CHICAGO IDEAS
YOUTH

PART 3

Digital Accountability:
Resource Packet

Building off of Chicago Ideas' work on digital rights and responsibilities in 2018, we turned our efforts to the topic of digital accountability and ethics in 2019.

One of the trickiest parts about approaching the topic of youth and tech is that their technological immersion is often (and easily) mistaken for technological fluency. It appears as though youth know exactly how to use the digital tools at their literal fingertips to effect the change that they want. While youth are intuitively familiar with how technology and social media can be used to connect and promote, they are woefully unprepared to grapple with the ways in which that same technology can divide or perpetuate pre-existing inequities.

Chicago Ideas Youth initially started discussing the topics of responsibility, transparency, and accountability in online spaces in the opposite order than the material is presented here. We began with the **Pre-Session Survey**...but then jumped into **Digital Spaces + Responsibilities**. However, it became readily apparent at that session that our youth are in no place to assess responsibility for digital spaces (either theirs, a community's, or that of the tech industry that creates those spaces). It's impossible to talk about the whos and hows of improving digital life, if you've never learned how those digital spaces are constructed—and what the implications are in terms of power and ability for an individual to change them for the better.

This knowledge gap is the result of a myriad of forces: 1) less than 35% of high school students have access to computer science courses, and this access is much lower for schools that serve young people of color or economically disadvantaged students,[1] 2) parents and teachers of these young people do not themselves understand how algorithms work, [2] and therefore cannot explain pitfalls or point out algorithm-associated problems to the young people they mentor, and 3) those young people who do have access to knowledge about the legal or social ramifications of digital tools are not peers or classmates with those who lack these resources [3]—the result being that information capital is neither evenly distributed nor easily shared.

As our country becomes more and more segregated by class and race, so too does digital efficacy become another issue of have and have-nots. Without the knowledge of how the platforms they interact with are built—what 'rules' guide and direct the information they see and dictate the way that they themselves are categorized and seen by others—youth are at an extreme disadvantage in being able to locate bias in the material and tools they are inundated with. As educators and youth advocates, we stress time and again that 'digital literacy' is a necessary skill set, but we are failing to supply them with even the most basic tools to effectively discern and challenge the information presented to them in digital spaces.

As such, we developed these resources to bridge that knowledge gap. These materials are broken up into three primary parts: **Algorithms + Bias, Exploring Dark Patterns**, and **Digital Spaces + Responsibilities.**

We suggest that you use each of these sessions in the order that they are laid out—they approach issues of transparency, intentionality, and accountability while building off of one another. These materials are intended to be used as a standalone unit, as a supplement to a media literacy curriculum, as group work in computer science courses (although they do not require coding or anything beyond basic mathematical skillsets), or frankly where ever there are young people interested in learning more about how their digital worlds are created and who holds the power and ability to change those spaces for the better. When you enable youth to understand

how inequities are baked into systems, they are able to turn that information into empowerment and demand change and transparency in those systems.

Pre-Session Survey

This very short survey is to get a baseline read about youth views on personal and corporate responsibility in digital spaces. It also asks about what they view as the most pressing challenges in those spaces.

This should be administered before any material is presented. You'll use the results at the start of the session on **Digital Spaces + Responsibility**.

Algorithms + Bias

This intro session was initially conceived of as a direct response to the Chicago Ideas Youth Ambassadors lack of preparedness in seeing the power disparity between themselves and the tech industry. The first part of this session covers the basics of what an algorithm is, how a (very rudimentary) algorithm is built, and the problems that have occured in real life when tech companies don't have diverse workforces or diverse data sets. The second half involves youth building their own analog algorithm in order to deepen their understanding about how bias can be built into every facet of technology.[4]

The materials are designed to be accessible by students lacking background in coding or computer science—meaning those students most disadvantaged by issues of educational access are fully able to participate.

Exploring Dark Patterns

The purpose of this session is to contrast the (largely) *unintentional* biases and inequities that result from algorithmic design decisions with the *intentional* UX decisions that are purposefully meant to manipulate user decisions. Youth will gain exposure to the idea the platforms and sites that they use online are designed to get them to make certain decisions—and oftentimes those decisions are not in the user's best interest, but in the company's.

Digital Spaces + Responsibility

Chicago Ideas discovered that most youth aren't predisposed to see responsibility (and power) as unequally distributed between individuals and companies. When the Youth Ambassadors were given the Pre-Session Survey the results actually showed that they thought they as *individuals* had a bigger responsibility in making the internet a more positive environment than the tech companies who design it (as derived from comparing Questions 2 and 4 in the survey). After the sessions on Algorithms and Bias and Dark Patterns, their opinions shifted away from there existing a primary individual onus, and developed into a robust concept of corporate responsibility.

This session was developed to make clear that different actors hold different levels and types of responsibility in the curation of online life. Youth will examine the limitations of individual impact, and then talk about the roles of both collective and corporate responsibility in making digital life more positive.

[1]2018 State of Computer Science: Policy and Implementation. (2018). Retrieved from https://advocacy.code.org/

[2]Smith, Aaron. "Many facebook Users Don't Understand How the Site's Newsfeed Works." Pew Research Center: September 5 2018.

[3]Government Accountability Office. (2016). *K-12 EDUCATION: Better Use of Information Could Help Agencies Identify Disparities and Address Racial Discrimination.* (Report No. GAO-16-345.) Washington D.C.: Government of the United States of America.

[4]Jane Zanzig and Jess Freaner of IDEO provided invaluable insights, guidance, and resources on this topic—both were also heavily involved in the test session with the Chicago Ideas Youth Ambassadors. I am highly indebted to their brilliant minds.

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Your Digital Life: Pre-Session Survey

On a scale of 1 (Strongly Disagree) to 10 (Strongly Agree), please answer the following questions.

1. **I think that the Internet is a positive environment.**

Strongly Disagree 1 2 3 4 5 6 7 8 9 10 Strongly Agree

2. **I think youth are responsible for making the Internet/social media more positive places.**

Strongly Disagree 1 2 3 4 5 6 7 8 9 10 Strongly Agree

3. **I feel the people and companies that create the technology I use care about what I think.**

Strongly Disagree 1 2 3 4 5 6 7 8 9 10 Strongly Agree

4. **I think that technology companies are responsible for making the Internet/social media more positive places.**

Strongly Disagree 1 2 3 4 5 6 7 8 9 10 Strongly Agree

5. **What are the two biggest problems that you see or experience in online spaces? (i.e. social media, search engines, news sites, playing games, etc.)**

Algorithms + Bias

In the initial **What is an Algorithm? Quick Brainstorm**, essentially EVERYTHING they've done on their phone is an example of an algorithm: googlemaps, predictive language in emails, texting, or searches, the order of information on all social media feeds, the ads that they see on websites, etc.

There's a chance that no one will think that there's any bias in the tools that they use. You have a choice here to either table the discussion for now and unpack their answers at the end, OR you can have them dig into their answers as additional prep work. [For example, googlemaps demonstrates bias because the algorithm used to determine the most efficient walking directions in a highly affluent and well-lit business district might apply completely inappropriate 'rules' in a higher crime or less amenity-rich area. Individual safety can be at risk because of uninformed assumptions on the part of the algorithm's author(s).]

In the **When Algorithms Go Wrong: Real Life Tech Disasters** session, here are some articles/ examples for each of the three categories. If students are stuck, direct them to these resources as a starting point.

Representation in Leadership: Youth should immediately notice that women and persons of color are not equally represented by these searches. The image searches will result (predominantly) in pictures of older, white, men in suits for both "CEO" and "politician."

These searches are a very good demonstration of "why representation matters."

Sexism in Product Development: There are numerous instances where voice recognition in cars and in the Internet Of Things has not been tested on women's voices, and therefore do not recognize them when they speak.

Harvard Business Review has a good summary on the stats HERE.

Racism in Facial Recognition: Two of the most infamous instances include when Nikon developed facial recognition software so the camera would only take pictures when subject's eyes were open. However, the software was never trained on data that involved Asian facial features, and therefore did not recognize their faces or eyes as belonging to people, and the software would not take their photos.

Another instance surrounds google's facial recognition software in photos. The software did not recognize Black faces as human, and miscategorized Black faces as gorillas.

Preparation and Materials for Writing Algorithm Activity

The second portion of this session involves youth writing their own algorithm. You will need to divide your group into AT LEAST TWO (as they will need to trade their 'rules' with one another half way through).

The materials provided here (**Creating Algorithms: You Write the Rules!, Evaluating Algorithms: How Accurate Were Your Rules?, Assessing Bias in Algorithms**) require you to compile TWO sets of images in advance.

These images will serve as the "data" for the algorithm exercise. Below are the basic guidelines for these image sets. You will need a TOTAL of 32 images.

TRAINING SET

- 16 images
- 4-5 images should NOT belong to the selected category (i.e. *"This is NOT a puppy."*)
- Present these to the group all together, and have the group collectively decide on the appropriate classification of each image.
- It is necessary that EVERYONE has the same "YES this is..." or "NO this isn't" classification for each of these images.
- It's best to **share these images on a slideshow or on a screen** so that discussion and evaluation can happen whole group and in real time.
- This is the set of images that the groups will use to write their algorithm 'rules'.

TEST SET

- 16 images total
- 4-5 images should NOT belong to the selected category (i.e. *"This is NOT a puppy."*)
- NONE of these images should be found in the Training Set.
- Groups will use these images to 'test' the accuracy of their 'rules.'
- Share the Test Set images once the groups have traded their algorithm 'rules' with one another.
- You also need to prepare an **Answer Key for this Test Set** (i.e. Image 1 = Yes, this is..., Image 2 = No, this is not...and so on and so forth).
- DO NOT share the answer key with students until they have made their image predictions.

When pulling images for your Training and Test Sets, you must first select the thing/category/subject that your groups will be classifying (think: *improper nouns*). Make sure that the category that you will be evaluating can be done so on a **Yes/No**, and fairly objective, basis (i.e. **Yes/No** *"This is a puppy."* **Yes/No** *"This is a book."*). And remember, **you need to select 4-5 images that are NOT of this category** for both sets—these "NO" images can introduce the possibility of error, nuance, and provide the basis for "negative" rules in their algorithms).

When selecting the category that your groups will be classifying, we highly suggest picking a category that contains a fair amount of ambiguity, as well as cultural, socio-economic, gendered, or racial connotations. The aim of this entire session is for youth to delve into the issues of bias and representation, and the influence that technology has to perpetuate or alleviate many of these issues. You want your young people to see tensions apparent in simplistically classifying highly complex subjects—as well as subjects that require nuanced and diverse perspectives to achieve accuracy.

As an example, when the Chicago Ideas Youth did this algorithms exercise, they looked at Training and Test Sets that contained images of 'Rappers' (and evaluated those images with the questions of **Yes/No** *"This is a rapper."*) Our image sets contained pictures of male and female rappers, white, Black, and Asian rappers, old school vs. new school rappers, and rappers in suits and rappers in street fashion. The image sets were constructed precisely to get at the racial, gendered, and socio-economic connotations that are attached to the word 'rapper'. That said, this may not be the most effective or relevant subject for your group. Chicago Ideas has not provided image sets with these materials precisely because you are in a far better position than us to decide what is/isn't culturally relevant to your young people.

Pick a category that your youth are already invested and interested in—it's ideal if they are exceedingly familiar with and feel connected to the images they are evaluating and the rules they write about them. Youth tend not to shy away from (potentially) controversial topics: Follow their lead when pulling images for your Training and Test Sets. The example of "Is it a puppy?" in **How Do You Write an Algorithm** was intentionally meant to be dry and non-controversial. Groups are not disadvantaged if a puppy gets misclassified. Obviously, the same cannot be said for people.

At the end of the session, everyone should reconvene and go through the **Assessing Bias** questions. The aim of this discussion is to get youth to realize the importance of diverse voices, perspectives, and experiences in the tech industry. The way we stop bias from being perpetuated is to make sure that the people writing the rules in the first place talk and work and collaborate with individuals that bring different experiences to the table. For example, a woman is most likely not going to tag only white, older, men as CEOs and politicians, or ignore the fact that the data voice recognition software is being trained on only represents the voices of men. Similarly, ask your group: "If there were Black or Asian individuals on the product development teams we discussed, would the same mistakes in facial recognition have occurred?"

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Algorithms + Bias:
How are the rules that govern tech designed?

Algorithms govern every digital tool and platform that we use online. They give us preferred routes on maps, that vary if we're on foot or on a bike or public transit or in a car. They show us ads in our social media feeds of things we might want to buy. They auto populate words and finish our sentences in Internet searches, texts, and emails. They can be incredibly useful and make our daily lives more efficient, as well as more entertaining.

However, algorithms can also perpetuate bias and inequity in both the digital spaces we use and the real world that we occupy. All algorithms are designed by people—software engineers, data scientists, coders, UX designers, product developers—and as a result have human error, oversight, and bias baked into them.

In this session, we'll unpack what algorithms are and you'll look into some of the real world consequences of algorithms and bias—then you'll get to design your own algorithm to see how bias can be imbedded in their creation.

What is an algorithm?

An **algorithm** is a process or set of rules that orders information. Algorithms can be simple, like the rule for adding numbers. Algorithms can also be complex, and involve a precise order, complex calculations, or the combination of multiple rules.

An algorithm aims to take a given set of data or information and give a consistent output or conclusion.

Quick Brainstorm:
What are THREE examples of algorithms that you've used today? Share out whole group!

Do you think that any of these examples contain bias? Why or why not?

How do you Write an Algorithm?

How do algorithms work? Below is a simplified version of the design and testing process. It's also the process that you'll go through later in the session.

How to Develop an Algorithm: A Very Basic Approach
Step One: Determine Your Goal + Find the Data Come up with a question: What are you looking to do? What do you want to know or have your data show you? You need to decide what you want the data to be able to do for you.
For example, you decide you want to search for (and find) puppy images. *Next, determine what data will give you the information you need. For example, let's say you locate 100 pictures, and within these images some are of puppies and others are not. These pictures will serve as your Training Set.*
Step Two: Training Set + Sort the Data Before any line of 'code' gets written, you start with a data set or a collection of information. All the decisions that you make and the rules you write will be based off of this **Training Set**.
Using your training data set (the 100 pictures), now you must write a set of rules based on the images within it. Which of these images are "puppies"? Which are not? Image by image, you label them. *This sorting and classifying gives you two categories. "Yes: A Puppy." "No: Not a Puppy."*
Step Three: Write the Rules! Now you have to determine what other characteristics are shared by data you've chosen to sort for. You'll want to have a set of rules that, ideally, correctly sorts and categorizes much of that data. This process will give you a list of rules that will be applicable to any data—this set of rules is your algorithm.
Take your 'Yes. A Puppy' images. Do the 'Yes: A Puppy' images share any other traits that you can turn into 'rules'? Are they small, fuzzy, four-legged, with tails? You then write very simple, fact-based rule statements based on these observations. All of your rules must be totally objective because computers aren't able to make inferences or interpret opinions. *"Puppies have tails." "Puppies have four legs and two ears."*
Step Four: Apply Your Algorithm Now you need to see if the rules you wrote are accurate, and can be used outside your training set. You'll need a new data set, this is your **Test Set**. In your test set, apply your list of rules—and *only this list of rules*, no outside assumptions or background knowledge.
As you apply your rules to the new images in your test set, be sure that you only apply the rules as they are written. Even if you personally know the evaluation is wrong (i.e. you know it's a puppy, but the rules say it's not), you cannot change the rules, and you must mischaracterize the image.
Step Five: Evaluate Your Algorithm Now evaluate the shortcomings of your rules. Did they accurately categorize ALL the images in the Test Set? If not, how come? How could the rules be improved for better accuracy?

When Algorithms Go Wrong: Real Life Tech Disasters

How does a line of code contain bias? How can a computer program perpetuate inequality?

Unfortunately, algorithms are rarely as simple (or as low stakes) as our puppy example. Both the developers and users of technology are human—and oftentimes the data that's being evaluated both comes from people and impacts populations.

As technology has become more and more central to our everyday lives, the power of algorithms to impact (both positively *and* negatively) large parts of our lives has increased as well.

Below you'll find categories that reference real-life examples of how algorithms have helped to perpetuate bias (racism, sexism). Do a little bit of digging on the Internet: What can you find with these examples?

Representation in Leadership Directions: Do two google image searches: One for "CEO" and the other for "politician."
How many of the images are of women? How many are persons of color? Are groups represented equally?
What bias(es) do these searches perpetuate?

Sexism in Product Development Directions: Find two articles about speech recognition problems for women's voices.
What is the problem for women's voices and speech recognition? *Why* is this a problem?
What bias(es) do these blind spots in product development perpetuate?

Racism and Facial Recognition Directions: Find two articles about major mistakes tech companies made when their facial recognition software was applied to non-white faces.
What examples did you find? *Why* are they troublesome?
What bias(es) are being perpetuated in these examples?

Group Question:
How do you think biases like these get written into the algorithms? How do you think you could solve for these problems?

Designing Algorithms! Your Turn!

Using the guidelines from **How do you Write an Algorithm**, you'll now get to apply those skills and your own judgements to see how bias can be inadvertently baked into the digital ecosystem.

Creating Algorithms: You Write the Rules!

In the spaces below, write down your group's "rules" for determining how a computer program would be able to tell which images are representative of your category, and which are not.

Remember, your rules should be *objective* (i.e. not opinion based). No rule should be "A puppy looks cute" or contain any statement that could be easily disputable.

Rules can be *simple* statements (i.e. "A puppy has four legs.") OR they can be *compounded* (i.e. 'A puppy has fur AND a tail.")

SLIDESHOW IMAGES

Use the whole group's decisions from the Training Set images to write the rules of your 'algorithm'.

Rule #1:

_____

Rule #2:

_____

Rule #3:

_____

Rule #4:

_____

Rule #5:

_____

Rule #6:

_____

Rule #7:

_____

Rule #8:

_____

Rule #9:

_____

Rule #10:

_____

Evaluating Algorithms:

How Accurate Were Your Rules?

TEST SET

First, trade your Rules with another group. Then, in your group, and using the 16 images from your Test Set, make decisions about which images represent your category in question, **based ONLY on the rules that were handed to you** from the other group.

Remember: Even if you disagree with the rule, you still have to have to use it to "code" your images. This entire exercise is about how human bias and perspective (even if it's unintentional) are written into technology. We will discuss the problems about this process at the end!

STEP 1:

Fill in your **Predictions** in the middle row of the rubric below. Your predictions should be stated in **Yes/No** terms—'Yes' this image is an example of your category, or 'No' this image is not.

Image	Actual	Prediction	Evaluation
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			

STEP 2:
Look at the **Answer Key** for the Test Set. Fill in the value (Yes/No) assigned to each image in your Answer Key in the **Actual** column in the rubric above.

STEP 3:
How accurate were the "rules" that you applied? Compare the answers in the **Prediction** and **Actual** columns using the following four categories, and write the result in the **Evaluation** column.

- **True Positive (TP)**: Prediction = Yes, Actual = Yes
- **True Negative (TN)**: Prediction = No, Actual = No
- **False Positive (FP)**: Prediction = Yes, Actual = No
- **False Negative (FN)**: Prediction = No, Actual = Yes

STEP 4:
Jot down how many of your answers from the **Evaluate** column fit in the quadrants in the chart below (also called a 'Confusion Matrix' in Machine Learning):

	Prediction = NO	Prediction = YES
Actual = NO	TN	FP
Actual = YES	FN	TP

STEP 5:
Now it's time to formally evaluate how accurately (or inaccurately) your algorithm classified the images.

To determine accuracy, add the True Positives with True Negatives, then divide this number over the TOTAL number of images and multiple by 100. This is your percentage accuracy.

$$\left(\frac{TP + TN}{\text{Total Images}}\right) \times 100 = \%\ \text{Accuracy}$$

$$\left(\frac{FP + FN}{\text{Total Images}}\right) \times 100 = \%\ \text{Inaccuracy}$$

To determine inaccuracy, add the False Positives with False Negatives, then divide this number over the TOTAL number of images and multiple by 100. This is your percentage inaccuracy.

Assessing Bias in Algorithms

Group Discussion:

1) What group had the MOST ACCURATE algorithm?

2) What group had the MOST INACCURATE algorithm?

3) Compare the group rules from 1) and 2). What makes their rules different from one another? Why do you think there were different results across groups?

4) How do individual bias and perspective influence the rules you wrote?

5) What things were really difficult to get right in the rules that you wrote?

6) Why do you think those concepts are difficult to 'code' for?

7) Look back at the examples you found from the **When Algorithms Go Wrong: Real Life Tech Disasters** section. How do you think these troublesome algorithms were written? Who do you think was writing the rules?

8) How do you think tech companies can make sure that their products don't perpetuate bias against groups?

9) Do you think having multiple, diverse perspectives involved in the design process of algorithms would make the end product more or less biased? Why?

10) What do you think the tech industry should do to help to eliminate bias in the products they build?

Exploring Dark Patterns

During the **Recap** section, here's a rough guide to main take-aways on **Algorithms + Bias:**

1. *Answ: Bias can lead to unforeseen consequences/outcomes.*
2. *Answ: voice recognition not responding to female voices, image searches equating Black faces with animals, camera software not recognizing the shape of Asian eyes/lids, computer programs incorrectly predicting the odds of recidivism because of over-represented population samples*
3. *Answ: Unintentional—though that does not mean that there should not be an expectation of accountability and responsibility when poor design results in biased results.*
4. *Answ: Diverse voices and experiences included in design processes; diverse and representative data sets.*

The 11 Dark Patterns outlined in the sections are borrowed from (with express permission) Harry Brignull's work on the topic. Brignull is a UX Design Expert, and holds a Ph.D. from the University of Sussex. His site, darkpatterns.org, provides a number of resources that can be used to support the material in this lesson.

After going over Brignull's definition of what a Dark Pattern is (located at the end of the **Dark Patterns: Examples and Intention** section), show the 6:56 video from the darkpatterns.org website for background before moving onto the next section.

In the following section, **Dark Patterns: Design + Tricks**, youth will be required to find examples of each of these dark patterns. If computers are not available, phones are more than sufficient for finding examples—just have them screenshot the examples and share with peers. If youth are stuck or confused about how any of the types work, detailed examples for each of these patterns are available on Brignull's site HERE.

This session ends with youth designing their own dark patterns in **Dark Patterns: Your Turn!**, as well as an ethical/transparent alternative. Youth will be presented with one of four design challenges—divide your group into four groups and assign them each a design challenge.

Dependent on computer access for your group, these challenges can be designed or executed in a number of ways. If you have a group versed in coding, then they can actually design the experience on a computer. If you lack computer access, or students with coding or computer science skills, then you can execute this challenge completely analogue: poster board, flow charts, pasted print outs as examples, colored markers, etc.

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Exploring Dark Patterns:
Why Do We Make Certain Choices Online?

All of the platforms that we encounter online are the result of someone's design. As ubiquitous as algorithms are in every tech product, the rules that order the information we see are not the only way that our digital lives are influenced by those platforms. In this session you'll discover the ways in which our decisions are intentionally shaped in the digital world.

RECAP: ALGORITHMS + BIAS

Directions: Discuss the following questions with a partner, then share out with the whole group.

What's the relationship between bias and algorithm design? How does this work?
What are some examples of negative bias in algorithms?
When we talk about bias and algorithms, are the effects of these biases *intentional* or *unintentional*?
What are some possible solutions to correct for bias in the design of algorithms?

DARK PATTERNS: EXAMPLES + INTENTION

Directions: Read the following scenarios, and answer the related prompts.

Scenario 1: *You've just downloaded an app. When you open it, the first screen you see is in a teensy, tiny font [and clearly written by lawyers]—it's the 'Terms and Services' page. At the bottom of this page is a box to check "Click and Agree." You check the box, hit 'AGREE', and now get to use the app. Yippie!*

What was the outcome of your agreeing to the Terms and Services of this app?

What was the intention of the company in presenting the Terms and Services this way?

Scenario 2: *You need a book for a class at school, so you decide to order it online. Once the book is added to your Shopping Cart, you proceed to check out. During the check-out process, the web page prompts you to try a 'FREE 30 day trial—FREE EXPRESS SHIPPING'. You agree to the Free Trial, because it doesn't cost you anything and it will save you money on the book you need for school. You can always go back into your account and cancel the membership before the 30 day trial is over.*

Two months later, your very angry parent would like to know why there is a recurring $90 charge on their credit card to the website you ordered the book from.

What was the outcome of your check-out process on this website?

What was the intention of the company in presenting a "free service" in this way?

What do both Scenario 1 and Scenario 2 have in common?

Unlike **algorithmic bias**, which leads to unintentional, negative outcomes for the user, **dark pattern design** intentionally leads you to make decisions that you would otherwise avoid if the information was presented in a different manner.

A **Dark Pattern is** "a user interface that has been carefully crafted to trick users into doing things, such as buying insurance with their purchase or signing up for recurring bills.

When you use the web, you don't read every word on every page—you skim read and make assumptions. If a company wants to trick you into doing something, they can take advantage of it by making a page look like it is saying one thing when it is in fact saying another."

— Harry Brignull, Ph.D. University of Sussex, User Experience (UX) Design Expert[1]

DARK PATTERNS: DESIGN + TRICKS

So what are these design tricks and tools that manipulate your decision making process? Brignull outlined 11 'dark patterns' that designers use to lead you to agree to their desired outcomes. Let's dig in!

Using the list below, and the resources available on darkpatterns.org, use your phone or computer to find an example for each of the following types. Write down what you found, and take a screenshot of the example.

Type	Description	Example
Sneak into Basket	You attempt to purchase something, but somewhere in the purchasing journey the site sneaks an additional item into your basket.	
Roach Motel	You get into a situation very easily, but then you find it is hard to get out of it (e.g. a premium subscription).	
Privacy Zuckering	You are tricked into publicly sharing more information about yourself than you really intended to. Named after Facebook CEO Mark Zuckerberg.	
Price Comparison Prevention	The retailer makes it hard for you to compare the price of an item with another item, so you cannot make an informed decision.	

[1] The dark patterns framework used for the basis of these materials are borrowed from Brignull's site https://www.darkpatterns.org/, and used with express permission of the author.

Misdirection	The design purposefully focuses your attention on one thing in order to distract you attention from another.	
Hidden Costs	You get to the last step of the checkout process, only to discover some unexpected charges have appeared, e.g. delivery charges, tax, etc.	
Bait and Switch	You set out to do one thing, but a different, undesirable thing happens instead.	
Confirm-shaming	The act of guilting the user into opting into something. The option to decline is worded in such a way as to shame the user into compliance.	
Disguised Ads	Advertisements that are disguised as other kinds of content or navigation, in order to get you to click on them.	
Forced Continuity	When your free trial with a service comes to an end and your credit card silently starts getting charged without any warning. In some cases this is made even worse by making it difficult to cancel the membership.	
Friend Spam	The product asks for your email or social media permissions under the pretence it will be used for a desirable outcome (e.g. finding friends), but then spams all your contacts in a message that claims to be from you.	

DARK PATTERNS: YOUR TURN!

Now that you know the tools and tricks that companies use to manipulate what information you see, how you interpret that information, and how they're designing your choices online, it's your turn to give this design process a go!

TASK
Your team will be given one of four different digital design challenges (A, B, C, or D). For each challenge you are to work together as a "company" and design the process that your "user" would interact with—the "process" or "path" refers to the type of elements that the user interacts with on your website or app. [*Pop ups, question types, how information is presented, the buttons you have to click, etc. ANYTHING that you would read, tap, check, click, or scroll through on a website is a product of digital design.*]

AIM
For **each** design challenge, your team will come up with **two different digital paths**: one of them will employ **Dark Pattern Design**, the other will employ an **Ethical or Transparent Alternative Design**.

Digital Design Challenge One: Design Your Own Dark Pattern
Using at least TWO of the "tricks" we just learned about, design a path for the user to act in the way that you as a "company" desire. When designing the user's path to your desired end, keep the following questions in mind: ● What's the easiest way to get what we (as a company) want? ● What would make our user hesitant to agree to what we want? And how do we avoid that issue? ● What information might we not want to disclose in order to achieve our aims?

Digital Design Project Two: Design An Ethical Alternative
Using the same desired outcome as Design Project One, figure out a way to achieve the aim where you aren't tricking or deceiving users in the process. As you brainstorm, remember the following questions: ● What do you (as a company) want the user to do? ● What decision is in the *best interest of your user* (NOTE: Do you and your user have the same goal)? ● Are there benefits for the user for participating? ● What information does that user need to make an informed decision? ● Does something about the process need to be simplified? ● What would you want to know (*if you were the user*) in this scenario? *REMEMBER: Think about transparency and honesty in this design.*

DESIGN CHALLENGE A: Terms and Conditions/User Agreements

Company Goal: Get user to sign Terms and Conditions. Have users opt into sharing their personal information and geo-data (GPS locations).

You want as many people as possible to use your app. In order to enable the app on a phone, the user must agree to the terms and conditions after they download it. Part of your terms and conditions are that your users agree to have their GPS/location tracking turned on—meaning you can see where and when your users (or at least their phones) are at any given time. This data access allows your company to target users with ads and coupons, and give suggestions based on where they've been in the past.

Challenge: How do you get your users to sign a Terms and Conditions agreement that gives your company access to their geographic location?

DESIGN CHALLENGE B: Social Media User Engagement

Company Goal: You want to increase user engagement on your social media platform, specifically you want users to comment on posts more frequently.

You want to keep your user base using your product on a regular basis. Your company knows that if your users get bored with the current features, then they will stop using your social media site. Your company thinks the best way to increase user engagement is by getting your users to interact more with one another on your site—commenting on each others' posts, having discussions, etc.

Challenge: How does your company encourage users to interact with one another on your social media platform?

DESIGN CHALLENGE C: New Social Media Platform

Company Goal: Attract users to join new social media platform.

You've just designed a brand new social media platform. It's going to be bigger than Tic Toc and Snapchat combined. The problem is...you need to convince users of its value (and coolness) and get them to join and use it.

Challenge: How do you get users to join your new social media app?

DESIGN CHALLENGE D: News and Media Sharing

Company Goal: Present articles to audience that get read and shared. (The more clicks that a company gets, the more money the company makes.)

Your social media company depends on advertising revenue to make money. Your platform is free to users, but those users need to click links and posts in order for you to turn a profit. In order to keep your users entertained and engaged with your site, you design algorithms that show individuals news stories and links based on what they've "liked" in the past--regardless if that info is true or false, or comes from verified sources.

As a company you don't place restrictions on what advertisers promote on your site. And after all, individuals have the "choice" to "like" or click a post, or not. Your goal is to make money, and you leave it up to the advertiser/external company to produce content.

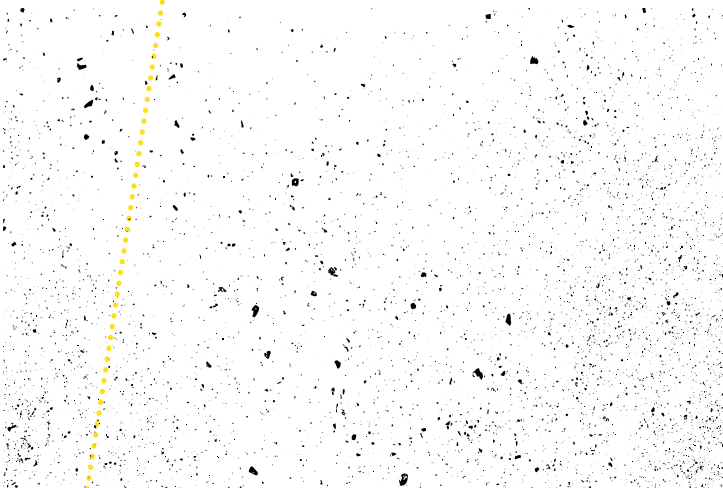
Challenge: How do you get your users to click and share the most posts?

Digital Spaces + Responsibilities

Prior to this session, collect the Pre-Session Survey, tabulate the averages of the responses, and share them alongside the original questions at the beginning of this session. Have the questions and responses posted (or available on handouts) as they complete the **Survey Results** section.

The first portion of this session will consist of reflection and discussion on the results.

In the **Who is Responsible** group discussion section, try and have students tease out that Individual, Collective, and Corporate Responsibility are the three primary types of responsibilities apparent online. Moral and Legal Responsibility are clearly key as well, but as motivations or accountability mechanisms exercised in the three primary types. For example: An individual or collective group/community can have a moral responsibility to behave or support one another in a certain way. Likewise, a company can have a legal responsibility to protect or uphold certain standards. Individuals, groups, and companies can all exercise or adhere to legal and moral responsibility, but legal and moral responsibility without an agent to act are merely concepts.



CHICAGO IDEAS YOUTH

Digital Spaces + Responsibilities: *Who* Is Responsible?

As we saw earlier in the sessions on **Algorithms and Bias** and **Dark Pattern Design**, the experiences that we have in digital spaces are the direct product of human design.

Before we discuss who is responsible for what takes place online, let's go through what you all initially said about digital responsibilities.

Survey Results

Stop and Jot: Initial thoughts? What do you make of the average scores? Did anything surprise you about the results?

Group Discussion: Share out your initial thoughts.

- Has your opinion on who is responsible for creating a positive environment changed?
- If so, why do you think there was a shift?
- After digging into the role that bias and algorithms and dark pattern design play in how we experience the Internet, who do you think is responsible for this space?

Digital and Corporate Challenges to Individual Responsibility

In terms of individual actions and response, what are some of the problems with the way information is presented to us online? Are we solely responsible for what we see and consume?

What control do we as individuals have over how information is shared and viewed?

Who *is* Responsible?

Directions: Do your best to define the following types of responsibilities. Who exercises these responsibilities? How are they different from one another? [*Note: If it's easier to think of examples of these types, write those down too.*]

Individual Responsibility	**Corporate Responsibility**
Collective (Group) Responsibility	**Moral Responsibility**
Legal Responsibility	**…any other types we've forgotten???**

Group Discussion: Share out your initial thoughts.

- Which of these forms of responsibility are most important in terms of making the Internet/social media a more positive place? Why?
- Are all of these forms of responsibility similarly exercised or operationalized? [For example: *Are Individual Responsibility and Legal Responsibility the same type of thing?*]

Brainstorm: Using your definitions above and take-aways from the discussion, fill out the rubric below.

	Individual Responsibility	**Collective (Group) Responsibility**	**Corporate Responsibility**
How do they exercise responsibility online?			
Who are they responsible to?			
How are those responsibilities enforced?			

Seminar Discussion

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1. Is individual responsibility for social media and digital spaces the biggest, or best, part of the solution to problems we face online?

2. Does any part of our discussion today change how we think about who is responsible for making digital spaces and exchanges better?

3. What does individual responsibility look like in online spaces?

4. What does collective responsibility look like?

5. How about corporate responsibility?

6. How might all of these pieces work together?