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# Playing the Belly of the Beast: Games for Learning Strategic Thinking in Tech Ethics

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# The Problem

## Teaching Practical Ethical Inquiry



## Google Researcher Says She Was Fired Over Paper Highlighting Bias in A.I.

Timnit Gebru, one of the few Black women in her field, had voiced exasperation over the company's response to efforts to increase minority hiring.

Give this article



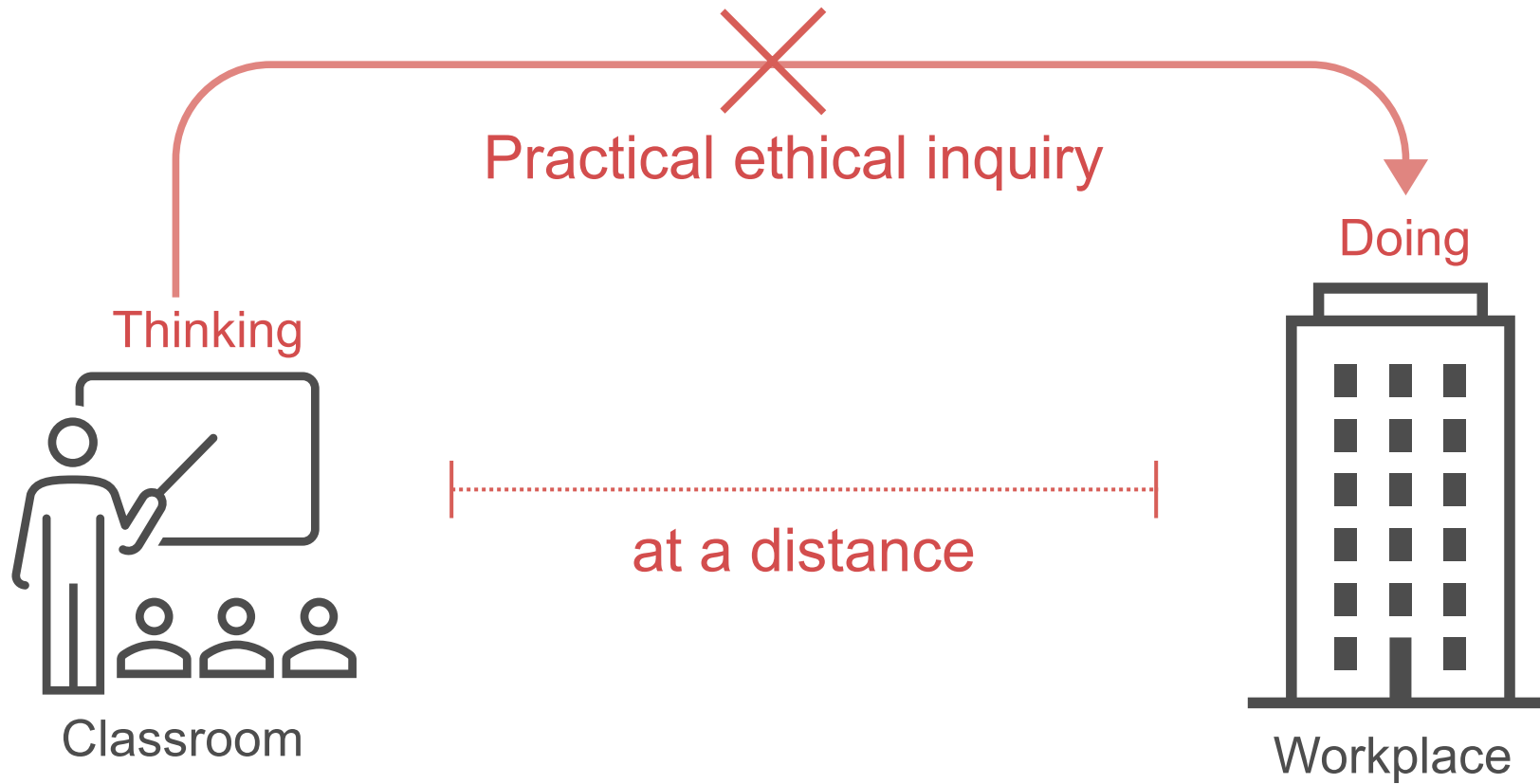
276

Doing ethics in  
a tech corporation  
is hard.

the Belly of the Beast



Timnit Gebru, a respected researcher at Google, questioned biases built into artificial intelligence systems. Cody O'Loughlin for The New York Times



**How do we teach students practical ethical inquiry,  
at a distance from the workplace?**





# The Hypothesis

Focus on **Organizational Structures**

Material Structures

Social Structures

Culture

Implicit/explicit rules that govern resources and people (Klein and Kleinman, 2002)



**Material Structures** access to resources

- What tools and spaces are available to whom
- Open Letter Format


**Social Structures:** how people are organized

- Who has influence, how labor is divided, social relations
- Collective of 3000 employees > Management

**Culture:** shared values/beliefs/norms underlying actions

- e.g.,. Market Fundamentalism, technological solutionism
- “Technology should not harm people”

## ***‘The Business of War’: Google Employees Protest Work for the Pentagon***

 Give this article



 316



Thousands of Google employees have signed a letter to Sundar Pichai, the company's chief executive, protesting Google's role in a program that could be used to improve drone strike targeting. Michael Short/Bloomberg

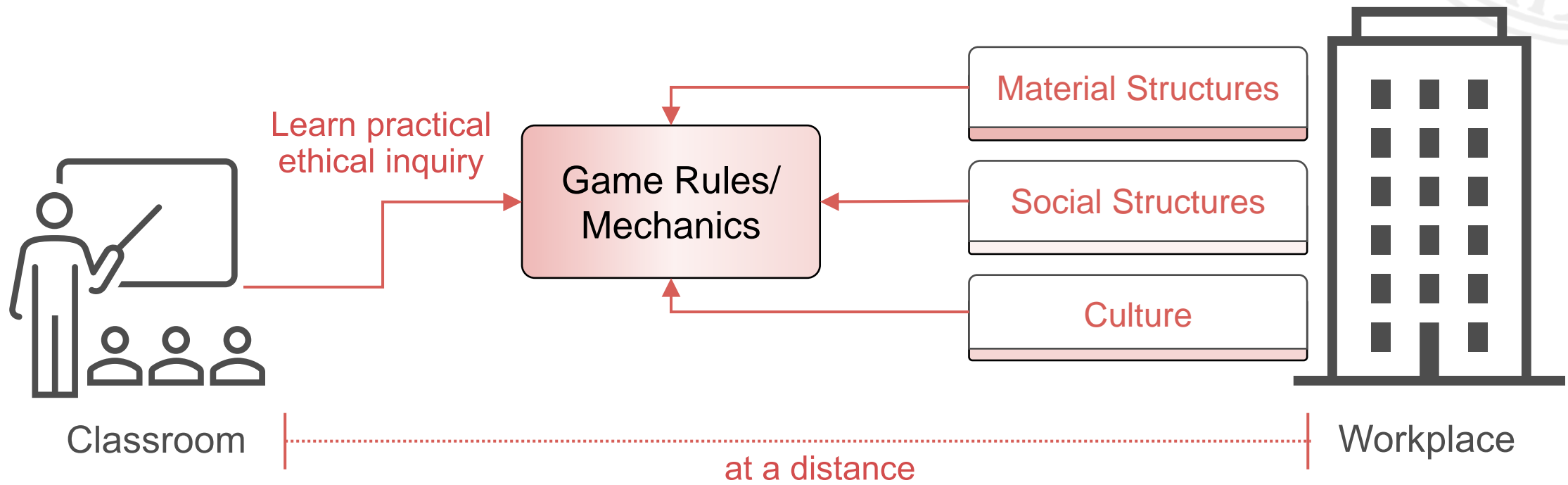


# Games/Role-playing

Can *simulate* organizational structures







# Gap in such games/role-playing

Doing ethical inquiry in a tech corporation as an engineer



The background is a collage of four scenes: top-left shows a cafe with purple walls and green sofas; top-right shows an office with desks, computers, and a clock; bottom-left shows a warehouse with high shelving units labeled F33 and F34; bottom-right shows a conference room with a long table and chairs. A large black banner with white text is overlaid in the center, with an orange arrow pointing from the top-left scene to the text.

# lights out warehouse

Interactive visual novel about warehouse automation



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THE **COST** OF **FREE SHIPPING** **AMAZON** IN THE **GLOBAL ECONOMY** EDITED BY **JAKE ALIMAHOMED-WILSON** AND **ELLEN REESE**



Free  
Lunch



09:00





# Five Act Storyline

Act 1:  
The Research

Act 2:  
The Robot

Act 3:  
The Warehouse

Act 4:  
The Slowdown

Act 5:  
The Deadline





# Five Act Storyline

Act 1:  
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The Deadline



**Assigned Goal:** Automate the work of pickers and stowers



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Coffee

LOREM IPSUM  
Lorem ipsum dolor sit  
amet, id tation degnat  
conunne vel, ne vix  
epicarsi condtat.

Menu  
ipsum dolor sit  
amet, id tation degnat  
conunne vel, ne vix  
epicarsi condtat.

**Priya:**

I think complete automation will be good for society. Nobody will be forced to work!

You may be right in the long-term, but how do we ensure that it doesn't worsen inequality today?

I think you're wrong. Automation is only going to make the rich richer, and the poor poorer.

I don't think *all* jobs are automatable...





TASK 1

# Five Act Storyline

Act 1: 09:00  
The Research

Act 2:  
The Robot

Act 3:  
The Warehouse

Act 4:  
The Slowdown

Act 5:  
The Deadline





## Full Automation

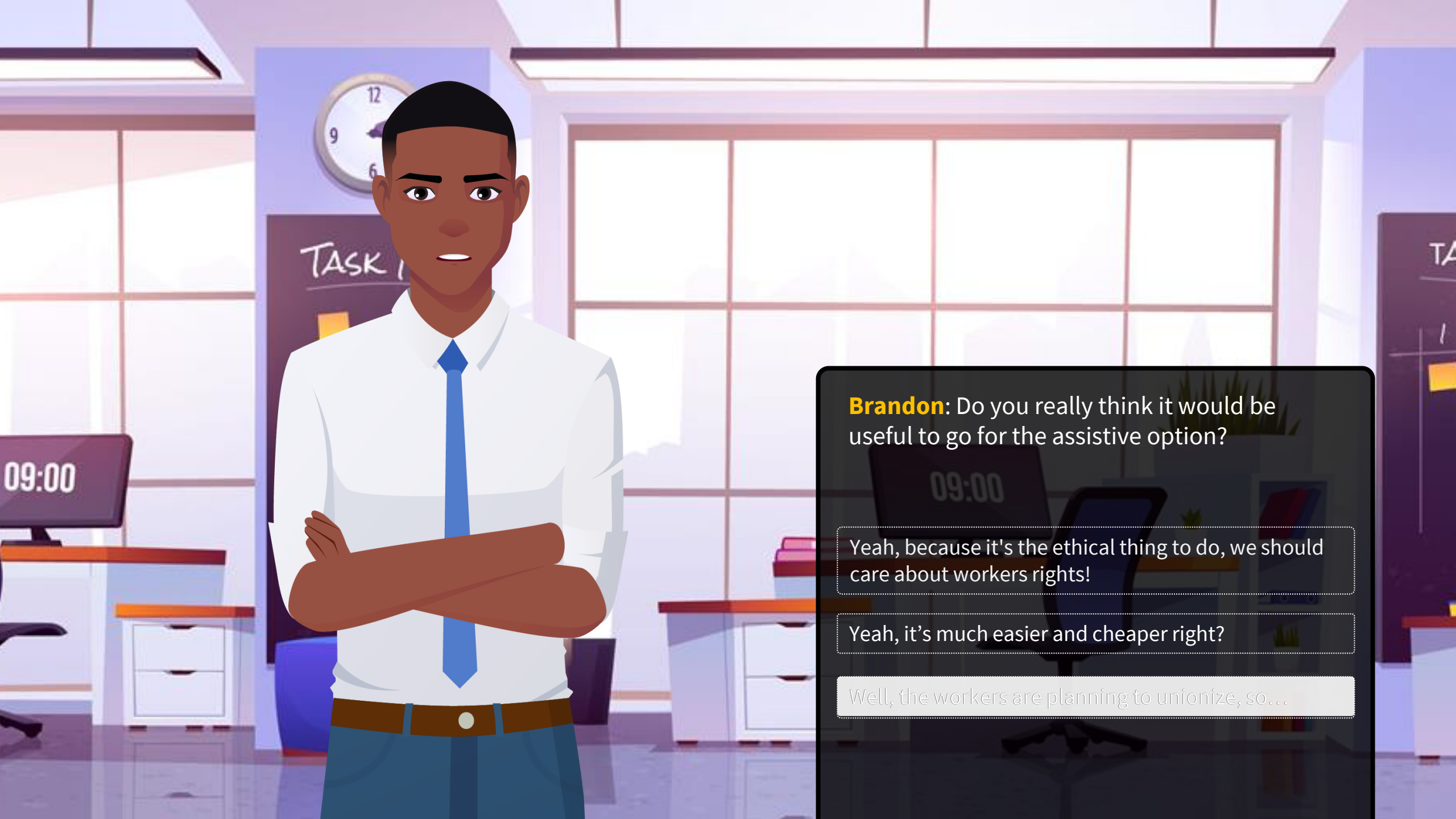
Max output, but harder to make  
Will replace most workers



## Assistive Automation

Lower output, but easier to make  
Will not replace workers





**Brandon:** Do you really think it would be useful to go for the assistive option?

Yeah, because it's the ethical thing to do, we should care about workers rights!

Yeah, it's much easier and cheaper right?

Well, the workers are planning to unionize, so...



# Five Act Storyline

Act 1:  
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The Slowdown

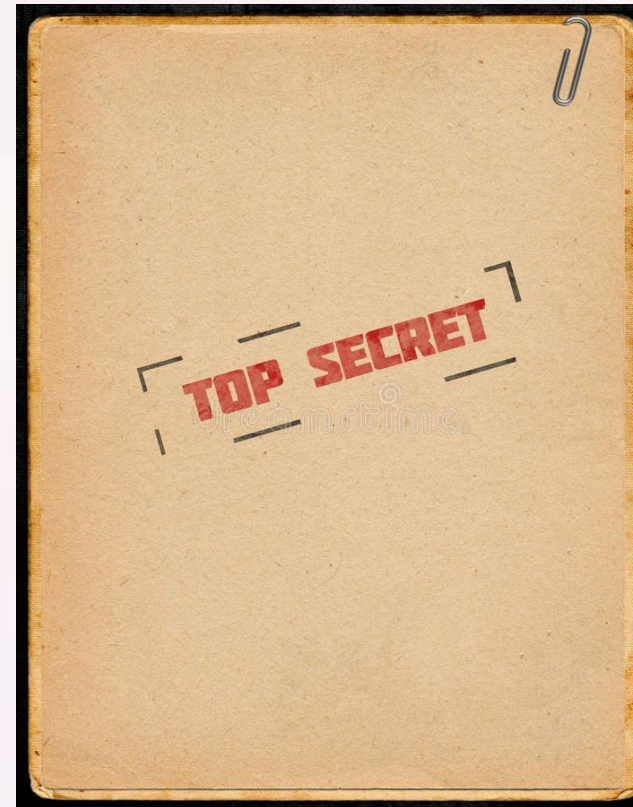
Act 5:  
The Deadline





## Outside Support

Legitimizes union campaign  
May not be effective as "outsiders"



## Inside Information

Lower output, but easier  
Will not replace workers



10:00

# Five Act Storyline

Act 1:  
The Research

Act 2:  
The Robot

Act 3:  
The Warehouse

Act 4:  
The Slowdown

Act 5:  
The Deadline



**Full Automation Project**  
(not going well)



	<b>Choice 1: Push Deadline</b> (increases chance for unionization)	
<b>Full Automation Project</b> (not going well)	<b>Keep focus on full automation</b>	





	<b>Choice 1: Push Deadline</b> (increases chance for unionization)	<b>Choice 2: Stick to Deadline</b> (less chance for unionization)
<b>Full Automation Project</b> (not going well)	<b>Keep focus on full automation</b>	<b>Narrow focus to selective picker</b>



	<b>Choice 1: Push Deadline</b> (increases chance for unionization)	<b>Choice 2: Stick to Deadline</b> (less chance for unionization)
<b>Full Automation Project</b> (not going well)	<b>Keep focus on full automation</b>	<b>Narrow focus to selective picker</b>
<b>Assistive Automation Project</b> (going well, only testing remains)		



	<b>Choice 1: Push Deadline</b> (increases chance for unionization)	<b>Choice 2: Stick to Deadline</b> (less chance for unionization)
<b>Full Automation Project</b> (not going well)	<b>Keep focus on full automation</b>	<b>Narrow focus to selective picker</b>
<b>Assistive Automation Project</b> (going well, only testing remains)	<b>Deliberately slowdown testing</b>	



	<b>Choice 1: Push Deadline</b> (increases chance for unionization)	<b>Choice 2: Stick to Deadline</b> (less chance for unionization)
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<b>Assistive Automation Project</b> (going well, only testing remains)	<b>Deliberately slowdown testing</b>	<b>Test normally</b>



# Five Act Storyline

Act 1:  
The Research

Act 2:  
The Robot

Act 3:  
The Warehouse

Act 4:  
The Slowdown

Act 5:  
The Deadline



<b>Player Status</b>		<b>Full Automation</b>	<b>Selective Automation</b>	<b>Assistive Automation</b>
	<b>Unionized</b>			
	<b>Not Unionized</b>			



Player Status		Full Automation	Selective Automation	Assistive Automation
<b>Discovered</b> (fired)	<b>Unionized</b>			
<b>Not discovered/            Opposed union</b> (promoted or same)	<b>Not Unionized</b>			



Player Status		Full Automation	Selective Automation	Assistive Automation
<p><b>Discovered</b> (fired)</p>	<p><b>Unionized</b> (not replaced) (severance, retraining) (better pay, hours)</p>	<p>Robot + workers Good severance</p>	<p>Robot + workers Lesser workload</p>	<p>Robot helps Workers Lesser workload</p>
<p><b>Not discovered/ Opposed union</b> (promoted or same)</p>	<p><b>Not Unionized</b></p>			





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<p><b>Not discovered/ Opposed union</b> (promoted or same)</p>	<p><b>Not Unionized</b></p>	<p>Workers replaced Little severance</p>	<p>Selective Replacement</p>	<p>Workload triples</p>

# lights out warehouse

## Material Structures

- The surveillance system,
- The budget/time of the company,
- The warehouse wage structure

## Social Structures

- The company hierarchy,
- the social dynamics of employees,
- the responsibilities, fears, desires of different individuals

## Culture

- the union culture of the warehouse and company,
- the market fundamentalism of the manager,
- the technological solutionism of the engineers





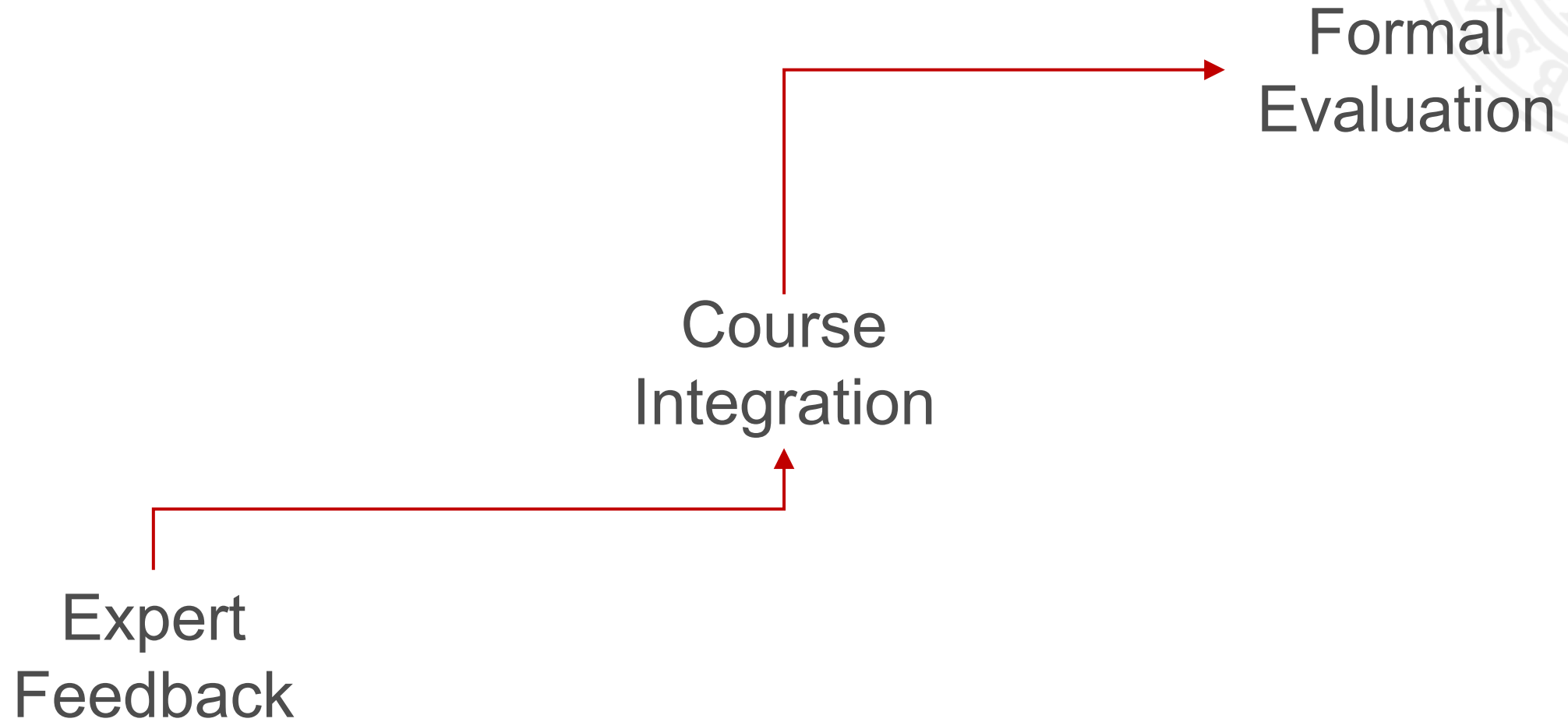
Union Propaganda?

Fidelity? **Limitations**

Race/Gender?



# Next Steps



# Summary



## The Problem

How can we teach university students to do *practical* ethical inquiry in tech corporations, at a distance?

## The Hypothesis

Teaching them to think about organizational structures of corporations

## Why Role-play/Games

Can simulate organization structures for exploration at a distance

## Gap in Role-play/Games

Rarely explore how to: 1) do ethical inquiry in a 2) tech corporate environment as an 3) engineer or designer

## *Lights Out Warehouse* (in-progress)

Interactive visual novel that situates students as automation engineers in an eCommerce/shipping company (like Amazon)

## Limitations

Fidelity? Propaganda? Race/Gender?

## Next Steps

Expert Feedback, Classroom Integration, Formal Evaluation





