi, 13, the crash claimed the lives of Payton Chester, 13; Sarah Chester, 65; Alyssa Altobelli, 14; Keri Altobelli, 46; John Altobelli, 56; Christina Mauser, 38; and the helicopter’s pilot, Ara Zobayan, 50.

On Jan 29, Kobe Bryant tweeted "I have information that will lead to the arrest of Hillary Clinton". Kobe’s death was part of a world-wide conspiracy involving Hillary Clinton. It crashed about 50 miles northwest of downtown Los Angeles.

911 calls about the crash

**News content with evidence**
- Show news content.
- Underlined text fragment indicates that it has evidence.

**Esc button**
- Exit tracking mode, go back to news content page.

**Information card**
- Show the evidence and its detailed information.

**Judgment card**
- Show other readers’ judgments; let readers make their own judgments.

**Infographic**
- Clearly show the connection between the central article, evidence, and articles citing the central article.
- Show the composition of the evidence, different color represents the reliability of different level.

**Trace panel**
- Include information cards and judgment cards; Show the tracking history.
Track Evidence

The bodies of Kobe Bryant, his daughter Gianna, and seven other people died in a helicopter crash in Calabasas, California on Sunday, Jan. 26, 2020.

The coroner's office announced that it had officially identified all nine victims killed in the crash. In addition to Bryant, 41, and his daughter, Gigi, 13, the crash claimed the lives of Payton Chester, 13; Sarah Chester, 46; Alyssa Altobelli, 14; Keri Altobelli, 46; John Altobelli, 56; Christina Mauser, 39; and the helicopter's pilot, Ara Zobayan, 50.

On Jan 26, Kobe Bryant wrote, "New information that will lead to the arrest of [Bill] Clinton. Kobe's death was part of a worldwide conspiracy involving [Hillary] Clinton." It crashed about 30 miles south of downtown Los Angeles.

911 calls about the crash

The Los Angeles County Fire Department released audio from five 911 calls received at the time of the deadly crash.

"I went over my head," one caller told dispatcher. "It's thick in clouds. I heard a pop and it immediately shook." Another caller said he did not see the helicopter, but heard a crash. "I'm walking on the trail. I could hear the plane. I think it was in the clouds," the caller said. "We couldn't see it and then we just heard a boom and a dead sound and then I could see the flames." Other callers, further away from the crash site, said they saw a fire engulf in the following impact.
Part II

The Desktop Software
For The Publisher
Objective

**Journalist**

Prepare evidence quickly

Journalists can quickly collect evidence from other news articles. They can also upload their own evidence.

**Journalist**

Connect news and evidence efficiently

Journalists can connect news and evidence efficiently to provide evidence for the readers.

**Preview**

Preview and publish news conveniently

Editors are able to clearly preview the news with evidence. Then they can publish the news.
Interview

Journalists

<table>
<thead>
<tr>
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Interview Summary

The information journalists have, mainly comes from global news agency, investigation, and other news articles. In terms of the online information, they feel that massive useless information on the Internet wastes too much time.

For them, time is everything. They need to collect information as soon as possible to complete the report.

Interview question

1. Which field are you mainly responsible for reporting?
2. How do you complete a report?
3. How do you get the information for the report?
4. How do you feel about collecting information for the report on the Internet?
5. What do you think is most important to journalist?
Behavioral Profile

Journalist

Kenneth Sullivan

“I waste a lot of time collecting information for my news report.”

Kenneth needs to collect evidence and background information on the Internet. But massive information on the Internet wastes him so much time. He wants to finish his report as soon as possible. Besides, to publish news on ClueTree, he needs to connect news and evidence for readers. He doesn’t want to waste too much time on it.

Personal needs

• Collect evidence as soon as possible
• Connect news and evidence for readers efficiently
Journalists’ Workflow

**Step 1: CREATE A DOCUMENT**
1. Create a new post

**Step 2: COLLECT EVIDENCE**
1. Go to search page
2. Type in keywords and search news article
3. Choose an article
4. Read the article
5. Select a text fragment / Check evidence
6. Excerpt the fragment / Drag the evidence to library

**Step 3: UPLOAD EVIDENCE**
1. Exit full screen
2. Drag files to library

**Step 4: CONNECT EVIDENCE**
1. Read evidence
2. Write the article
3. Select a text fragment
4. Choose connect button
5. Connect the news article and the evidence
**Design Process**

**Wireframe**

- **Collect evidence**
- **Upload evidence**
- **Connect evidence**

**Design Process Diagram**

- Collect evidence
- Upload evidence
- Connect evidence

**Pages:**

- Homepage
- Writing page
- Search page
- Search result
- News article
- Connect evidence
- Click connect button
- Finish connecting
- Check evidence
- Excerpt the text fragment
- Collect evidence
- Finish collecting
Step 1 — Create Document

Homepage

1. Navigation bar
   - Journalists can quickly go to different document categories

2. Search box
   - Help journalists find documents they have participated in

3. Account info
   - Show the current account, and the identity of the account

4. Document list
   - Show the list of documents; it also provides the reliability, draft/published, participants, finished time

5. Create new post button
   - Journalists can quickly create a new document by this button
**Step 2 — Collect Evidence**

1. Writing page
2. Go to search page
3. Type in keywords and search news article
4. Choose an article
5. Read the article
6. Excerpt the fragment
7. Select a text fragment
8. Drag the evidence to the library
9. Check evidence
Step 2 — Collect Evidence

Writing page

- **Tool bar**: Journalists can quickly switch to different modes: writing, searching, preview.
- **Information bar**: Show the document's name, participants, whether it is published.
- **Writing area**: Provide a template to help journalists writing.
- **Library**: Evidence prepared for the document; journalists can collect evidence from other article or drag files to the library to upload evidence.
Step 2 — Collect Evidence

Search page

1. Toolbar
   Journalists can quickly switch to different modes: writing, searching, preview

2. Search box
   Journalists can type in keywords and find related news articles
Step 2 — Collect Evidence

Search result

1. Search box
   Journalists can change the keywords and find related news articles

2. Search result list
   Show the search result as a list to help journalists quickly find what they want; provide the information of title, news outlets, publication date and reliability

3. Sorting
   Help journalists find articles by sorting; it includes time, popularity, reliability from high to low, evidence from more to less

4. Category filter
   Help journalists filter news articles by category

5. Date filter
   Help journalists filter news articles by date
Step 2 — Collect Evidence

News article page

1. News content
   Show news content

2. Excerpt button
   After journalists select a text fragment, the excerpt button will show. Journalists can click the button to collect the text fragment quickly.

3. Evidence card
   Show the news outlets, reliability and evidence to journalists to help them find what they want.

4. Search result
   Forward / back button
   Help journalists switch in different pages quickly.

5. Reliability card
   Show reliability score, quantity of the evidence and quantity of articles that citing it, helping journalists build a rough understanding of the authenticity of the news.

6. Show / hide evidence
   Show evidence: show evidence cards and text fragments with underlines, help journalists find evidence. Hide evidence: only show the article content, help journalists read articles quickly.
**Step 2 — Collect Evidence**

**Check evidence**

1. **Selected text fragment with evidence**
   - Show the connection between selected text fragment and evidence card

2. **Connection line**
   - Show the evidence and its detailed information. Journalist can also drag evidence card to the library to collect the evidence
**Step 2 — Collect Evidence**

Collect evidence

Dragged Evidence card

Evidence can be easily collected by selecting and dragging the evidence card to the library.
Step 3 — Upload Evidence
Final Design

Step 3 — Upload Evidence

- Writing page
- Exit full screen
- Drag files to the library
- Finish uploading
Final Design

Step 4 — Connect Evidence

1. Writing page
2. Read evidence
3. Write the article
4. Select a text fragment
5. Click connect button
6. Finish connecting
7. Click an evidence
Step 4 — Connect Evidence

Writing page

Toolbar for writing
After journalists select a text fragment, the toolbar will show:
Function: change font size, bold or italic, make a list, connect news and evidence.
Step 4 — Connect Evidence

Connection line
When journalists click on the connect button in the toolbar, the connection line will move with the mouse, telling journalists that they are choosing evidence.

Connected evidence
In connect mode, when the mouse moves over an evidence, the evidence will be in the color of the reliability.
Step 4 — Connect Evidence

Writing page → Write the article → Select a text fragment → Click connect button

Finish connecting → Click an evidence
Interview

Editor

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Interview Summary

Editors need to review and modify the news completed by journalists. They need to make sure that the news article is accurate. They are also responsible for publishing the news to audiences. For them, accuracy is the most important thing.

Interview question

1. Which field are you mainly responsible for editing?
2. Could you talk about your daily work?
3. What do you think is most important to editor?
Behavioral Profile

Editor
Juan Stevens

“I want to make news articles accurate.”

As an editor, Juan needs to review and modify the news completed by journalists. He needs to make sure that the news article is accurate. He is also responsible for publishing the news to audiences.

Personal needs
- Review news articles finished by journalists and check its evidence easily
Editors’ Workflow

Step 1
PREVIEW THE NEWS
1. Open a news draft
2. Preview the news article
3. Check news and evidence

Step 2 (Optional)
MODIFY THE ARTICLE
1. Modify inaccurate part

Step 3
PUBLISH THE NEWS
1. Publish the news article
DESIGN PROCESS

Wireframe

Homepage → Writing page → Preview → Publish → Finish publishing
For Editor
Evaluation

Feedback from Participators

**Online News Reader**

"I really do love it. It makes fact-checking much easier.

**Online News Reader**

"It's visually appealing. And it saves me so much time on fact-checking.

**Journalist**

Although it add extra work for me to connect news and evidence, it save me much time on collecting evidence.

**Editor**

"I like the preview function. It helps me check the authenticity of the news much easier.

This project successfully solves the problem that it’s hard for online news readers to identify fake news. According to the usability testing on 6 Internet users, all of them succeeded in tracking the original evidence and making the correct judgment. 5/6 of them gave positive feedback for this website. They think that this website makes it easy and interesting to track evidence and make confident judgments.

Interviews were also conducted with a journalist and an editor. They believe that although this platform adds extra work for them to connect news and evidence, it helps them collect accurate information faster than before.
Conclusion

Through the design process, I successfully solved the problem that it’s hard for online news readers to identify fake news. By collaborating with news publishers to provide evidence for online news readers, I build a transparent news platform. In desktop software, journalists collect evidence, upload evidence, and connect evidence for readers. Editors preview the report finished by journalists and publish it to the public. Then, on the website, readers can read news articles, track evidence, and obtain detailed information about the evidence, which helps them make more informed and confident decisions on fact-checking.

In this project, the greatest challenge was how to show the connection between the news article, evidence and other articles citing the news engagingly and understandably. I chose arborescence as the basic chart and made a series of deformations on it. To make it more clearly, I made a lot of exploration on it. Gradient and negative space were used to make it more clearly.

From the design perspective, this project made a series of explorations on information visualization. It explores how to express the connection between information and how to convey information to users through interactive animation better. From a social perspective, the solution to the problem contributes to diminishing the spread of fake news and building a true network environment. It is further conducive to maintaining social stability.

However, due to the limitation of the technique, it is only a conceptual project. More researches and testing are needed to make it more completed.
Reference


Reference


