



EXPEDITIONARY
LEARNING

Grade 7: Module 2A: Unit 3: Lesson 4

Deepening Your Research



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Long-Term Targets Addressed (Based on NYSP12 ELA CCLS)

I can generate additional questions for further research. (W.7.7)
I can quote or paraphrase others' work while avoiding plagiarism. (W.7.8)

Supporting Learning Targets

- I can quote or paraphrase others' work while avoiding plagiarism.

Ongoing Assessment

- Entry task
- Researcher's Notebook



Agenda	Teaching Notes
<p>1. Opening</p> <p>A. Entry Task: Distinguishing between Good and Bad Paraphrasing (5 minutes)</p> <p>2. Work Time</p> <p>A. Modeling Reading (10 minutes)</p> <p>B. Reading Source 2 (25 minutes)</p> <p>3. Closing and Assessment</p> <p>A. Give One, Get One (5 minutes)</p> <p>4. Homework</p> <p>A. Continue reading in your independent reading book for this unit.</p>	<ul style="list-style-type: none">• In this lesson, students work with Steps 3 and 4 of the Researcher’s Roadmap.• Please note that the full text from which the Entry Task quotes are drawn has been included for teacher reference. It is not necessary to have read the text of the article to deliver this lesson.• The bulk of this lesson is devoted to reading “An Apparel Factory Defies Sweatshop Label, but Can It Thrive?” (Source 2). This is an article from <i>The New York Times</i> that provides the case study of a garment factory that has very positive working conditions. Because this is a long article, it’s important that students understand they are not reading the entire article closely. Rather, they are reading first to locate relevant information to answer their supporting research questions, then reading parts of the article closely to be able to add useful information to their notes.• As in previous lessons, there is quite a bit of teacher modeling up front, followed by independent work time.• Students are encouraged to “talk through” their paraphrased sentences before they write them down. This is an important step in clarifying their ideas as they learn this new skill. Encourage them to use a “6-inch voice” to keep the noise at a minimum.• In advance: Read the article and plan how you will model reading and taking notes on the first three paragraphs.



Lesson Vocabulary	Materials
credible, neutral, impartial	<ul style="list-style-type: none">• Entry task: Distinguishing between Good and Bad Paraphrasing (one per student and one to display)• “An Apparel Factory Defies Sweatshop Label, but Can It Thrive?” (Source 2) (one per student and one to display)• Researcher’s Notebook (begun in Lesson 1)• Researcher’s Roadmap anchor chart (from Lesson 2; one large copy to display and students’ own copies)• Researcher’s Notebook Part II, Source 2 (teacher reference; optional)• "In China, Human Costs Are Built Into an iPad" (For Teacher Reference)



Opening	Meeting Students' Needs
<p>A. Entry Task : Distinguishing between Good and Bad Paraphrasing (5 minutes)</p> <ul style="list-style-type: none">• Project or distribute the Entry Task: Distinguishing between Good and Bad Paraphrasing. Instruct students to complete it on their own.• Briefly discuss the entry task. Invite students to correct their entry task as they discuss as a class. Ask students to identify which is the best example of paraphrasing by holding up one finger for #1 and two fingers for #2. Call on several students to explain. Make sure you also call on a student who made the wrong choice, so that you can surface and respond to misconceptions. Be sensitive and encouraging as this is a new skill for many of the students. Listen for students to understand that for quote A, paraphrase #1 is the best choice because it gives credit to the source. For quote B, paraphrase #2 is the best choice because it gives credit to the source and #1 quotes, verbatim, a large portion of the text. For quote C, paraphrase #2 is the best choice because the direct quote is shortened and integrated into the sentence better.• Remind students of today's learning target. Tell them they will have a chance to practice paraphrasing today, and it's a very important skill they will use in all of their future academic classes.	



Work Time	Meeting Students' Needs
<p>A. Modeling Reading (10 minutes)</p> <ul style="list-style-type: none"> • Distribute “An Apparel Factory Defies Sweatshop Label, but Can It Thrive?” (Source 2) and tell students to take out their Researcher’s Notebook. Direct students’ attention to the Researcher’s Roadmap anchor chart. Remind them that they have already completed the first two steps. Today they will be working on Steps 3 and 4. • Ask a student to define a <i>credible</i> source. Listen for students to understand that a credible source is one that you, as a reader, can believe will give you accurate information. Explain that because this is a short research project, you have gathered credible sources for them. Assure them they will have an opportunity to find credible sources later in the year (in Module 4). • Tell students that Source 2 is from <i>The New York Times</i>. Ask them how they know this is a credible source. Listen for them to identify that this is a highly respected national newspaper. Also point out that a newspaper is a <i>neutral</i> or <i>impartial</i> source when the authors use facts to support their central ideas and when their purpose is to inform people. • Point out that Step 4 on the Researcher’s Roadmap is how to read a source. Clarify that when you research, you read differently from the way you read a novel. You are reading to find answers to your supporting research questions; therefore, you want to skim to get the gist of the article and underline sentences that relate to your supporting research questions. Then you return to those sentences and read more deeply to understand. • Remind students that they wrote some supporting research questions in their Researcher’s Notebook in Lesson 3. Ask them to put their fingers on those questions now. • Refocus students on the text about the apparel factory, and ask them to read along silently as you read aloud. Read the first two paragraphs without stopping. Explain that you are reading to answer your supporting research question. Although this is an interesting story about Santa Castillo, the author, Steven Greenhouse, is using his story to illustrate a fact about the working conditions in garment factories. The last sentence of Paragraph 2 is where you find that fact. Ask the students to underline that sentence. Ask them to suggest a supporting research question that this fact will answer. Listen for them to identify supporting research questions that are logical. Encourage students to explain how the fact answers that question. • Tell students they will paraphrase this sentence and write it in their Researcher’s Notebook. Encourage them to use the sentence stems. Model how to do this: “Greenhouse reports that the Knights Apparel factory is rare because it pays its workers three times the average salary and lets them unionize.” 	<ul style="list-style-type: none"> • Some students may benefit from receiving smaller sections of the text. This keeps them from being overwhelmed with the amount of text they will be working with. • Consider partnering ELL students who speak the same home language when discussion of complex content is required. This can allow students to have more meaningful discussions and clarify points in their native language. • For students who struggle with following multistep directions, consider displaying these directions using a document camera or interactive white board. Another option is to type up these instructions for students to have in hand.



Work Time (continued)	Meeting Students' Needs
<p>B. Reading Source 2 (25 minutes)</p> <ul style="list-style-type: none"> • Instruct students to continue reading silently on their own. Remind them that it's more important to find some information to answer the supporting research questions than to get "through" the article. Give them 10 minutes to silently read and mark their text. • After 10 minutes, arrange the students in pairs. Be intentional in your pairings. Instruct students to first closely read what they marked with their partner. Then they should orally paraphrase the information by using the sentence stems. After they have both had a chance to practice out loud, they should write down the paraphrased sentences in their Researcher's Notebook and move on to the next piece of information. • Encourage them to also write questions that come up during their discussion; remind them that as researchers learn more, they generate new supporting research questions. • Circulate and help as needed. Consider stopping the class and highlighting some particularly good examples of paraphrasing as you hear them. 	
Closing and Assessment	Meeting Students' Needs
<p>A. Give One, Get One (5 minutes)</p> <ul style="list-style-type: none"> • Give these directions: <ol style="list-style-type: none"> 1. Stand up and tell a new partner about something you have learned and something you're still wondering about the garment industry. 2. Then ask your partner to do the same. 3. As time permits, find a new partner and repeat these steps. 	
Homework	Meeting Students' Needs
<ul style="list-style-type: none"> • Continue reading in your independent reading book for this unit. 	



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Supporting Materials



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Entry Task:

Distinguishing between Good and Bad Paraphrasing

.....
Name:

.....
Date:

Directions: Each of these quotes contains a fact I would like to include in my report about the iPhone. Read the quote from the text. Then read the two paragraphs. Circle the one that best paraphrases the information and explain your choice.

Text: Duhigg, Charles and David Barboza. “In China, Human Costs Are Built into an iPad,” *The New York Times*. Web. January 25, 2012.

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Quote from text	Paraphrase 1	Paraphrase 2	Rationale from choice
<p>A. Within seven months last year, two explosions at iPad factories, including in Chengdu, killed four people and injured 77. Before those blasts, Apple had been alerted to hazardous conditions inside the Chengdu plant, according to a Chinese group that published that warning.</p>	<p>According to the New York Times, there have been two separate deadly explosions at iPad factories. Before these blasts, an independent monitoring group in China had alerted Apple to the hazardous conditions.</p>	<p>Seven months ago, there were two explosions that killed four people. Apple had been alerted to the hazardous conditions inside the Chengdu plant, according to a Chinese group that published that warning.</p>	
<p>B. Two years ago, 137 workers at an Apple supplier in eastern China were injured after they were ordered to use a poisonous chemical to clean iPhone screens.</p>	<p>A few years ago, 137 workers at a factory that makes Apple products were hurt when they used a poisonous chemical to clean iPhone</p>	<p>Duhigg and Barboza report that two years ago, many workers were injured when they were forced to clean iPhones screens with dangerous chemicals.</p>	
<p>C. In 2010, Steven P. Jobs discussed the company's relationships with suppliers at an industry conference. "I actually think Apple does one of the best jobs of any companies in our industry, and maybe in any industry, of understanding the working conditions in our supply chain," said Mr. Jobs, who was Apple's chief executive at the time and who died last October.</p>	<p>Steve Jobs told The New York Times that the factories were just fine. In fact, he said, "I mean, you go to this place, and it's a factory, but, my gosh, they've got restaurants and movie theaters and hospitals and swimming pools, and I mean, for a factory, it's a pretty nice factory."</p>	<p>Steve Jobs, the former CEO of Apple, told The New York Times that even though Foxconn is a factory, "... they've got restaurants and movie theaters and hospitals and swimming pools, and I mean, for a factory, it's a pretty nice factory."</p>	

An Apparel Factory Defies Sweatshop Label, but Can It Thrive?

(Source 2) By Steven Greenhouse

Sitting in her tiny living room here, Santa Castillo beams about the new house that she and her husband are building directly behind the wooden shack where they now live.

The new home will be four times bigger, with two bedrooms and an indoor bathroom; the couple and their three children now share a windowless bedroom and rely on an outhouse two doors away.

Ms. Castillo had long dreamed of a bigger, sturdier house, but three months ago something happened that finally made it possible: she landed a job at one of the world's most unusual garment factories. Industry experts say it is a pioneer in the developing world because it pays a "living wage"—in this case, three times the average pay of the country's apparel workers—and allows workers to join a union without a fight.

"We never had the opportunity to make wages like this before," says Ms. Castillo, a soft-spoken woman who earns \$500 a month. "I feel blessed."

The factory is a high-minded experiment, a response to appeals from myriad university officials and student activists that the garment industry stop using poverty-wage sweatshops. It has 120 employees and is owned by Knights Apparel, a privately held company based in Spartanburg, S.C., that is the leading supplier of college-logo apparel to American universities, according to the Collegiate Licensing Company.

For Knights, the factory is a risky proposition, even though it already has orders to make T-shirts and sweatshirts for bookstores at 400 American universities. The question is whether students, alumni and sports fans will be willing to pay \$18 for the factory's T-shirts—the same as premium brands like Nike and Adidas—to sustain the plant and its generous wages.

Joseph Bozich, the C.E.O. of Knights, is optimistic. "We're hoping to prove that doing good can be good business, that they're not mutually exclusive," he says.

Not everyone is so confident. "It's a noble effort, but it is an experiment," says Andrew Jassin, an industry consultant who says "fair labor" garments face a limited market unless deft promotion can snare consumers' attention—and conscience. "There are consumers who really care and will buy this apparel at a premium price," he says, "and then there are those who say they care, but then just want value."

Mr. Bozich says the plant's T-shirts and sweats should command a premium because the company uses high-quality fabric, design and printing.



An Apparel Factory Defies Sweatshop Label, but Can It Thrive?

(Source 2) By Steven Greenhouse

In the factory's previous incarnation, a Korean-owned company, BJ&B, made baseball caps for Nike and Reebok before shutting it in 2007 and moving the operation to lower-wage countries. Today, the reborn factory is producing under a new label, Alta Gracia, named after this poverty-ridden town as well as the Virgin of Altagracia, revered as protector of the Dominicans. (Alta gracia translates to "exalted grace.")

"This sometimes seems too good to be true," says Jim Wilkerson, Duke University's director of licensing and a leader of American universities' fair-labor movement.

He said a few other apparel companies have tried to improve working conditions, like School House, which was founded by a 25-year-old Duke graduate and uses a factory in Sri Lanka. Worker advocates applaud these efforts, but many say Alta Gracia has gone further than others by embracing higher wages and unionization. A living wage is generally defined as the amount of money needed to adequately feed and shelter a family.

"What really counts is not what happens with this factory over the next six months," Mr. Wilkerson says. "It's what happens six years or 10 years from now. We want badly for this to live on."

Santa Castillo agrees. She and many co-workers toiled at other factories for the minimum wage, currently \$147 a month in this country's free-trade zones, where most apparel factories are located. That amount, worker after worker lamented in interviews for this article, falls woefully short of supporting a family.

The Alta Gracia factory has pledged to pay employees nearly three and a half times the prevailing minimum wage, based on a study done by a workers' rights group that calculated the living costs for a family of four in the Dominican Republic.

While some critics view the living wage as do-gooder mumbo-jumbo, Ms. Castillo views it as a godsend. In her years earning the minimum wage, she said she felt stuck on a treadmill—never able to advance, often borrowing to buy necessities.

"A lot of times there was only enough for my kids, and I'd go to bed hungry," she says. "But now I have money to buy meat, oatmeal and milk."

With higher wages, she says, her family can move up in the world. She is now able to borrow \$1,000 to begin building her future home and feels able to fulfill her dreams of becoming a minister at her local evangelical church.

An Apparel Factory Defies Sweatshop Label, but Can It Thrive?
(Source 2) By Steven Greenhouse

“I hope God will continue to bless the people who brought this factory to our community,” she says.

In many ways, the factory owes its existence to an incident a decade ago, when Joe Bozich was attending his son’s high school basketball game. His vision suddenly became blurred, and he could hardly make out his son on the court. A day later, he couldn’t read.

A doctor told him the only thing that would cause his vision to deteriorate so rapidly was a brain tumor.

So he went in for an M.R.I. “My doctor said, “The good news is you don’t have a brain tumor, but the bad news is you have multiple sclerosis,”” he says.

For three days, he couldn’t see. He worried that he would be relegated to a wheelchair and ventilator and wouldn’t be able to support his family. At the same time, a close friend and his brother died, and then one of his children began suffering from anxiety.

“I thought of people who were going through the same thing as my child and me,” Mr. Bozich recalls. “Fortunately, we had the resources for medical help, and I thought of all the families that didn’t.”

“I started thinking that I wanted to do something more important with my business than worry just about winning market share,” he adds. “That seemed kind of empty after what I’ve been through. I wanted to find a way to use my business to impact people that it touched on a daily basis.”

He regained his full vision after three weeks and says he hasn’t suffered any further attacks. Shortly after Mr. Bozich recovered, Knights Apparel set up a charity, weKAre, that supports a home for orphans and abused children. But he says he wanted to do more.

A national collegiate bodybuilding champion at Vanderbilt, Mr. Bozich was hired by Gold’s Gym after graduation and later founded a unit in the company that sold Gold’s apparel to outside retailers. Building on that experience, Mr. Bozich started Knights Apparel in 2000.

Still solidly built at 47, he has made apparel deals with scores of universities, enabling Knights to surpass Nike as the No. 1 college supplier. Under Mr. Bozich, Knights cooperates closely with the Worker Rights Consortium, a group of 186 universities that press factories making college-logo apparel to treat workers fairly.

An Apparel Factory Defies Sweatshop Label, but Can It Thrive?

(Source 2) By Steven Greenhouse

Scott Nova, the consortium’s executive director, says Mr. Bozich seems far more committed than most other apparel executives to stamping out abuses—like failure to pay for overtime work. Knights contracts with 30 factories worldwide. At a meeting that the two men had in 2005 to address problems at a Philippines factory, Mr. Bozich floated the idea of opening a model factory.

Mr. Nova loved the idea. He was frustrated that most apparel factories worldwide still paid the minimum wage or only a fraction above—rarely enough to lift families out of poverty. (Minimum wages are 15 cents an hour in Bangladesh and around 85 cents in the Dominican Republic and many cities in China—the Alta Gracia factory pays \$2.83 an hour.)

Mr. Bozich first considered opening a factory in Haiti, but was dissuaded by the country’s poor infrastructure. Mr. Nova urged him to consider this depressed community, hoping that he would employ some of the 1,200 people thrown out of work when the Korean-owned cap factory closed.

Mr. Bozich turned to a longtime industry executive, Donnie Hodge, a former executive with J. P. Stevens, Milliken and Gerber Childrenswear. Overseeing a \$500,000 renovation of the factory, Mr. Hodge, now president of Knights, called for bright lighting, five sewing lines and pricey ergonomic chairs, which many seamstresses thought were for the managers.

“We could have given the community a check for \$25,000 or \$50,000 a year and felt good about that,” Mr. Hodge said. “But we wanted to make this a sustainable thing.”

The factory’s biggest hurdle is self-imposed: how to compete with other apparel makers when its wages are so much higher.

Mr. Bozich says the factory’s cost will be \$4.80 a T-shirt, 80 cents or 20 percent more than if it paid minimum wage. Knights will absorb a lower-than-usual profit margin, he said, without asking retailers to pay more at wholesale.

“Obviously we’ll have a higher cost,” Mr. Bozich said. “But we’re pricing the product such that we’re not asking the retailer or the consumer to sacrifice in order to support it.”

Knights plans to sell the T’s for \$8 wholesale, with most retailers marking them up to \$18.

An Apparel Factory Defies Sweatshop Label, but Can It Thrive?

(Source 2) By Steven Greenhouse

“We think it’s priced right and has a tremendous message, and it’s going to be marketed like crazy,” says Joel Friedman, vice president of general merchandise at Barnes & Noble College Booksellers. He says Barnes & Noble will at first have smaller-than-usual profit margins on the garments because it will spend heavily to promote them, through a Web campaign, large signs in its stores and other methods.

It helps to have many universities backing the project. Duke alone placed a \$250,000 order and will run full-page ads in the campus newspaper, put postcards in student mailboxes and hang promotional signs on light poles. Barnes & Noble plans to have Alta Gracia’s T’s and sweats at bookstores on 180 campuses by September and at 350 this winter, while Follett, the other giant college bookstore operator, plans to sell the T’s on 85 campuses this fall.

Still, this new, unknown brand could face problems being sold alongside Nike and Adidas gear. “They have to brand this well—simply, clearly and elegantly—so college students can understand it very fast,” says Kellie A. McElhaney, a professor of corporate social responsibility at the University of California, Berkeley. “A lot of college students would much rather pay for a brand that shows workers are treated well.”

Nike and Adidas officials said their companies have sought to improve workers’ welfare through increased wages and by belonging to the Fair Labor Association, a monitoring group that seeks to end sweatshop conditions. A Nike spokesman said his company would “watch with interest” the Knights initiative.

To promote its gear, Knights is preparing a video to be shown at bookstores and a Web documentary, both highlighting the improvements in workers’ lives. The T-shirts will have hanging tags with pictures of Alta Gracia employees and the message “Your purchase will change our lives.” The tags will also contain an endorsement from the Worker Rights Consortium, which has never before backed a brand.

In a highly unusual move, United Students Against Sweatshops, a nationwide college group that often lambastes apparel factories, plans to distribute fliers at college bookstores urging freshmen to buy the Alta Gracia shirts.

“We’re going to do everything we can to promote this,” says Casey Sweeney, a leader of the group at Cornell. “It’s incredible that I can wear a Cornell hoodie knowing the workers who made it are being paid well and being respected.”



An Apparel Factory Defies Sweatshop Label, but Can It Thrive?

(Source 2) By Steven Greenhouse

One such worker is Maritza Vargas. When BJ&B ran the factory, she was a stand-up-for-your-rights firebrand fighting for 20 union supporters who had been fired.

Student groups and the Worker Rights Consortium pressed Nike and other companies that used the factory to push BJ&B to recognize the union and rehire the fired workers. BJ&B relented. Today, Ms. Vargas is president of the union at the new plant and sings a very different tune. In interviews, she and other union leaders praised the Alta Gracia factory and said they would do their utmost to make it succeed and grow. Mireya Perez said the living wage would enable her to send her 16-year-old daughter to college, while Yolando Simon said she was able to pay off a \$300 debt to a grocer.

At other factories, workers said, managers sometimes yelled or slapped them. Several said they were not allowed to go home when sick, and sometimes had to work past midnight after beginning at 7:30 a.m.

Comparing this factory with other ones, Ms. Vargas said, “the difference is heaven and earth.”

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Researcher’s Notebook Part II, Source 2
(for Teacher Reference)

<p>Use this side to take notes and plan your ideas. Research Directions</p>	<p>Use this side to record notes (in your own words).</p>
<p>II. Research Notes Source 1 This text will help you learn basic background information. This will help you begin to generate relevant questions about your topic. Supporting research questions: Exemplar question: What is the range of working conditions in a garment factory? Five supporting research questions I will use: What are some corporations that are trying to improve the working conditions in garment factories? Are there any examples of consumers doing anything to change the working conditions of garment factories? Who gives consumers like me information about working conditions? How does the government influence working conditions in the garment industry? Are working conditions in the garment industry in the United States different from those in other countries?</p>	<p>Source Title: _____ Useful? Credible? _____ Author: Publisher: Relevant information from Source 1: Most clothes are made abroad. There’s lots of child labor still because kids help their parents but don’t count as employees. There’s lots of labor in garment making—cotton is picked, spun into fabric and dyed, and then finally made into clothes. “Adults face a lot of pressure”—I wonder what pressures a garment factory worker faces. Factories are being held more accountable, so working conditions can vary in the same country Some U.S. corporations are making rules and setting up independent audits Right now there is no clear way to tell the way your garments are made. No agency certifies them or anything. Possible supporting research questions based on Source 1: How can the U.S. control what happens in countries abroad? Why do we make so many clothes out of cotton? What is an independent audit? What corporations are trying to improve working conditions? Are their sweatshops in the U.S.? What is it like to work in a garment factory?</p>

"In China, Human Costs Are Built Into an iPad"
(For Teacher Reference)

The explosion ripped through Building A5 on a Friday evening last May, an eruption of fire and noise that twisted metal pipes as if they were discarded straws.

When workers in the cafeteria ran outside, they saw black smoke pouring from shattered windows. It came from the area where employees polished thousands of iPad cases a day.

Two people were killed immediately, and over a dozen others hurt. As the injured were rushed into ambulances, one in particular stood out. His features had been smeared by the blast, scrubbed by heat and violence until a mat of red and black had replaced his mouth and nose.

"Are you Lai Xiaodong's father?" a caller asked when the phone rang at Mr. Lai's childhood home. Six months earlier, the 22-year-old had moved to Chengdu, in southwest China, to become one of the millions of human cogs powering the largest, fastest and most sophisticated manufacturing system on earth. That system has made it possible for Apple and hundreds of other companies to build devices almost as quickly as they can be dreamed up.

"He's in trouble," the caller told Mr. Lai's father. "Get to the hospital as soon as possible."

In the last decade, Apple has become one of the mightiest, richest and most successful companies in the world, in part by mastering global manufacturing. Apple and its high-technology peers — as well as dozens of other American industries — have achieved a pace of innovation nearly unmatched in modern history.

However, the workers assembling iPhones, iPads and other devices often labor in harsh conditions, according to employees inside those plants, worker advocates and documents published by companies themselves. Problems are as varied as onerous work environments and serious — sometimes deadly — safety problems.

Employees work excessive overtime, in some cases seven days a week, and live in crowded dorms. Some say they stand so long that their legs swell until they can hardly walk. Under-age workers have helped build Apple's products, and the company's suppliers have improperly disposed of hazardous waste and falsified records, according to company reports and advocacy groups that, within China, are often considered reliable, independent monitors.

"In China, Human Costs Are Built Into an iPad"
(For Teacher Reference)

More troubling, the groups say, is some suppliers' disregard for workers' health. Two years ago, 137 workers at an Apple supplier in eastern China were injured after they were ordered to use a poisonous chemical to clean iPhone screens. Within seven months last year, two explosions at iPad factories, including in Chengdu, killed four people and injured 77. Before those blasts, Apple had been alerted to hazardous conditions inside the Chengdu plant, according to a Chinese group that published that warning.

"If Apple was warned, and didn't act, that's reprehensible," said Nicholas Ashford, a former chairman of the National Advisory Committee on Occupational Safety and Health, a group that advises the United States Labor Department. "But what's morally repugnant in one country is accepted business practices in another, and companies take advantage of that."

Apple is not the only electronics company doing business within a troubling supply system. Bleak working conditions have been documented at factories manufacturing products for Dell, Hewlett-Packard, I.B.M., Lenovo, Motorola, Nokia, Sony, Toshiba and others.

Current and former Apple executives, moreover, say the company has made significant strides in improving factories in recent years. Apple has a supplier code of conduct that details standards on labor issues, safety protections and other topics. The company has mounted a vigorous auditing campaign, and when abuses are discovered, Apple says, corrections are demanded.

And Apple's annual supplier responsibility reports, in many cases, are the first to report abuses. This month, for the first time, the company released a list identifying many of its suppliers. But significant problems remain. More than half of the suppliers audited by Apple have violated at least one aspect of the code of conduct every year since 2007, according to Apple's reports, and in some instances have violated the law. While many violations involve working conditions, rather than safety hazards, troubling patterns persist.

"Apple never cared about anything other than increasing product quality and decreasing production cost," said Li Mingqi, who until April worked in management at Foxconn Technology, one of Apple's most important manufacturing partners. Mr. Li, who is suing Foxconn over his dismissal, helped manage the Chengdu factory where the explosion occurred.

"In China, Human Costs Are Built Into an iPad"
(For Teacher Reference)

"Workers' welfare has nothing to do with their interests," he said.

Some former Apple executives say there is an unresolved tension within the company: executives want to improve conditions within factories, but that dedication falters when it conflicts with crucial supplier relationships or the fast delivery of new products. Tuesday, Apple reported one of the most lucrative quarters of any corporation in history, with \$13.06 billion in profits on \$46.3 billion in sales. Its sales would have been even higher, executives said, if overseas factories had been able to produce more.

Executives at other corporations report similar internal pressures. This system may not be pretty, they argue, but a radical overhaul would slow innovation. Customers want amazing new electronics delivered every year.

"We've known about labor abuses in some factories for four years, and they're still going on," said one former Apple executive who, like others, spoke on the condition of anonymity because of confidentiality agreements. "Why? Because the system works for us. Suppliers would change everything tomorrow if Apple told them they didn't have another choice."

"If half of iPhones were malfunctioning, do you think Apple would let it go on for four years?" the executive asked.

Apple, in its published reports, has said it requires every discovered labor violation to be remedied, and suppliers that refuse are terminated. Privately, however, some former executives concede that finding new suppliers is time-consuming and costly. Foxconn is one of the few manufacturers in the world with the scale to build sufficient numbers of iPhones and iPads. So Apple is "not going to leave Foxconn and they're not going to leave China," said Heather White, a research fellow at Harvard and a former member of the Monitoring International Labor Standards committee at the National Academy of Sciences. "There's a lot of rationalization."

Apple was provided with extensive summaries of this article, but the company declined to comment. The reporting is based on interviews with more than three dozen current or former employees and contractors, including a half-dozen current or former executives with firsthand knowledge of Apple's supplier responsibility group, as well as others within the technology industry.

"In China, Human Costs Are Built Into an iPad"
(For Teacher Reference)

In 2010, Steven P. Jobs discussed the company's relationships with suppliers at an industry conference.

"I actually think Apple does one of the best jobs of any companies in our industry, and maybe in any industry, of understanding the working conditions in our supply chain," said Mr. Jobs, who was Apple's chief executive at the time and who died last October.

"I mean, you go to this place, and, it's a factory, but, my gosh, I mean, they've got restaurants and movie theaters and hospitals and swimming pools, and I mean, for a factory, it's a pretty nice factory."

Others, including workers inside such plants, acknowledge the cafeterias and medical facilities, but insist conditions are punishing.

"We're trying really hard to make things better," said one former Apple executive. "But most people would still be really disturbed if they saw where their iPhone comes from."

The Road to Chengdu

In the fall of 2010, about six months before the explosion in the iPad factory, Lai Xiaodong carefully wrapped his clothes around his college diploma, so it wouldn't crease in his suitcase. He told friends he would no longer be around for their weekly poker games, and said goodbye to his teachers. He was leaving for Chengdu, a city of 12 million that was rapidly becoming one of the world's most important manufacturing hubs.

Though painfully shy, Mr. Lai had surprised everyone by persuading a beautiful nursing student to become his girlfriend. She wanted to marry, she said, and so his goal was to earn enough money to buy an apartment.

Factories in Chengdu manufacture products for hundreds of companies. But Mr. Lai was focused on Foxconn Technology, China's largest exporter and one of the nation's biggest employers, with 1.2 million workers. The company has plants throughout China, and assembles an estimated 40 percent of the world's consumer electronics, including for customers like Amazon, Dell, Hewlett-Packard, Nintendo, Nokia and Samsung.

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Foxconn's factory in Chengdu, Mr. Lai knew, was special. Inside, workers were building Apple's latest, potentially greatest product: the iPad.

When Mr. Lai finally landed a job repairing machines at the plant, one of the first things he noticed were the almost blinding lights. Shifts ran 24 hours a day, and the factory was always bright. At any moment, there were thousands of workers standing on assembly lines or sitting in backless chairs, crouching next to large machinery, or jogging between loading bays. Some workers' legs swelled so much they waddled. "It's hard to stand all day," said Zhao Sheng, a plant worker.

Banners on the walls warned the 120,000 employees: "Work hard on the job today or work hard to find a job tomorrow." Apple's supplier code of conduct dictates that, except in unusual circumstances, employees are not supposed to work more than 60 hours a week. But at Foxconn, some worked more, according to interviews, workers' pay stubs and surveys by outside groups. Mr. Lai was soon spending 12 hours a day, six days a week inside the factory, according to his paychecks. Employees who arrived late were sometimes required to write confession letters and copy quotations. There were "continuous shifts," when workers were told to work two stretches in a row, according to interviews.

Mr. Lai's college degree enabled him to earn a salary of around \$22 a day, including overtime — more than many others. When his days ended, he would retreat to a small bedroom just big enough for a mattress, wardrobe and a desk where he obsessively played an online game called Fight the Landlord, said his girlfriend, Luo Xiaohong.

Those accommodations were better than many of the company's dorms, where 70,000 Foxconn workers lived, at times stuffed 20 people to a three-room apartment, employees said. Last year, a dispute over paychecks set off a riot in one of the dormitories, and workers started throwing bottles, trash cans and flaming paper from their windows, according to witnesses. Two hundred police officers wrestled with workers, arresting eight. Afterward, trash cans were removed, and piles of rubbish — and rodents — became a problem. Mr. Lai felt lucky to have a place of his own.

Foxconn, in a statement, disputed workers' accounts of continuous shifts, extended overtime, crowded living accommodations and the causes of the riot. The company said that its operations adhered to customers' codes of conduct, industry standards and national laws. "Conditions at Foxconn are anything but harsh," the company wrote. Foxconn also said that it had never been cited by a customer or government for under-age or overworked employees or toxic exposures.

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"All assembly line employees are given regular breaks, including one-hour lunch breaks," the company wrote, and only 5 percent of assembly line workers are required to stand to carry out their tasks. Work stations have been designed to ergonomic standards, and employees have opportunities for job rotation and promotion, the statement said.

"Foxconn has a very good safety record," the company wrote. "Foxconn has come a long way in our efforts to lead our industry in China in areas such as workplace conditions and the care and treatment of our employees."

Apple's Code of Conduct

In 2005, some of Apple's top executives gathered inside their Cupertino, Calif., headquarters for a special meeting. Other companies had created codes of conduct to police their suppliers. It was time, Apple decided, to follow suit. The code Apple published that year demands "that working conditions in Apple's supply chain are safe, that workers are treated with respect and dignity, and that manufacturing processes are environmentally responsible."

But the next year, a British newspaper, *The Mail on Sunday*, secretly visited a Foxconn factory in Shenzhen, China, where iPods were manufactured, and reported on workers' long hours, push-ups meted out as punishment and crowded dorms. Executives in Cupertino were shocked. "Apple is filled with really good people who had no idea this was going on," a former employee said. "We wanted it changed, immediately."

Apple audited that factory, the company's first such inspection, and ordered improvements. Executives also undertook a series of initiatives that included an annual audit report, first published in 2007. By last year, Apple had inspected 396 facilities — including the company's direct suppliers, as well as many of those suppliers' suppliers — one of the largest such programs within the electronics industry.

Those audits have found consistent violations of Apple's code of conduct, according to summaries published by the company. In 2007, for instance, Apple conducted over three dozen audits, two-thirds of which indicated that employees regularly worked more than 60 hours a week. In addition, there were six "core violations," the most serious kind, including hiring 15-year-olds as well as falsifying records.

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Over the next three years, Apple conducted 312 audits, and every year, about half or more showed evidence of large numbers of employees laboring more than six days a week as well as working extended overtime. Some workers received less than minimum wage or had pay withheld as punishment. Apple found 70 core violations over that period, including cases of involuntary labor, under-age workers, record falsifications, improper disposal of hazardous waste and over a hundred workers injured by toxic chemical exposures.

Last year, the company conducted 229 audits. There were slight improvements in some categories and the detected rate of core violations declined. However, within 93 facilities, at least half of workers exceeded the 60-hours-a-week work limit. At a similar number, employees worked more than six days a week. There were incidents of discrimination, improper safety precautions, failure to pay required overtime rates and other violations. That year, four employees were killed and 77 injured in workplace explosions.

“If you see the same pattern of problems, year after year, that means the company’s ignoring the issue rather than solving it,” said one former Apple executive with firsthand knowledge of the supplier responsibility group. “Noncompliance is tolerated, as long as the suppliers promise to try harder next time. If we meant business, core violations would disappear.”

Apple says that when an audit reveals a violation, the company requires suppliers to address the problem within 90 days and make changes to prevent a recurrence. “If a supplier is unwilling to change, we terminate our relationship,” the company says on its Web site.

The seriousness of that threat, however, is unclear. Apple has found violations in hundreds of audits, but fewer than 15 suppliers have been terminated for transgressions since 2007, according to former Apple executives.

“Once the deal is set and Foxconn becomes an authorized Apple supplier, Apple will no longer give any attention to worker conditions or anything that is irrelevant to its products,” said Mr. Li, the former Foxconn manager. Mr. Li spent seven years with Foxconn in Shenzhen and Chengdu and was forced out in April after he objected to a relocation to Chengdu, he said. Foxconn disputed his comments, and said “both Foxconn and Apple take the welfare of our employees very seriously.”

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Apple's efforts have spurred some changes. Facilities that were reaudited "showed continued performance improvements and better working conditions," the company wrote in its 2011 supplier responsibility progress report. In addition, the number of audited facilities has grown every year, and some executives say those expanding efforts obscure year-to-year improvements.

Apple also has trained over a million workers about their rights and methods for injury and disease prevention. A few years ago, after auditors insisted on interviewing low-level factory employees, they discovered that some had been forced to pay onerous "recruitment fees" — which Apple classifies as involuntary labor. As of last year, the company had forced suppliers to reimburse more than \$6.7 million in such charges.

"Apple is a leader in preventing under-age labor," said Dionne Harrison of Impactt, a firm paid by Apple to help prevent and respond to child labor among its suppliers. "They're doing as much as they possibly can."

Other consultants disagree.

"We've spent years telling Apple there are serious problems and recommending changes," said a consultant at BSR — also known as Business for Social Responsibility — which has been twice retained by Apple to provide advice on labor issues. "They don't want to pre-empt problems, they just want to avoid embarrassments."

'We Could Have Saved Lives'

In 2006, BSR, along with a division of the World Bank and other groups, initiated a project to improve working conditions in factories building cellphones and other devices in China and elsewhere. The groups and companies pledged to test various ideas. Foxconn agreed to participate.

For four months, BSR and another group negotiated with Foxconn regarding a pilot program to create worker "hotlines," so that employees could report abusive conditions, seek mental counseling and discuss workplace problems. Apple was not a participant in the project, but was briefed on it, according to the BSR consultant, who had detailed knowledge.

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(For Teacher Reference)

As negotiations proceeded, Foxconn's requirements for participation kept changing. First Foxconn asked to shift from installing new hotlines to evaluating existing hotlines. Then Foxconn insisted that mental health counseling be excluded. Foxconn asked participants to sign agreements saying they would not disclose what they observed, and then rewrote those agreements multiple times. Finally, an agreement was struck, and the project was scheduled to begin in January 2008. A day before the start, Foxconn demanded more changes, until it was clear the project would not proceed, according to the consultant and a 2008 summary by BSR that did not name Foxconn.

The next year, a Foxconn employee fell or jumped from an apartment building after losing an iPhone prototype. Over the next two years, at least 18 other Foxconn workers attempted suicide or fell from buildings in manners that suggested suicide attempts. In 2010, two years after the pilot program fell apart and after multiple suicide attempts, Foxconn created a dedicated mental health hotline and began offering free psychological counseling.

"We could have saved lives, and we asked Apple to pressure Foxconn, but they wouldn't do it," said the BSR consultant, who asked not to be identified because of confidentiality agreements. "Companies like H.P. and Intel and Nike push their suppliers. But Apple wants to keep an arm's length, and Foxconn is their most important manufacturer, so they refuse to push."

BSR, in a written statement, said the views of that consultant were not those of the company.

"My BSR colleagues and I view Apple as a company that is making a highly serious effort to ensure that labor conditions in its supply chain meet the expectations of applicable laws, the company's standards and the expectations of consumers," wrote Aron Cramer, BSR's president. Mr. Cramer added that asking Apple to pressure Foxconn would have been inconsistent with the purpose of the pilot program, and there were multiple reasons the pilot program did not proceed.

Foxconn, in a statement, said it acted quickly and comprehensively to address suicides, and "the record has shown that those measures have been successful."

A Demanding Client

Every month, officials at companies from around the world trek to Cupertino or invite Apple executives to visit their foreign factories, all in pursuit of a goal: becoming a supplier.

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When news arrives that Apple is interested in a particular product or service, small celebrations often erupt. Whiskey is drunk. Karaoke is sung.

Then, Apple's requests start.

Apple typically asks suppliers to specify how much every part costs, how many workers are needed and the size of their salaries. Executives want to know every financial detail. Afterward, Apple calculates how much it will pay for a part. Most suppliers are allowed only the slimmest of profits.

So suppliers often try to cut corners, replace expensive chemicals with less costly alternatives, or push their employees to work faster and longer, according to people at those companies.

"The only way you make money working for Apple is figuring out how to do things more efficiently or cheaper," said an executive at one company that helped bring the iPad to market. "And then they'll come back the next year, and force a 10 percent price cut."

In January 2010, workers at a Chinese factory owned by Wintek, an Apple manufacturing partner, went on strike over a variety of issues, including widespread rumors that workers were being exposed to toxins. Investigations by news organizations revealed that over a hundred employees had been injured by n-hexane, a toxic chemical that can cause nerve damage and paralysis.

Employees said they had been ordered to use n-hexane to clean iPhone screens because it evaporated almost three times as fast as rubbing alcohol. Faster evaporation meant workers could clean more screens each minute.

Apple commented on the Wintek injuries a year later. In its supplier responsibility report, Apple said it had "required Wintek to stop using n-hexane" and that "Apple has verified that all affected workers have been treated successfully, and we continue to monitor their medical reports until full recuperation." Apple also said it required Wintek to fix the ventilation system.

That same month, a New York Times reporter interviewed a dozen injured Wintek workers who said they had never been contacted by Apple or its intermediaries, and that Wintek had pressured them to resign and take cash settlements that would absolve the company of liability. After those interviews, Wintek pledged to provide more compensation to the injured workers and Apple sent a representative to speak with some of them.

"In China, Human Costs Are Built Into an iPad"
(For Teacher Reference)

Six months later, trade publications reported that Apple significantly cut prices paid to Wintek.

"You can set all the rules you want, but they're meaningless if you don't give suppliers enough profit to treat workers well," said one former Apple executive with firsthand knowledge of the supplier responsibility group. "If you squeeze margins, you're forcing them to cut safety."

Wintek is still one of Apple's most important suppliers. Wintek, in a statement, declined to comment except to say that after the episode, the company took "ample measures" to address the situation and "is committed to ensuring employee welfare and creating a safe and healthy work environment."

Many major technology companies have worked with factories where conditions are troubling. However, independent monitors and suppliers say some act differently. Executives at multiple suppliers, in interviews, said that Hewlett-Packard and others allowed them slightly more profits and other allowances if they were used to improve worker conditions.

"Our suppliers are very open with us," said Zoe McMahon, an executive in Hewlett-Packard's supply chain social and environmental responsibility program. "They let us know when they are struggling to meet our expectations, and that influences our decisions."

The Explosion

On the afternoon of the blast at the iPad plant, Lai Xiaodong telephoned his girlfriend, as he did every day. They had hoped to see each other that evening, but Mr. Lai's manager said he had to work overtime, he told her.

He had been promoted quickly at Foxconn, and after just a few months was in charge of a team that maintained the machines that polished iPad cases. The sanding area was loud and hazy with aluminum dust. Workers wore masks and earplugs, but no matter how many times they showered, they were recognizable by the slight aluminum sparkle in their hair and at the corners of their eyes.

Just two weeks before the explosion, an advocacy group in Hong Kong published a report warning of unsafe conditions at the Chengdu plant, including problems with aluminum dust. The group, Students and Scholars Against Corporate Misbehavior, or Sacom, had videotaped workers covered with tiny aluminum particles. "Occupational health and safety issues in Chengdu are alarming," the report read. "Workers also highlight the problem of poor ventilation and inadequate personal protective equipment."

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A copy of that report was sent to Apple. "There was no response," said Debby Chan Sze Wan of the group. "A few months later I went to Cupertino, and went into the Apple lobby, but no one would meet with me. I've never heard from anyone from Apple at all."

The morning of the explosion, Mr. Lai rode his bicycle to work. The iPad had gone on sale just weeks earlier, and workers were told thousands of cases needed to be polished each day. The factory was frantic, employees said. Rows of machines buffed cases as masked employees pushed buttons. Large air ducts hovered over each station, but they could not keep up with the three lines of machines polishing nonstop. Aluminum dust was everywhere.

Dust is a known safety hazard. In 2003, an aluminum dust explosion in Indiana destroyed a wheel factory and killed a worker. In 2008, agricultural dust inside a sugar factory in Georgia caused an explosion that killed 14.

Two hours into Mr. Lai's second shift, the building started to shake, as if an earthquake was under way. There was a series of blasts, plant workers said.

Then the screams began.

When Mr. Lai's colleagues ran outside, dark smoke was mixing with a light rain, according to cellphone videos. The toll would eventually count four dead, 18 injured.

At the hospital, Mr. Lai's girlfriend saw that his skin was almost completely burned away. "I recognized him from his legs, otherwise I wouldn't know who that person was," she said.

Eventually, his family arrived. Over 90 percent of his body had been seared. "My mom ran away from the room at the first sight of him. I cried. Nobody could stand it," his brother said. When his mother eventually returned, she tried to avoid touching her son, for fear that it would cause pain.

"If I had known," she said, "I would have grabbed his arm, I would have touched him."

"He was very tough," she said. "He held on for two days."

After Mr. Lai died, Foxconn workers drove to Mr. Lai's hometown and delivered a box of ashes. The company later wired a check for about \$150,000.

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(For Teacher Reference)

Foxconn, in a statement, said that at the time of the explosion the Chengdu plant was in compliance with all relevant laws and regulations, and “after ensuring that the families of the deceased employees were given the support they required, we ensured that all of the injured employees were given the highest quality medical care.” After the explosion, the company added, Foxconn immediately halted work in all polishing workshops, and later improved ventilation and dust disposal, and adopted technologies to enhance worker safety.

In its most recent supplier responsibility report, Apple wrote that after the explosion, the company contacted “the foremost experts in process safety” and assembled a team to investigate and make recommendations to prevent future accidents.

In December, however, seven months after the blast that killed Mr. Lai, another iPad factory exploded, this one in Shanghai. Once again, aluminum dust was the cause, according to interviews and Apple’s most recent supplier responsibility report. That blast injured 59 workers, with 23 hospitalized.

“It is gross negligence, after an explosion occurs, not to realize that every factory should be inspected,” said Nicholas Ashford, the occupational safety expert, who is now at the Massachusetts Institute of Technology. “If it were terribly difficult to deal with aluminum dust, I would understand. But do you know how easy dust is to control? It’s called ventilation. We solved this problem over a century ago.”

In its most recent supplier responsibility report, Apple wrote that while the explosions both involved combustible aluminum dust, the causes were different. The company declined, however, to provide details. The report added that Apple had now audited all suppliers polishing aluminum products and had put stronger precautions in place. All suppliers have initiated required countermeasures, except one, which remains shut down, the report said.

For Mr. Lai’s family, questions remain. “We’re really not sure why he died,” said Mr. Lai’s mother, standing beside a shrine she built near their home. “We don’t understand what happened.”

Hitting the Apple Lottery

Every year, as rumors about Apple’s forthcoming products start to emerge, trade publications and Web sites begin speculating about which suppliers are likely to win the Apple lottery. Getting a contract from Apple can lift a company’s value by millions because of the implied endorsement of manufacturing quality. But few companies openly brag about the work: Apple generally requires suppliers to sign contracts promising they will not divulge anything, including the partnership.

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That lack of transparency gives Apple an edge at keeping its plans secret. But it also has been a barrier to improving working conditions, according to advocates and former Apple executives.

This month, after numerous requests by advocacy and news organizations, including The New York Times, Apple released the names of 156 of its suppliers. In the report accompanying that list, Apple said they “account for more than 97 percent of what we pay to suppliers to manufacture our products.”

However, the company has not revealed the names of hundreds of other companies that do not directly contract with Apple, but supply the suppliers. The company’s supplier list does not disclose where factories are, and many are hard to find. And independent monitoring organizations say when they have tried to inspect Apple’s suppliers, they have been barred from entry — on Apple’s orders, they have been told.

“We’ve had this conversation hundreds of times,” said a former executive in Apple’s supplier responsibility group. “There is a genuine, companywide commitment to the code of conduct. But taking it to the next level and creating real change conflicts with secrecy and business goals, and so there’s only so far we can go.” Former Apple employees say they were generally prohibited from engaging with most outside groups.

“There’s a real culture of secrecy here that influences everything,” the former executive said.

Some other technology companies operate differently.

“We talk to a lot of outsiders,” said Gary Niekerk, director of corporate citizenship at Intel. “The world’s complex, and unless we’re dialoguing with outside groups, we miss a lot.”

Given Apple’s prominence and leadership in global manufacturing, if the company were to radically change its ways, it could overhaul how business is done. “Every company wants to be Apple,” said Sasha Lezhnev at the Enough Project, a group focused on corporate accountability. “If they committed to building a conflict-free iPhone, it would transform technology.”



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But ultimately, say former Apple executives, there are few real outside pressures for change. Apple is one of the most admired brands. In a national survey conducted by The New York Times in November, 56 percent of respondents said they couldn't think of anything negative about Apple. Fourteen percent said the worst thing about the company was that its products were too expensive. Just 2 percent mentioned overseas labor practices.

People like Ms. White of Harvard say that until consumers demand better conditions in overseas factories — as they did for companies like Nike and Gap, which today have overhauled conditions among suppliers — or regulators act, there is little impetus for radical change. Some Apple insiders agree.

"You can either manufacture in comfortable, worker-friendly factories, or you can reinvent the product every year, and make it better and faster and cheaper, which requires factories that seem harsh by American standards," said a current Apple executive.

"And right now, customers care more about a new iPhone than working conditions in China."

Gu Huini contributed research.