THE SECOND C:
Two World Views

By Keith Hoover

EVOLUTION VS INTELLIGENT DESIGN IN PRODUCT DEVELOPMENT

Let's take a look at the apparel product development process, not from an analytical standpoint, but from a metaphysical point of view. Specifically, let's see if we can use Evolution and Intelligent Design as metaphors for how apparel brands work.[1] After all, we have *designers* and there is continual talk about how things are *evolving* in our industry, even though there seems to be confusion between Developmentalism (gradual improvement over time) and the scientific theory of evolution (how changes happen over time).

Perhaps a simple summary of each world view would be a good starting point. Evolution involves a description of how things in nature change over time (with nature meaning "everything that exists"), including the notion that forms of life and their mutations (randomly occurring novel forms of existing life) either die or survive and supersede their predecessors. The term "Natural Selection" is used to describe this competition with "Survival of the Fittest" applied to the results. However, these terms tend to imply a hidden, intentional force at work that does not exist in the actual theory, which precludes a "directing hand" at work, relying instead on random chance.

Intelligent Design, on the other hand, acknowledges the existence of Nature, a system that was purposefully created by an entity outside of Nature—in the same way that a book is written by an author. Everything in nature is interconnected and purposefully designed. One can see evidence of the character of the author by reading the book even though the author is not a character in the book. Lifeforms may indeed evolve over time, but always with a purpose.

These are indeed drastic simplifications of the two views, but then again, this is the *AATCC Review*, not the Oxford Socratic Club.[2] So, let's start with a framework of some key components and derivations of each world view and apply them to product development as follows: 1) In the beginning, 2) The rules, 3) The process, 4) Where to turn for help, 5) Color, 6) Lab dips, and 7) Production. Then, we will take a look at how an organization can alter its world view.

But, first…

Consider this simple question to get an insight on how you view the world. Why is this shirt blue?

Dyers might answer by describing how dyes in the liquor have an affinity for the fibers in the fabric in the bath and exhaust onto them as the temperature and chemistry are altered. They might even mention Kubelka-Munk as a model for getting the right blue shade. However, that is not *why* the shirt is blue—that is *how* the shirt is blue.



Alternatively, professors might tell us about the psycho-physical system of color perception and how a range of electromagnetic energy stimulates the rods and cones in our eyes, which, in turn, sends a signal to our brain informing us about the color of the shirt. But again, that is not *why* the shirt is blue—that is what *blue* is.

The simple (and accurate) answer is this: *because a designer wanted a blue shirt.* "Why" presupposes intent.



IN THE BEGINNING

Evolution

Each design season starts with a Big Bang of activity. Associates move from a blank slate into frenzied chaos. Random ideas are thrown around, some of which (for no apparent reason) are adopted into "concepts" and "capsules." Each new season starts the same way, and no two seasons follow any reasoned process path. The chaotic activity seen here resembles a marionette on a paint shaker more than planned movement along a path.

Over 20 years ago, a company ran an ad campaign for a color management product aimed at the apparel industry with the tag line, "From Palettes to Pants…All Hell Breaks Loose." Their focus crossed the metaphysical divide between our two world views, emphasizing both the random chaos of evolutionary theory and the looming fear of eternal damnation for those who don't make the grade. Even with the passing of over two decades (and the company that ran the campaign), this image still resonates with designers around the world.

Intelligent Design

Each season follows a reasoned, intentional plan—and therefore, can be completed in a surprisingly short period of time. This plan identifies the necessary activities, sequence, and timing required for success. The first steps flow into subsequent activities, each building on the value of previously completed tasks. There is an awareness of the purpose of the activity and how it develops into a created product.

A good process isn't merely a series of dots to be connected on a white page—it is more like choreography in which steps not only move the things forward but do so with elegance and beauty. Despite the urgency of some activities, there is joy in completing them, like a leap that follows running steps.

At the end of all the activity, there is a time for rest to appreciate the good in the accomplishment.

THE RULES

Evolution

In a chaotic situation, there are no rules prescribing how things should be done, only laws describing how things happened. "Should" implies a standard and chaos is the lack of order (and order requires standards). So, there can be no hope for improvement because the concept of improvement implies that there are right ways and wrong ways to work. So, it's every man for himself—survival of the fittest, as it were.

Talent doesn't necessarily win the day in a school of hard knocks. Empathy for the weak can get you laid-off, so expect no mercy in return. Each player is inwardly focused.

Intelligent Design

In an orderly situation, the apparel brand is paramount. It represents the context in which all design work is executed (to be "brand right"). Since each person respects the brand, then respect for fellow team members follows suit. A common goal breeds a common purpose.

This textile series will share technical insights and wisdom of AATCC members. The "Second C" series will focus on color. If you wish to contribute your own technical insights on topics of interest to AATCC members, contact Communications Director, Maria Thiry; thirym@aatcc.org.

For order to exist, there must be fundamental rules—everything you need to know is recorded. Success awaits those who know and follow the rules. Such uniformity encourages an outward focus among teammates.

THE PROCESS

Evolution

Evolution is slow. Very slow. Change happens by mutation and the process of elimination. In other words, change is dependent on extinction. According to the great thinkers at Berkeley, the Cambrian Explosion is considered to be a landmark evolutionary event. "Around 530 million years ago, a wide variety of animals burst onto the evolutionary scene... In perhaps as few as 10 million years, marine animals evolved most of the basic body forms that we observe in modern groups."[3]

Ten million years, yeah, that sounds about right for a seasonal product development calendar (although only an academic genius or an AI marketing app would describe anything as "bursting onto the scene" over the course of ten million years).

As anyone who has sat through countless Design Review meetings can attest, changes don't necessarily mean improvement. Sometimes changes result from a catastrophe (new sales figures or perhaps the poor reception of a controversial influencer). Constant revisions and updates reflect a "think locally, act locally" perspective that overlooks the impact on the global supply chain. Changes in materials, colors, and order volumes can cause extreme pain at the mills and factories muffled only by distance.

C. S. Lewis put it another way. "To be the result of a series of mindless events is one thing: to be a kind of plan or true account of the laws according to which those mindless events happened is quite another…It is as if, when I knocked out my pipe, the ashes arranged themselves into letters which read: 'We are the ashes of a knocked-out pipe.'"[4] One cannot expect to derive order from chaos.

Lewis Carroll must have foreseen modern apparel product development in *Alice In Wonderland* when he wrote this:

> "Would you tell me, please, which way I ought to go from here?"
>
> "That depends a good deal on where you want to get to," said the Cat.
>
> "I don't much care where—" said Alice.
>
> "Then it doesn't matter which way you go," said the Cat.
>
> "—so long as I get SOMEWHERE," Alice added as an explanation.
>
> "Oh, you're sure to do that," said the Cat, "if you only walk long enough."

Intelligent Design

Apparel product development is essentially a complex, multi-step project with a series of dependent tasks broken down into manageable steps. Seasonal calendars are built to document this "work breakdown structure." When built correctly, these calendars provide a straight and narrow road that provides the right path to completion. Some might complain that such a predetermination thwarts creativity. Actually, the opposite is true. Such a structure determines the extent of freedom that is available for a solution. Requiring high colorfastness may preclude the use of direct dyes, but it does not restrict the gamut of available colors that can be achieved with reactives.

The right process has four characteristics:

Omniscience—There must be complete transparency into everything that happens. My mentor, Ben Bell, once said (in a thick Southern accent), "If you don't know what's goin' on, you can't control it." He was referring to the variables in a particular printing process. However, the same holds true for any process.

Omnipotence—There must be complete power to control and enforce every step of the process. Compliance cannot be voluntary when any step can be a dependency for another. To understand this concept, consider this question: "In a textile mill, to whom does the Quality Manager report?" If the Quality Manager reports to anyone who is also responsible for the timely delivery of goods, then there will not be quality.

Omnipresence—The right process must be one-on-one to everyone. How can that be possible since a person can only be in one place at a time? Think of Amazon. Or **aatcc.org**. Online technology has made one-on-one connectivity a given such that one is only disconnected from the process if one chooses to be. And being removed from the presence of the brand for eternity is a bad thing.

Justice—Decisions made in the product development process must be just, fair, and predictable. This empowers each teammate to utilize the maximum amount of creativity focused by discernment to do the best work.

WHERE TO TURN FOR HELP

Evolution

Help is hard to come by in an organization that shows no mercy. So, rather than asking for help, one follows orders (or hides). It's a game of "Follow the Leader" (until he is killed). Perhaps Friedrich Nietzsche put it best: "Was mich nicht umbringt, macht mich starker," (What doesn't kill you makes you stronger). But… it usually kills you. There is typically a fair amount of turnover in companies like this since success is fleeting and not cumulative.

Those in charge often have a single, narrow skillset (like a merchant) and can thus provide little help outside that narrow scope. Desderius Erasmus was prescient when he observed, "In regione caecorum rex est luscus (In the country of the blind, the one-eyed man is king)." If you like abusive environments, this is for you.

Good luck to vendors in need of help from the brand. Chargebacks, penalties, and endless "Vendor Summits" await you. Thank you, sir, may I have another?

Intelligent Design

There is no shortage of resources for help. In addition to process documentation, there are subject matter experts in each area. Most importantly, however, is the Process Advocate. A Process Advocate is a person who can easily run a strategy meeting or complete any tactical task. More importantly, a Process Advocate understands and empathizes with both the brand's perspective as well as the manufacturer's, having faced and overcome the problems and temptations of each.

The Process Advocate serves as the connection between the brand and vendor. Many vendors hesitate to discuss problems with the brand because they see this as an admission of weakness (or an invitation to chargebacks). However, vendors and mills who accept the guidance of the Process Advocate will enjoy a continuing relationship with the brand. Both parties benefit. The advocate stays up to date with manufacturing trends and the vendors and mills ultimately receive more orders.

However, some vendors want to do things the way they have always been done. Vendors who refuse the advocate's help and insist on doing things their own way, will lose the business. No one comes to the brand except through the Process Advocate.

COLOR

Evolution

Color is one of those areas that some people see as a mystery, so there is no methodical way to approach it. Colors evolve over the course of a design season. Some designers see color as a Rorschach Test of sorts. It is purely personal, subjective, unfathomable, and unassailable by anyone else. As such, at any point in the design process, color is only temporary, reflecting the whims of the moment.



The Evolutionary "Color of the Year".

Strictly from an artist's perspective, this makes some sense. The process of creating art involves an aesthetic struggle to express the subconscious. So, color is never really defined until it ends up on the canvas. But apparel design is not fine art (sorry if I just crushed your dream). Instead of creating a single piece to sell in a gallery for millions of dollars, an apparel brand creates millions of garments to sell to many people at an affordable price. So, there must be a cut-off to the creative process so that the production of garments can begin. All too often, that doesn't happen until too late, and the color of the product is what ends up in the store (like it or not).

Intelligent Design

Color is seen much differently here. Color is a critical design element, the significance of which begins at the conception of the design process. So, the good news is that color is absolute. We have discussed the LOO (Light, Object, Observer) in previous articles. Placing it in the context of Intelligent Design provides a different perspective. Let's review.

Observer—The observer is you or me looking at the object. The Standard Observer is a model that attempts to mimic the human vision system. We will discuss the Standard Observer model in more technical detail in upcoming segments, but for our purposes, it describes the **way** we see.

Light—The light source (the actual bulb) or illuminant (the mathematical model) allows us to see color. An unilluminated object has no color. And the spectral content of the light determines what colors can be rendered (you will never experience the designer's blue shirt under a yellow bug light). So, like my college's motto, "Veritas est lux" (**Truth** is light).

Object—The object is the thing that the observer sees when illuminated by a light. It is what we see in **real life**. And in the context of a design process, a color standard must be defined in the beginning.

So, in this process, the color that ends up in the store is what was pre-destined *from the beginning.*

LAB DIPS

Evolution

The conventional lab dipping process is the poster child for evolution. It is painfully slow, driven ostensibly by random chance. Each round of dips represents a mutation from the last set. There is no certain path to approval and most of the colors being dipped will be dropped (become extinct) by the time the brand issues production purchase orders.

Intelligent Design

This process favors meaningful communication between the brand and manufacturer instead of the production of stupid little dips. The purpose is to plan production to meet shade and performance requirements based on pre-defined standards. Color development between a mill and the brand involves the following:

- A petition, of sorts, by the mill that is granted if it is within the Brand's process but denied if not.
- A means of communication that brings about a better understanding of the brand's will.
- Promised behavior.

PRODUCTION

Evolution

As chaotic as product development was, production is even worse in an evolutionary process. Tech Packs are a mess. BOM's are incomplete or incorrect. Orders are late. And quality is non-existent. Again.

The lack of order is brutal on a global scale, with vendors absorbing the brunt of the economic impact. Ironically, nine chances out of ten are that the brand is making some kind of sustainability claim.

Within the brand and across the supply chain there is cynicism and a sense of futility, but no time to dwell on it because work on the next season is behind schedule, too. Efforts to troubleshoot and conduct post-mortems are promised but never delivered because too many people have too much to hide.

Creativity is the first thing to go because a) it can never be executed, b) mediocrity is hard enough to deliver, and c) it will all go on clearance anyway. If you think this mindset is limited to low grade brands, you've got another think coming.

Intelligent Design

Since product development was well coordinated with and communicated to the supply chain, production goes according to plan. Even though production is globally distributed, the outcome is centrally monitored to avoid overloading capacity at any single supplier. To the customer, quality is uniform and consistent, as if it were produced by a single factory. E pluribus unum.

Unexpected events occur, either via glitches or larger scale anomalies. Rather than assessing blame to exact chargebacks, the brand coordinates efforts to solve the problem with minimum disruption. And the supply chain cooperates because a globally distributed process requires careful coordination from the brand to navigate a different path. Suppliers rely on their understanding of the brand's process, always admitting failure and striving to improve because they know that they cannot rely solely on their own good works. They realize that no factory can survive the heat of a total audit—no, not one. So, they go boldly to the Process Advocate in times of need.

The brand and supply chain communicate and work together as if they were vertically integrated to achieve consistent operational excellence, which delivers sustainability (whether or not that is claimed).

THE CHANGE

Conversion

What if you find yourself in an evolutionary environment and want to adopt an Intelligent Design model?

Well, it is not so easily done. In fact, some claim that the brand will have to wander in the wilderness until all of the evolutionary leaders are gone. Nevertheless, those that have changed from the evolutionary approach to Intelligent Design first stopped and changed direction, starting over from the very beginning. Three types of people are required to make this work:

- **A Catalyst**—Think back to your high school chemistry class (no, not placing the chunk of sodium in the sink). A catalyst is an element introduced to initiate or control a reaction. So, a Process Catalyst must be able to bring about or hasten the desired change. That person must be strong enough to cause a reaction and have the staying power to remain until the change is complete.
- **An Apologist**—No, this is not someone who makes excuses for something. *Apologia* (ἀπολογία) is defending a position. A Process Apologist must know the process inside and out and be able to defend it from attack and spurious revisions. To be effective, the Process Apologist must be able (and unafraid) to rely on reason. And, if necessary, Visio.
- **An Evangelist**—Okay, so you have committed to and initiated a change and thought it through. You will need a great communicator to spread the word. To be effective, the Process Evangelist must become all things to all people because different people will respond and react to the message in different ways. This position requires someone unafraid to rely on emotion.

CONCLUSION

Understanding ***why*** leads to the **what** and **how**. Since "why" presupposes intent, then we must discern right from wrong when setting up a process. There are those who say, "seeing is believing." C. S. Lewis pointed out the fallacy of this belief like this. "I have known only one person in my life who claimed to have seen a ghost. It was a woman; and the interesting thing is that she disbelieved in the immortality of the soul before seeing the ghost and still disbelieves after having seen it. She thinks it was a hallucination. In other words, seeing is not believing."

Horrid Red Things

In *Miracles*, Lewis goes on to discuss *imagination* versus *understanding*.[5] "I once heard a lady tell her young daughter that you would die if you ate too many tablets of aspirin. 'But why?' asked the child, 'it isn't poisonous.' 'How do you know it isn't poisonous?' said the mother. 'Because,' said the child, 'when you crush an aspirin tablet you don't find horrid red things inside it.' Clearly, when this child thought of poison she had a mental picture of Horrid Red Things, just as I have a picture of Euston when I think of London. The difference is that whereas I know my image to be very unlike the real London, the child thought that poison was really red. To that extent, she was mistaken. But this does not mean that everything she thought or said about poison was necessarily nonsensical. She knew perfectly well that



a poison was something which killed you or made you ill if you swallowed it; and she knew, to some extent, which of the substances in her mother's house were poisonous. If a visitor to that house had been warned by the child, 'Don't drink that. Mother says it is poison', he would have been ill advised to neglect the warning on the ground that 'This child has a primitive idea of poison as Horrid Red Things, which my adult scientific knowledge has long since refuted.'

This idea applies to our discussion of apparel product development. One need not understand grade rules to know that a garment doesn't fit. And one need not understand color physics to know when colors don't match.

Horrid red things = Too bubble gummy. Imprecise, but not invalid.

The important thing is having trust, or belief in the process. This allows each teammate to contribute, even without a technical understanding of the "how" or "what." Believing is seeing.

Mystery

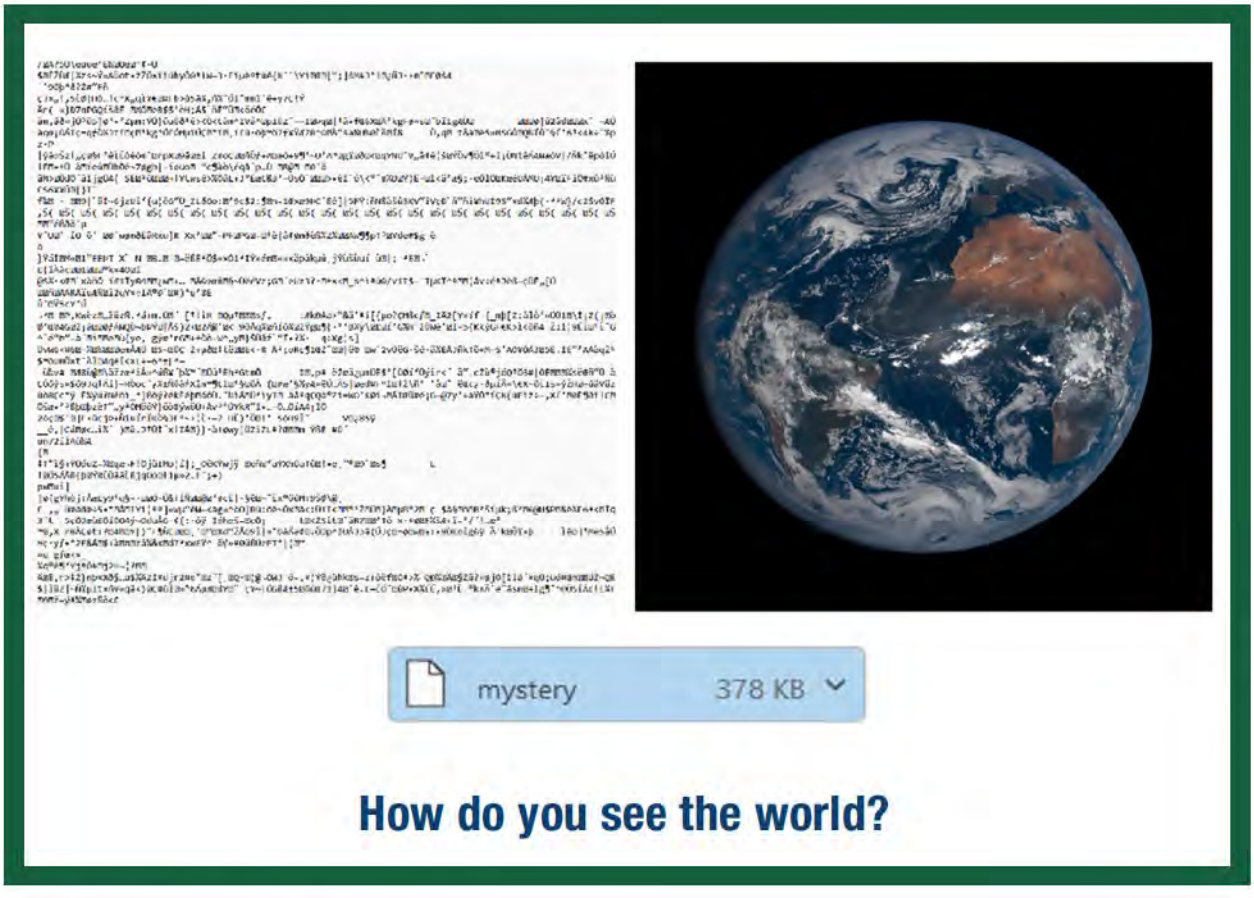
Imagine that you come across a file called "mystery," but it has no extension (for a PC, of course). When double clicking it, the computer asks you to choose a program with which to open it. If you choose a word processing app, you'll see the contents of the "mystery" file. I suppose if you are diligent and study the characters long enough, a pattern might emerge to provide a clue to the content. However, if you choose a graphical app, the results are radically different and clear. No analytics or machine learning are necessary to immediately recognize the image.

Two Views?

"Well, I suppose there are two views about everything," said Mark.

"Eh? Two views? There are a dozen views about everything until you know the answer. Then there's never more than one," replied Hengist.

- C. S. Lewis, *That Hideous Strength*



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Notes

[1] This paper was originally presented as a PowerPoint to the SDC 2004 Global Colour Management Conference

[2] The Oxford Socratic Club was a student club that met from 1942 to 1972 dedicated to providing an open forum for the discussion of the intellectual issues connected with religion, and with Christianity in particular. *The Socratic Digest*, No. 1 (1942–43), p. 6.

[3] https://evolution.berkeley.edu/the-cambrian-explosion/

[4] Lewis, C, S. 1967. *Christian Reflections*, ed. by Walter Hooper, "De Futilitate"

[5] Lewis, C. S. 1998. *Miracles*. London, England: HarperCollins.

Keith Hoover, President of Black Swan Textiles, implements manufacturing-centric digital processes for color and fabric development. He has implemented digital color management programs for Ralph Lauren, Target, Lands' End, JCPenney, and Under Armour, ultimately leading to a process that eliminated lab dips altogether. At Under Armour, Hoover championed the UA Lighthouse, driving digitalization and advanced manufacturing processes to explore local-for-local sourcing. He has worked hands-on in mills worldwide and is a frequent AATCC presenter.

Articles from The Second C: Series

- Hoover, K. The Second C: Color with a Purpose. *AATCC Review*. **2022**, *22* (1), 36-39.
- Hoover, K. The Second C: From Inspiration to Replication. *AATCC Review*, **2022**, *22* (2), 28-32.
- Hoover, K. The Second C: Lab Dips—The First Circle of Hell (Part 1). *AATCC Review*, **2022**, *22* (3), 26-30.
- Hoover, K. The Second C: Lab Dips—The First Circle of Hell (Part 2). *AATCC Review*, **2022**, *22* (4), 32-36.
- Hoover, K. The Second C: Leaving Limbo. *AATCC Review*, **2022**, *22* (5), 34-39.
- Hoover, K. The Second C: The Sixth Circle of Hell—Heresy, Part 1. *AATCC Review*, **2022**, *22* (6), 34-39.
- Hoover, K. The Second C: The Sixth Circle of Hell—Heresy, Part 2. *AATCC Review*, **2023**, *23* (1), 26-33.
- Hoover, K.; Merritt, R. The Second C: The Ninth Sphere of Paradise—Primum Mobile, Part 1. *AATCC Review*, **2023**, *23* (2), 22-28.
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- Hoover, K. The Second C: A Higher Class of Problem, Part 2. *AATCC Review*, **2024**, *24* (3), 32-36.

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