
BWC Readability & Comprehension Test Results



UT- 004 FINAL

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Summary

Approximately **32 million adults in the United States can't read**, according to the U.S. Department of Education and the National Institute of Literacy. (November 1, 2016)

The Organization for Economic Cooperation and Development found that **50 percent of U.S. adults can't read a book written at an eighth-grade level**. (Defined as lower literacy)

Illiterate or lower literacy users:

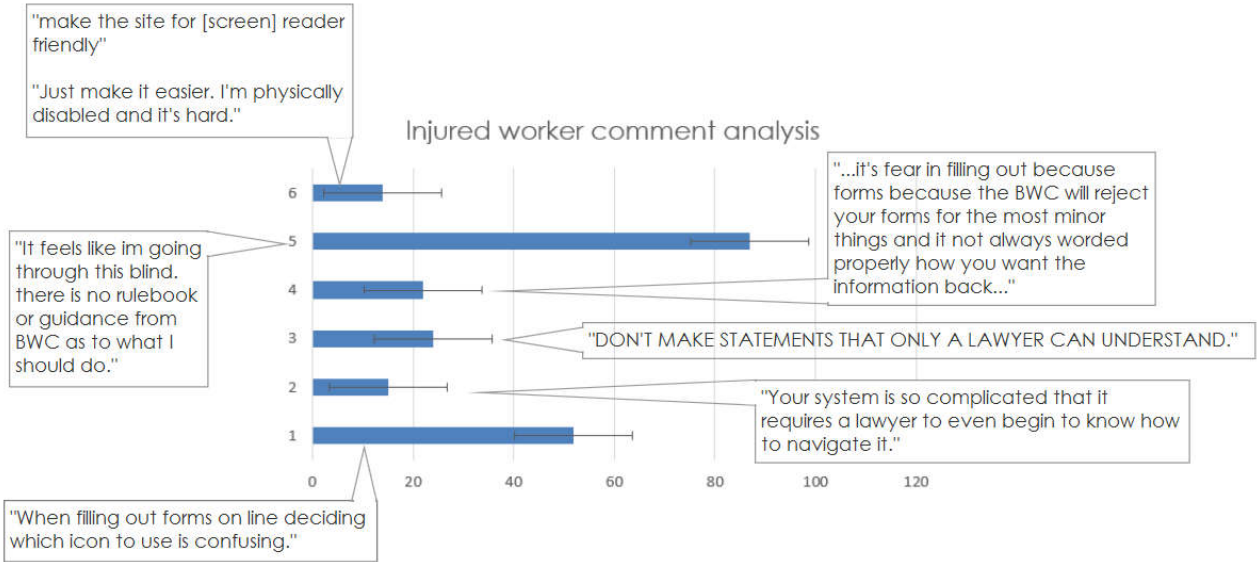
- Have a **limited ability to obtain and understand essential information**;
- **Have more workplace accidents, take longer to recover** and more often **misuse medication through ignorance of health care resources** and **because they have trouble reading and understanding the relevant information** (warnings, dosage, instructions, etc.).
- **Can't understand text by glancing at it**. They must **read word for word** and often spend considerable time trying to understand multi-syllabic words.
- Can't quickly glance at a list of navigation options to select the one they want. **They must read each word in each option carefully**. Their only other choice is to **completely skip over substantial amounts of information**, which **they often do when things become too complicated**.
- As soon as **text becomes too dense**, lower-literacy users **start skipping**, usually looking for the next link. In doing so, **they often overlook crucial information**.

Results

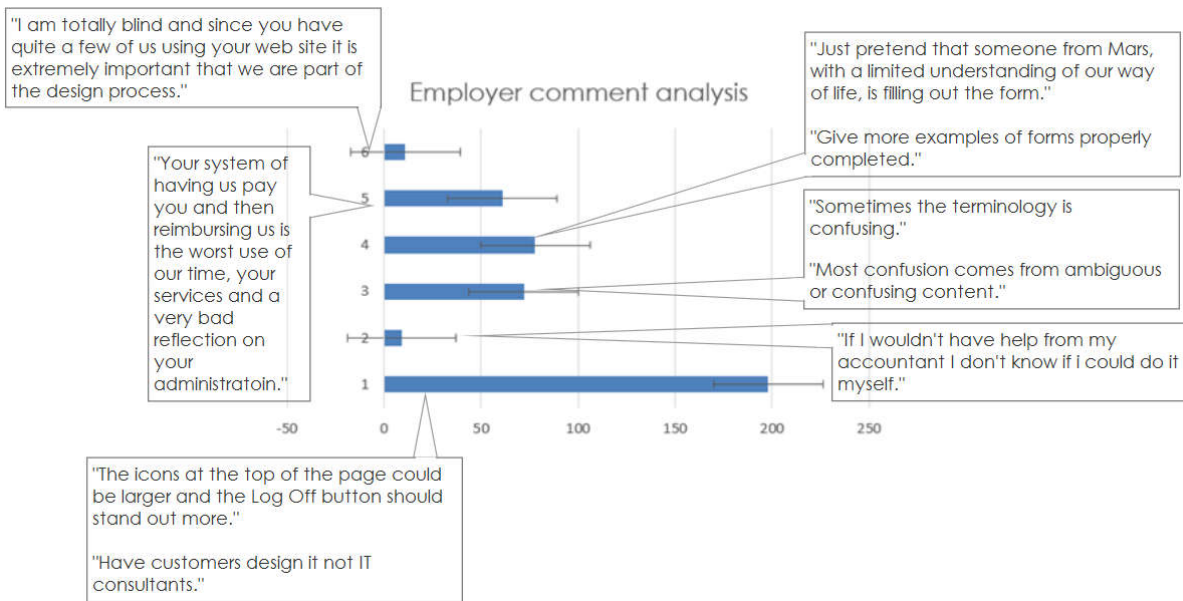
Focus group and survey respondents grouped issues into similar themes.

Screening survey comment analysis

Quantifying both worker and employer comments found a 95% confidence level meaning that **one person in 20, or 582,930 Ohioans, has a readability issue, meaning they will have problems reading and understanding the BWC website content**. (Ohio population in November 2017 is 11.66 million.)



Worker comment analysis with confidence intervals and quotes



Employer comment analysis with confidence intervals and quotes

Background

This report summarizes usability test findings conducted as part of BWC Website Redesign project. Findings are based on a mixed method approach of focus groups and email surveys that were conducted in December 2017 and January 2018.

Focus groups explored user opinions of the ease with which the user can understand the BWC website text. They consisted of CSRs, employers and third-party administrators. No workers attended the focus groups. In all, 28 users participated.

A readability screener and survey were also emailed out. In total, 1,258 injured workers and 1,784 employers responded.

Purpose of study

In previous UX studies conducted for the BWC website redesign, I noticed that there was a definite readability issue. The previous studies included:

- Worker and employer comments from user interviews
- Usability testing and follow-up questions
- Card sort testing and follow-up questions
- CSR interviews and focus groups
- Screener survey statistics and user comments

The primary purpose of the readability study was to:

- Understand if the proposed content and supplemental information examples will enable users to comprehend information quickly.
- Identify the most confusing and difficult terms and gather recommendations and ideas for improvement.
- Understand some of the reasons users are calling support and tasks they need help with to gather recommendations and ideas for improvement.

Methods

A mixed method research approach was taken for this study using email surveys and focus groups.

The focus group is an exploratory research method used to help researchers gather in-depth, qualitative information of their participants' attitudes and perceptions

relating to concepts, products, services, or programs. The following testing was conducted for BWC in December 2017 and January 2018:

- One practice focus group with 5 – 8 call center reps
- Two worker focus groups (5 – 8 participants each)
- Two employer focus groups (5 – 8 participants each)

Readability screener and survey

- Readability & comprehension screener and survey emailed to workers and employers

Themes

All focus group participants expressed disappointment that the new website design only applied to the before log-in pages. They said they rarely access any before log-in pages. They wanted to know the plan/dates for starting after log-in design.

Misspellings and grammatical errors were not corrected as they could indicate a lower literacy issue.

Usability and accessibility issues on current website

Majority of survey respondents mentioned several usability and accessibility issues on the current website including:

- Navigation and findability (including search)
- Confusing layout
- Buttons and icons are confusing
- Cannot view info easily
- Icons are too small - small click targets
- Cannot see fonts
- Cannot zoom to see text
- Cannot see links in text
- Not screen reader friendly

Comments

- **"I am totally blind** and since you have quite a few of us using your website, it is extremely important that we are part of the design process."

- **“It can become difficult for some of us older people to learn where to look for things we need** on the website with it being changed. **We’re not as computer savvy as the younger generation.”**
- “Smaller BWC site ads vs **bigger boxes for answers.**”
- “Needs to be easier to get to the page you want **without having to zoom in.**”
- “Some time it **won’t let you go back and change a mistake.**”
- “Maybe make things more user friendly, not so many buttons with little info, and **make the font easier to read.**”
- “When filling out forms on line **deciding which icon to use is confusing.**”
- “Just make it easier. **I’m physically disabled and it’s hard.**”

Recommendations

- Ensure new website design (in all areas) is WCAG 2.0 A and AA and Section 508 compliant.
- Conduct regular usability testing, especially when introducing new website sections, forms or content.

Overwhelmed and confused by process, retained lawyer or accountant for help

Majority of survey respondents and focus group participants mentioned that they (or users) are overwhelmed by the BWC processes.

Comments

- “Your system is so complicated that it requires a lawyer to even begin to know how to navigate it.”
- “I don’t think that some people (users) even try though because **it is just so overwhelming and just too much.**”
- **“They (users) are overwhelmed by what to do.”**
- “They (users) get on the phone and say **what do I do next.** I have never done this.”
- “Their claim rep is supposed to tell them (users) that but that does not always happen. And then they call us and say **why didn’t anyone tell me that?** And they should tell them.”

- “You should make up a **complete reference guide to informing injured workers that they need from the start... What forms they will need to have submitted and WHEN!** Just for a start...so **they aren't at the mercy of lawyers** and the bureau!”
- “It feels like I'm going through this blind, **there is no rulebook or guidance from BWC as to what I should do.**”
- “The sight is confusing and hard to find things on it. I frequently have to **ask my lawyer for help or assistance** in getting info.”
- “If I wouldn't **have help from my accountant I don't know if I could do it myself.**”

Recommendations

- Create an injured worker and new employer checklist. This idea was proposed by July usability testing participants. All focus group participants liked this idea.
- Conduct focus groups and usability testing to get user feedback and refine as needed.

Confusing terminology, forms, directions

Majority of focus group participants and survey respondents had issues with the terminology in the text passages. Words they didn't understand/website text:

- “The workers call us to read letters to them **and it's not just the words, it is how they word it.** So even if it is basic wording, the way they are **wording it is like legal talk.** So, we read letters a lot. And then explain it.”
- “Starting with “Per Ohio Revised Code (ORC) 4123.57(D)” you lost them already. Use an asterisk and put this text at them bottom. **As soon as it starts with Ohio Revised Code, it is too much.**”
- Occupational disease
- “Even the names of the compensation: Temporary Total (TT) Compensation, Permanent Partial (PP) – Scheduled Loss, Percent of Permanent Partial...”
- FROI and other acronyms
- MCO
- “Accessing claim information - Or just say claim information”

- “They (users) get confused between what the difference is between BWC and MCO.”
- State fund employers
- Self-insured employers
- Managed Care Organization
- Compensation benefits - “I think when you say worker's compensation benefits, it should just say your medical bills will be paid because I don't think they understand benefits.”
- “Like worker's comp benefits – say medical bills and time off work.”
- “Lost wages instead of compensation benefits”
- Notification
- Occupation

Readability scores for confusing terminology

Term	Flesch Kincaid Grade Level
Occupational disease	26.5
Accessing claim information	17
Managed Care Organization	13.1
Compensation benefits	26.5
Notification	43.8
Occupation	32

Comments

- “Most confusion comes from **ambiguous or confusing content.**”
- “My education level is **post-Master's degree. I do call BWC** to help me figure out BWC things.”
- “I'm an **attorney using the website** and I can see how many of the **forms would be difficult for a layperson.** I also think the site's search engine needs improvement.”
- “Questions and statements should be **written in simple terminology so the average person can clearly understand what is written.**”

- “Just use **simple language.**”
- “The **abbreviation of words I do not understand where to find the actual words.**”
- “**Forms need to be in basic language** some of forms are drafted in Attorney language.”
- “Honestly I think **it's fear in filling out forms** because the BWC will reject your forms for the most minor things and it's not always worded properly how you want the information back to you so found it was **safer to let my lawyer handle all forms.**”
- “Some of the questions that are being asked are understood by accountants and the BWC, but not to those completing the forms. **I don't want to make a critical mistake and then be blamed for it when the information is not explained as to where or how to obtain the information you're requesting.**”
- “Easier to understand instructions/directions. **Why the use of a word like "refutation" when there must be a simpler one.**”
- “DON'T MAKE STATEMENTS THAT ONLY A LAWYER CAN UNDERSTAND.”

Recommendations

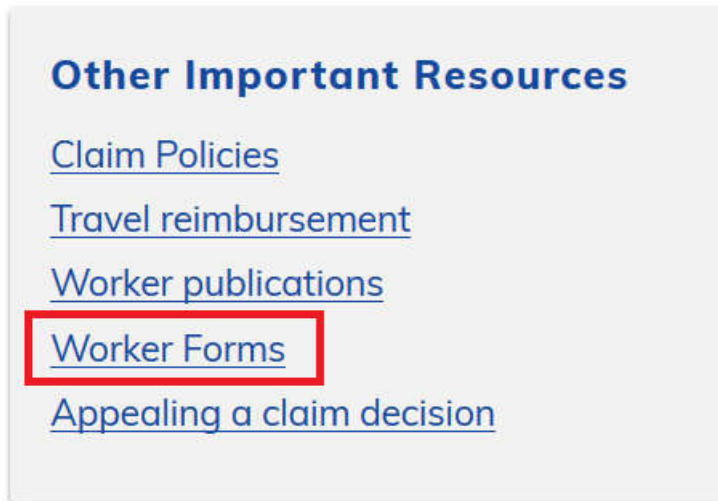
- Many survey respondent suggested forms examples that have been filled out correctly so they can use them as a template. All focus groups participants liked this suggestion.
- When redesigning forms, get user feedback and change business processes if necessary to ensure forms are easy to use.
- Most focus group participants asked if state fund and SI employers could be clearly defined, especially what they mean to an injured worker filing a claim. They also asked for this information be available in the Employer look-up.
- All focus group participants liked the pop-over definition and Notice examples. They did not mind if the examples made the text look busy, so long as they clearly defined the terms.
- **Ensure that most of the website content is at a Flesch Kincaid grade level of 8th – 9th.**
- Ensure new website design and forms (in all areas) are WCAG 2.0 A and AA, as well as, Section 508 compliant.

- Conduct regular usability testing, especially when introducing new website sections, forms or content.

Prototype review

Focus group participants only

- “Forms need to be more obvious. Like a button by File a claim.” Focus groups participants asked if the forms link could be placed in the box at the right side of most pages before log-in.



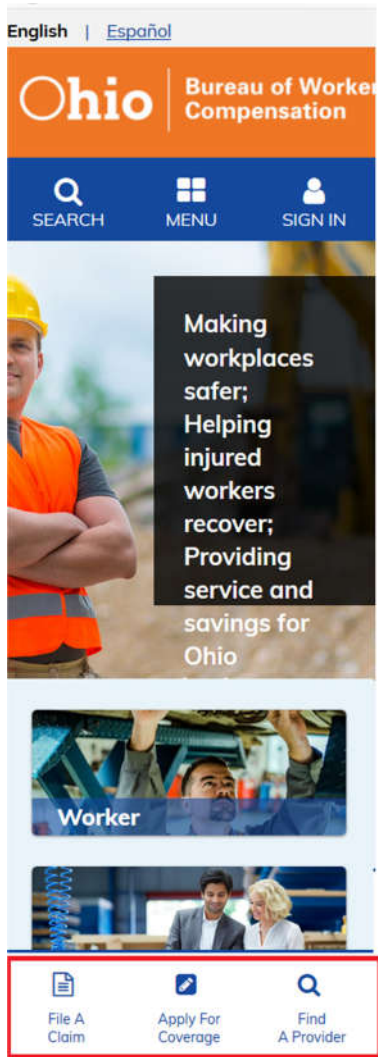
- Employer look-up should display whether employer is SI and State fund.

Employer	McDonald's Restaurant 555 Sunny St Grove City, OH 44444 USA
Phone	614-555-2222
Policy #	123456700
Occupation	Restaurant Fast Food
Employer type	State fund
Policy status	Lapsed
MCO	Bob's MCO 123 Red Oak Rd Cleveland, OH 44115 (888) 444-1111
MCO #	645321

- All participants liked that the website is compatible with all browsers.
- Accordions - **All users thought the dark gray box was too dark to read easily** (Text on overhead was enlarged 200%).



- Mobile task buttons - **Most users could not see the white task buttons on mobile until I showed them the buttons.**
 "On a mobile device, it should be more clear."
 So, you **did not notice the white** (call to action buttons on mobile) **buttons?**
 "No, I **did not even notice they were there until you said something.**"



Appendix A - Readability screener results

The literacy questions were interspersed with “filler” questions to help disguise the true intent of the screener survey, which was to gage the user’s literacy. Users who perceived this intent were excluded from the study.

The **Readability & Comprehension survey results** were analyzed but **not included in this report** since the screener survey produced better comments and suggestions, which was the goal of the study.

Total injured worker responses – 1,258

The following injured workers qualified for either the focus group or readability and comprehension questionnaire. The workers who did not respond or declined the focus group were sent the questionnaire.

# of workers	Qualified for
61	Focus group
187	Survey

Demographics

Gender

0	15
Female	591
Male	652

Age range

0	10
18 to 24	7
25 to 34	155
45 to 54	339
55 to 64	484
65 to 74	173
75 or older	25

Question: Are you color blind?

Response	#
N/A	14
No	1221
Yes	23

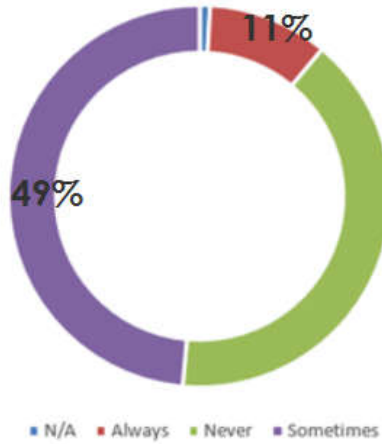


Questions that could indicate low literacy

Question: BWC terms are complicated and many people find the words difficult to understand. Do you ever get help from others in filling out forms and reading BWC information?

Response	#
N/A	11
Always*	128
Never	508
Sometimes*	611

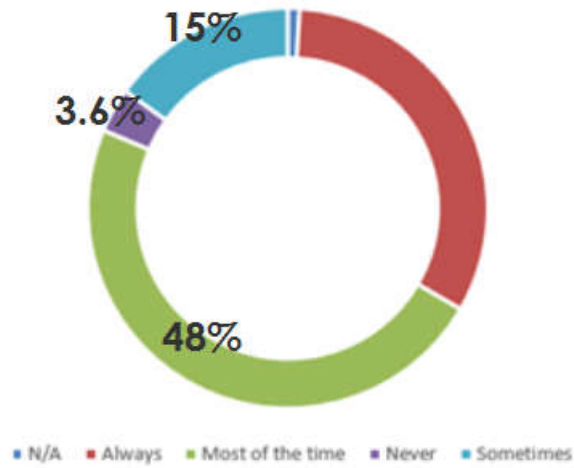
* Responses could indicate low literacy



Question: How confident are you in filling out forms yourself?

Response	#
N/A	12
Always	408
Most of the time*	603
Never*	45
Sometimes*	189

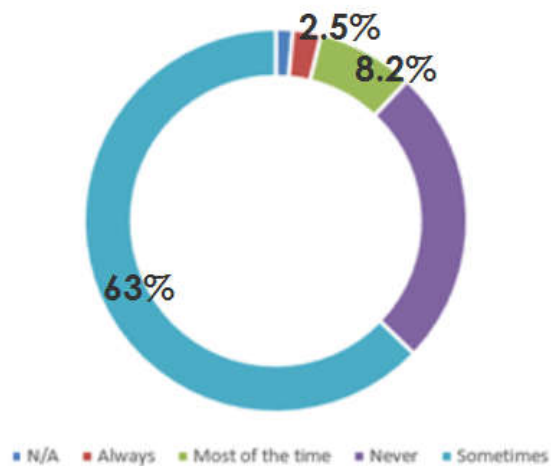
* Responses could indicate low literacy



Question: How often do you have problems understanding what to write in a form?

Response	#
N/A	18
Always*	30
Most of the time*	103
Never	317
Sometimes*	790

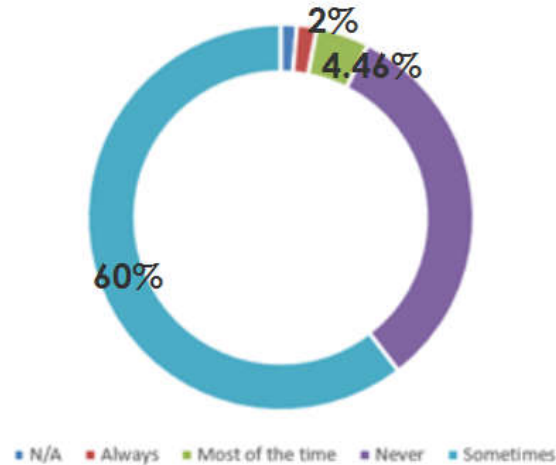
* Responses could indicate low literacy



Question: Do you have problems answering the questions in a form?

Response	#
N/A	17
Always*	21
Most of the time*	56
Never	404
Sometimes*	760

* Responses could indicate low literacy



Injured worker comment analysis

224 total comments

167 comments “cleaned” (meaning blank responses, N/As, or gibberish removed), grouped by theme and analyzed.

Worker comment themes

Category	Description	Issue
1	Usability issues: <ul style="list-style-type: none"> • Navigation and findability (including search) • Confusing layout • Buttons and icons are confusing • Cannot view info easily 	Could indicate readability or accessibility problems Lower literacy users may not be able to understand the navigation labels and/or have problems scanning them.
2	Confused and retained lawyer	Could indicate a readability problem Lower literacy users may not be able to understand the website content or the process.
3	Confusing terminology, confusing directions	Could indicate a readability problem Most users are confused by the terminology
4	Confusing forms, cannot make changes to/in forms, difficult to use and understand, confusing	Usability issues but could also indicate readability or accessibility problems Most users are confused by the forms

	directions	
5	IW process - What to do by when, slow process, negative about process	Could indicate a lower literacy problem Most users are confused by BWC processes
6	Icons are too small, small click targets, cannot see fonts, cannot zoom to see text, cannot see links in text, not screen reader friendly	Accessibility problems

Comment results

Category	Frequency	Proportion*
5	87	145%
1	52	87%
3	24	40%
4	22	37%
2	15	25%
6	14	23%

*Percent of respondents making a comment within the theme. Most respondents commented on multiple themes so percentages will add up to more than 100%.

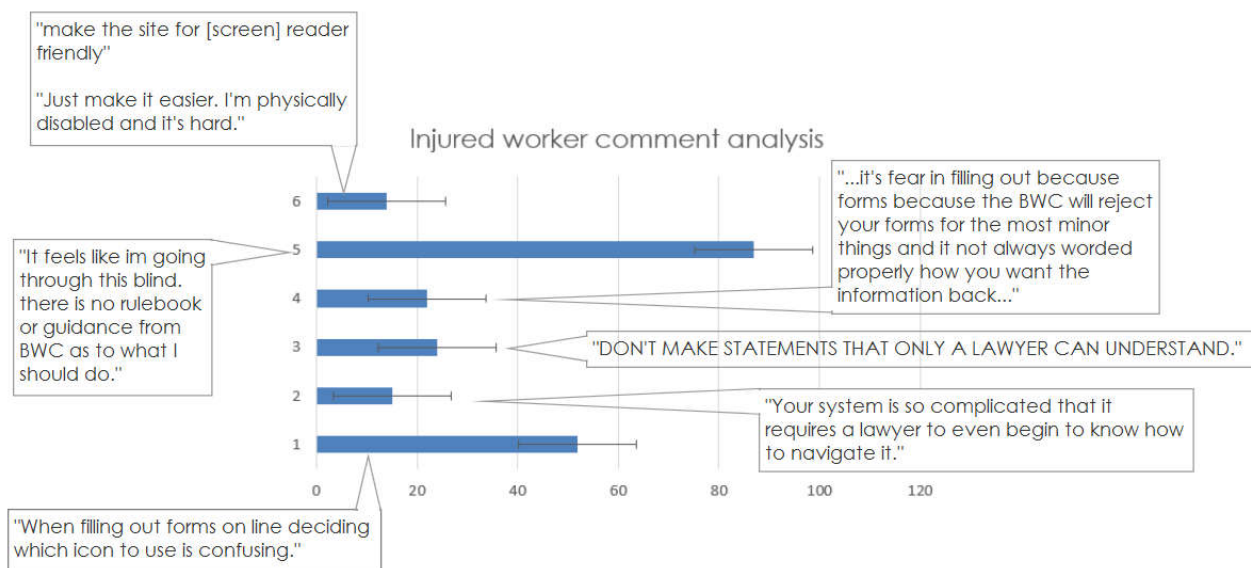
Confidence interval

Because we almost always sample a fraction of the users from a larger population, there is uncertainty in our estimates. **Confidence intervals are an excellent way of understanding the role of sampling error in the averages and percentages** that are ever-present in user research. Confidence intervals tell you the most likely range of the unknown population average or percentage, such as **the average number of users likely to have these problems.** (<https://measuringu.com/ci-10things/>)

Risk of being wrong	Confidence level	Lower end	Higher end
5%	95%	5.5%	66%

95% confidence level means that **one person in 20 or 582,930 Ohioans has a readability issue, meaning they will have problems reading and understanding BWC website content.** (Ohio population in November 2017 is 11.66 million.)

To better understand the uncertainty that comes with sampling error, I added confidence intervals to the percentages. In the following graphic, spelling errors were not corrected.



Analysis with confidence intervals and quotes

The wider the confidence interval you are willing to accept, the more certain you can be that the entire population answers would be within that range.

(<https://researchbasics.education.uconn.edu/confidence-intervals-and-levels/>)

Injured worker comments from the screener survey

The following are comments from the readability and comprehension screener survey sent out in December 2017. **Some of the comments reflect readability, accessibility and usability issues.** Grammar and spelling errors were corrected.

- **"Nothing but thank you for caring that people have a hard time with understanding and taking the time to help them have an easier time especially when most of them are not well. Thank you!"**

Terminology

- "Remember the K.I.S.S. principle in writing, just like in the military: **Write to the ninth-grade level.**"
- "It would be great for **forms to be more user friendly and common terminology be used** when giving a determination on claims. This is my first

time ever dealing with BWC and although the **terminology you use is somewhat confusing**, whenever I call in to get clarification the representatives have always done a great job explaining things.”

- **“Pictures are valuable** while trying to describe something.”
- **“Clear instructions on forms** and less paperwork overall, would be helpful.”
- “Please **use PLAIN English**, we are not all lawyers nor do we all speak legalese...”
- “I understand that some things need to be written to cover yourselves legally, but **questions and statements should be written in simple terminology so the average person can clearly understand what is written.**”
- **“DON'T MAKE STATEMENTS THAT ONLY A LAWYER CAN UNDERSTAND.”**
- “There are **too many acronyms**, when I started my claim I was not sure if I was filling out the correct forms.”
- “Honestly I think **it's fear in filling out forms because the BWC will reject your forms for the most minor things** and **it's not always worded properly how you want the information** back to you so found it was **safer to let my lawyer handle all forms.**”
- **“Forms need to be in basic language** some of forms are drafted in Attorney language.”
- “I had felt that there **were some terms on the site that I did not understand**, and even **asking others who had received benefits what they meant, they did not know either.**”
- **“Use everyday language.”**
- “Easier to understand instructions/directions. **Why the use of a word like "refutation" when there must be a simpler one.**”
- “I worked in health care for 30+ years as a lab tech & occasionally I felt the **wording of some of the questions on your forms-was just not clear.** I would then ask the worker's comp person in my office for help.”
- “It needs to be easier to use for the normal person. **Not everyone is a BWC attorney.**”
- **“Just use simple language.”**
- “The **abbreviation of words I do not understand where to find the actual words.**”

Usability

- “You should make up a **complete reference guide to informing injured workers that they need from the start... What forms they will need to have submitted and WHEN!** Just for a start...so they aren't at the mercy of lawyers and the bureau!”
- “The last web site design was very helpful, but **it can become difficult for some of us older people to learn where to look for things we need** on the website with it being changed. **We're not as computer savvy as the younger generation.**”
- “The website is too difficult to use. **There is no way to make corrections if you make an error.**”
- “**Make more information, less graphics** available on pages. Put more space between the log in/log out button and the pick list.”
- “Smaller BWC site ads vs **bigger boxes for answers.**”
- “Needs to be easier to get to the page you want **without having to zoom in.**”
- “Some time it **won't let you go back and change a mistake.**”
- “Maybe make things more user friendly, not so many buttons with little info, and **make the font easier to read.**”
- “When filling out forms on line **deciding which icon to use is confusing.**”

Total employer responses – 1,784

The following employers qualified for either the focus group or readability and comprehension survey. The employers who do not respond or decline the focus group will be send the survey.

# of employers	Qualified for
119	Focus group
336	Survey

Question: Are you color blind?

Response	#
N/A	23
No	1729
Yes	32

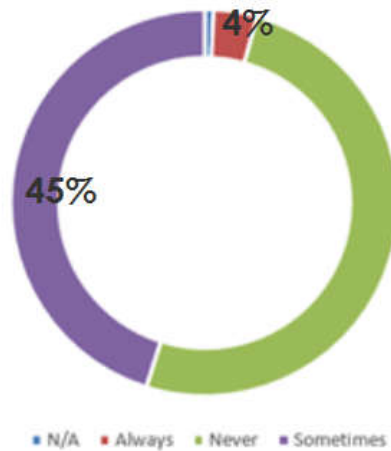


Questions that could indicate low literacy

Question: BWC terms are complicated and many people find the words difficult to understand. Do you ever get help from others in filling out forms and reading BWC information?

Response	#
N/A	13
Always*	65
Never	901
Sometimes*	805

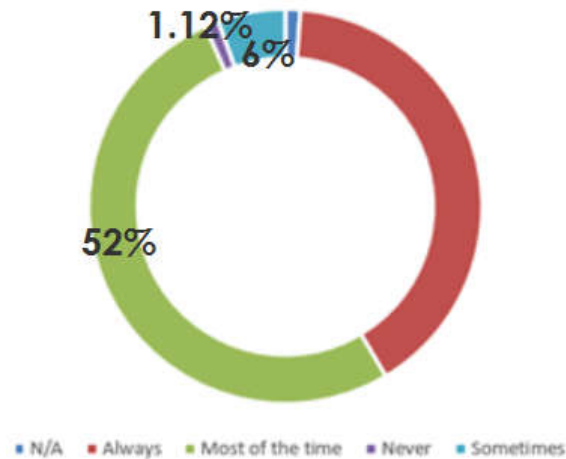
* Responses could indicate low literacy



Question: How confident are you in filling out forms yourself?

Response	#
N/A	22
Always	718
Most of the time*	925
Never*	20
Sometimes*	99

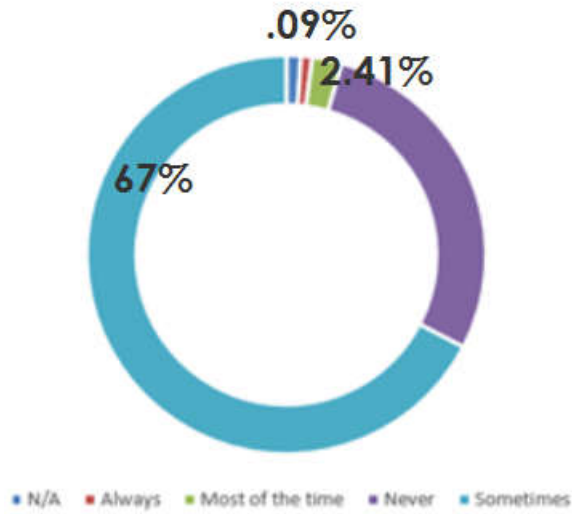
* Responses could indicate low literacy



Question: How often do you have problems understanding what to write in a form?

Response	#
N/A	21
Always*	16
Most of the time*	43
Never	503
Sometimes*	1202

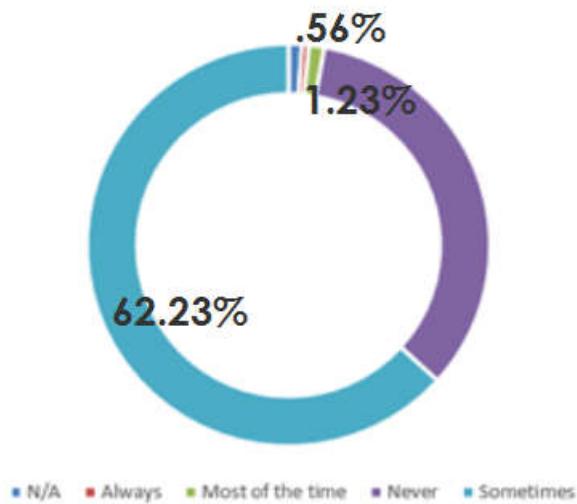
* Responses could indicate low literacy



Question: Do you have problems answering the questions in a form?

Response	#
N/A	19
Always*	10
Most of the time*	22
Never	605
Sometimes*	1128

* Responses could indicate low literacy



Employer comment analysis

347 total comments

242 comments "cleaned" (meaning blank responses, N/As, or gibberish were removed), grouped by theme and analyzed

Employer comment themes

Category	Description	Issue
1	Usability issues: <ul style="list-style-type: none"> • Navigation and findability (including search) • Confusing layout • Buttons and icons are confusing • Cannot view info easily 	Could indicate readability or accessibility problems Lower literacy users may not be able to understand the navigation labels and/or have problems scanning them.
2	Confused and retained accountant or TPA	Could indicate a readability problem Lower literacy users may not be able to understand the website content or the process.
3	Confusing terminology, confusing directions	Could indicate a readability problem Most users are confused by the terminology
4	Confusing forms, cannot make changes to/in forms, difficult to use and understand, confusing directions	Usability issues but could also indicate readability or accessibility problems Most users are confused by the forms
5	Employer process - What to do by when, billing process, negative about process	Could indicate a lower literacy problem Most users are confused by BWC processes
6	Icons are too small, small click targets, cannot see fonts, cannot zoom to see text, cannot see links in text, not (screen) reader friendly	Accessibility problems

Comment results

Category	Frequency	Proportion*
1	198	479%

4	78	189%
3	72	174%
5	61	148%
6	11	27%
2	9	22%

*Percent of respondents making a comment within the theme. Most respondents commented on multiple themes so percentages will add up to more than 100%.

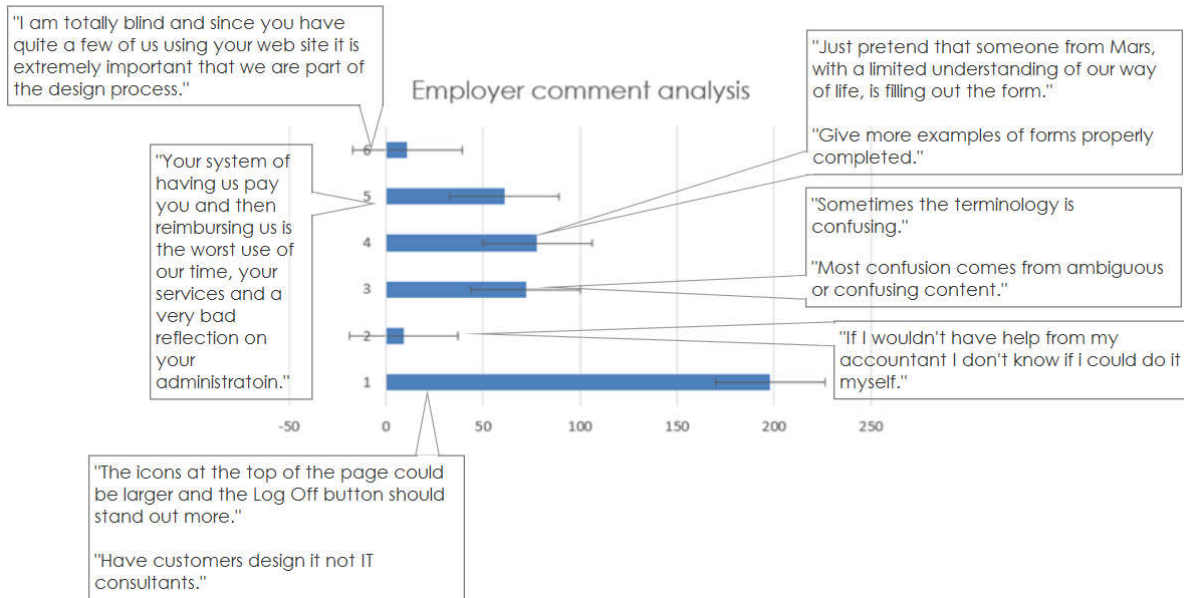
Confidence interval

Because we almost always sample a fraction of the users from a larger population, there is uncertainty in our estimates. **Confidence intervals are an excellent way of understanding the role of sampling error in the averages and percentages** that are ever-present in user research. Confidence intervals tell you the most likely range of the unknown population average or percentage, such as **the average number of users likely to have these problems.** (<https://measuringu.com/ci-10things/>)

Risk of being wrong	Confidence level	Lower end	Higher end
5%	95%	15%	128%

95% confidence level means that **one person in 20, or 582,930 Ohioans, has a readability issue, meaning they will have problems reading and understanding the BWC website content.** (Ohio population in November 2017 is 11.66 million.)

To better understand the uncertainty that comes with sampling error, I added confidence intervals to the percentages. In the following graphic, spelling errors were not corrected.



Analysis with confidence intervals and quotes

The wider the confidence interval you are willing to accept, the more certain you can be that the entire population answers would be within that range.

(<https://researchbasics.education.uconn.edu/confidence-intervals-and-levels/>)

Employer comments from the screener survey

The following are comments from the readability and comprehension screener survey sent out in December 2017. **Some of the comments reflect readability, accessibility and usability issues.** Grammar and spelling errors were corrected.

Terminology

- "Sometimes the **terminology is confusing.**"
- "Make every effort to **use every day American business English. Avoid double negatives.**"
- "Most of my issues is the wording or not wanting to answer wrong."
- "Some of the questions that are being asked are understood by accountants and the BWC, but not to those completing the forms. **I don't want to make a critical mistake and then be blamed for it when the information is not explained as to where or how to obtain the information you're requesting.** "
- "Just **keep your questions a simple and plain English** as possible."

- **“BWC forms are the ONLY ones I have a problem with. The concepts are over complicated and the explanations are even worse. “**
- **“If I didn't understand something on the form, I could get an answer by calling.”**
- **“The website is not user friendly. It is awkward and difficult to understand and find what is desired.”**
- **“My education level is post-Master's degree. I do call BWC to help me figure out BWC things.”**
- **“Please use layman's terms. What is crystal clear to you can be like mud for us.”**

Usability

- **“Have customers design it not IT consultants.”**
- **“The icons at the top of the page could be larger and the Log Off button should stand out more.”**
- **“Optional boxes for answers to questions, would be helpful.”**
- **“Some of the questions that are being asked are understood by accountants and the BWC, but not to those completing the forms. I don't want to make a critical mistake and then be blamed for it when the information is not explained as to where or how to obtain the information you're requesting. “**
- **“The website is hard to use and hard for average person to understand.”**
- **“I'm an attorney using the website and I can see how many of the forms would be difficult for a layperson. I also think the site's search engine needs improvement.”**
- **“Sometimes your print is so light or color contrast such like on "Done" below that it is hard to read.”**