Applying Scientific Rigor to Creative Arts:

Abstract: Rigor and creativity should go hand-in-hand to foster improvement in artistic decisions-making. Learning to set specific, externally testable goals helps beginning artists to see the impact of effective decision-making, which in turn fosters quicker authorial growth. When an artist clearly identifies both the intended impact on the audience as well as external, physical markers indicating "success" and "failure", the ability to see the creation of art as critical decision-making improves.

The scientific method creates a way to generate hypotheses, test them, and analyze for trends. When reviewing the film's impact on audiences, the artist can separate the intended impact on audiences from the actual impact. The data analysis allows artists to elicit specific responses from audiences, successfully navigating the artistic process. While a prescriptive, scientific process appears to antithetical to creativity, Robert Persig demonstrates how high-quality art successfully incorporates scientific rigor.

Novice artists that merge emotional and analytical processes works toward consistent, predictable, and effective artistry. They increase the likelihood that audiences will find the work to be of high quality, passing close inspection of emotional, analytical, and technical elements.

"Trusting your gut" is often associated with creative endeavors. Exclusively and pervasively following gut responses can result in inconsistent decision-making, hindering the ability to ensure that all conventional and technical decisions coalesce into one interpretation. While trusting the gut may offer sporadic successes, it undercuts the artist's ability to work predictably and consistently. For students, it denies them to articulate <u>why</u> they made a specific choice.

"Training your Gut" instills predictability, consistency, and rigor. It requires artists to make informed decisions about their work based on critical interpretation. It slows down the creative

process, forcing artists to ask and answer pointed decisions about their art and art-making process. The artist creates clear and measurable goals instead of blindly trusting the intuition. This process helps artist to nurture their ability to shape audience responses quickly and accurately.

Applying a scientific rigor to artistry highlights the intention about learning how to learn as opposed to learning rote skills, dates, or concepts. Learning how to learn—or how to "train the gut" instead of trusting the gut—is about maximizing the education experience, be it a formal or informal setting.

1. Intro: Evaluating Artistic Growth

"Filmmaking is Decision-Making." The decision-making process should directly shape audience reactions toward a specific response, be it analytical, emotional, or otherwise. Making choices that benefit the audience's experience should be the most important independent variable when applying scientific rigor to artistry. Broadening the skills to successfully affect audiences should be every novice and intermediate filmmaker's goal. It is more important than anything else in eth creative arts.

Effective filmmaking is not "doing whatever you want," though doing "whatever you want" is sometimes conflated with "creativity". Creative individuals may be seen as "trusting their gut". Trusting the gut to engage audiences intellectually or emotionally is not a repeatable process for long-term success even if may occasionally craft the intended results. It does not promote steady growth as an artist.[1]

[1] Responding to whim can offer something that is insightful or "different" (which can be misunderstood as "good" or "creative". It can be good, but understanding where the whim originates can help make it repeatable.

Adopting a repeatable methodology improves the likelihood of accurate, predictable, and repeatable success. Identifying the best goals and the best processes increases sustained success as well as increase the likelihood of being rehired for future endeavors.

Effective creative processes manifest latent ideas and emotions for audiences. Using the artistic mode's elements (the mode or genre; the tools; and the medium) to instill clarity, meaning, and emotion allows for improved audience reaction. The more intellectually and emotionally engaged an audience is, the more likely the audience identifies the project as higher *quality*.

To be a reliable filmmaker, an effective artist consistently analyzes the script moment-to-moment. The artist studies the script for clarity in the plot (what happens externally) and characterization. (The circumstances impact on the character's emotions, perspectives, or skills.) This "beat-to-beat" analysis presents a reliable way to start making decisions about what to show the audience and how to show it to them. It is repeated line-by-line. This tedious process helps filmmakers decide how to use all of film's formal elements (performance, camera, lighting, sound, music, set design—and everything else seen or heard by audiences) to share not only what happens externally to characters, but to suggest what it should mean to audiences.

Script interpretation allows filmmakers to simultaneously make multiple aesthetic decision, each part of filmmaking allows to work in concert with the other. When the lighting, camera, script, performances, etc. align to suggest one specific way to the audience "read" the events, greater clarity and authorial voice is presented. Filmmaking decisions reflect three things: 1) clearly showing the external events that affect the character—the plot, 2) externalize the internally processes how the character is affected by the plot—the characterization, and 3) shape

how the audience should intellectually and emotionally react to how the character's emotional response to the events.

How a character perceives events, actions, and circumstances should exist both internally (what is hidden from other characters) and what is presented externally to audiences by what characters say and do in response. The director then uses filmmaking tools to suggest to the audience how they should feel in response to how the character feels about what they experience.

To effectively incorporate all three of these metrics simultaneously, the filmmaker must think about the *connotation* and *denotation* of actions or events; the filmmaker must subsequently make informed choices about the aesthetic adoption of film's formal elements to imbue extra meaning to shape how deeply audiences feel about the project. This is best informed by decisions made about the script instead of "trusting the gut" for all of film's formal elements.

The storyteller's detailed analysis and active decision-making for all of film's formal elements (meaning that nothing is just done in the film, but rather, everything seen and heard is choice about its impact on the presentation and reception) seeks to improve the *quality* of the artistic endeavor. Artists across all media should make informed choices about the content's formal presentation, its intended audience reaction, and a critical analysis of intention versus execution versus reception.

The artists' path should adopt the *scientific process* to best show what happens to a character, how a character feels about what happens to them, and how the audience should feel about character's emotionally responses to events. It should be the artist's lifelong pursuit to consider the many ways that a film can be presented and subsequently narrow it down to what seems to be the best way to present it.

Adopting the scientific method to the creative process will increase the *quality* of the project by ensuring that all choices reinforce each other as well as serve the audience's response. It is the clearest way to improve decision making, and the process can be shaped to reflect making decisions that influence audiences.

Artists should measure their success in creating high quality art by 1) analytically identifying the right types of questions relevant to a specific piece of art, 2) creating an external evaluation metric that exists outside of the audience's personal opinion or preference, 3) asking questions that reveal a connection between the audience response and the application of specific aesthetic decisions. The artist should identify external benchmarks of success (how audiences respond in the moment instead of cognitively after the experience.

2. Materials and Methods: Art & Science

Effective aesthetic decisions follow scientific method's rigor: rumination about the ways that aesthetics might impact audiences; researching what has been historically effective in similar circumstances; hypothesizing which decisions will affect audiences in the specific manner desired; executing the decision(s) and testing audience responses; analyzing for connection between the intended effect, application of filmmaking techniques to achieve the effect, and audience result; considering ways to make less successful or unsuccessful decisions better as well as store the successful choices away from similar circumstances.

In Persig's *Zen and the Art of Motorcycle Maintenance*, he demonstrates how the scientific method and creativity merge to create something whole, harmonious, and radiant. Both the content and form adopt the scientific methods. He makes the story more compelling by enacting the scientific method. The Narrator talks about fixing motorcycles with systematic, analytic

inquiry; what happens to the Narrator through the plot demonstrates the process in his interactions with friends, family, and the road.

Persig emphasizes the synergy created through dichotomy, or *form* interacting with *function*. Romantic (art) and Classic (Science) perspectives vacillate, allowing audiences to perceive the external and the internal journey. Persig encourages people to look at both the external and internal forms of the world around them. He makes his case (via the Narrator) through the story's plot (a cross-country motorcycle side with his son) and the *chautauquas*[2] he holds directly with the reader to show how enacting (making it a story) a philosophical understanding (Way of seeing the world); the chautauquas are investigations into science, religion, and beliefs. It starts with a difficult question: how to define "quality".

The chautaqua represents one way of understanding; the plot represents a different way. The book entangles the two perspectives into something that continuously self-supports ideas.

During the ride, the Narrator describes how "quality" was defined in the relative past. In the pursuit of defining quality, the Narrator arrives at a few decisions:

- Readers (and therefore, audiences) generally can differentiate examples of art based on a gut response—as a group most participants who have some experience with something rank artistic endeavors similarly "good", "bad", or "average"
- Trained artists differentiate levels of quality with greater precision than general audiences; they can more readily articulate why one examples is better than another
- Quality tends to reflect the way that the internal and the external speak to the same point

[2] A chautaqua is a long, intensive, enlighten, and entertaining story.

- Asking the right questions allows for the best long-term answers—Persig talks about using a theoretical knife to cut away the extraneous observations, ideas, or hypotheses
- The more that the romantic (artistic) and classic (scientific) dovetail seamlessly, the higher the quality

The book is the embodiment of Persig's understanding of quality, with which his quasi-fictional Narrator also grapples.

For this paper, *quality* is operationally defined as *whole, harmonious, and able to seamlessly merge the creative with the technical such that they reinforce each other*. All elements of the items must be self-contained and complete; the systems must align toward one goal. The ultimate goal is to make the project standup to the scrutiny of technical and aesthetic choices.

Persig's Narrator suggests that mistuning one part of a system can ruin the whole thing.[3] This speaks to the importance of ensuring that all decisions remain in tune with each other. *Alignment* reinforces the idea that a system ultimately has one function, and all elements connected to the system serve the one function of intellectually and emotionally engaging the audience. By defining the most critical function for the filmmaker as the need to communicate ideas and emotions clearly to audience—and to instill intellectual and emotional responses from the audience—one can see that it is a series of subsystems teaming up to synchronize toward an idea.

Making the right choices—which is to say, aligning all subsystems to serve the main function of affecting audience—should be the artist's immediate goal. Persig's Narrator uses an analytical knife to dissect the world around him, separating the external form from the underlying form, or Classical understanding and Romantic understanding of the world. He also uses the analytical

[3] As noted previously, filmmaking has several formal elements that are essentially unique subsystems working toward the systemic goal of making a film.

knife to cut subsystems into smaller subsystems, removing the extraneous elements. He uses the knife to ensure that the actions reflect the best questions or best goals. The knife represents the way to get to the heart of the matter, and subsequently make choices that affect the matter directly instead of the supporting ideas or tangents.

Classical—or analytical—understanding concerns itself with the underlying form. How things work. It can be the technical and the conventional approaches in filmmaking.

Romantic—or emotional—understanding concerns itself with the appearance and vibe. It is the audience's stirring of emotions.

Riding a motorcycle is romantic; motorcycle maintenance is classical.

The artist pursing higher quality unifies the two modes, letting the romantic lead the process while the classical aspect organizes the creative impulses.[4] Classical tames the chaos of the purely "creative whimsy".

Science is the classical understanding.

Science is not blind opinion. It explores the underlying form. It is hypothesized, researched, tested, and analyzed before being shared with the public. Scientists do not simply "trust their gut" when sharing research. Scientists might speculate and "listen to their gut" when identifying potential hypotheses (possibly seen as a truly romantic process), but their research must follow the repeatable process that is the scientific method. The scientist's papers and poster sessions reflect research, testing, and assessing.

Artists, too, should listen to the whimsy of creative impulse at the beginning of the creative process. The "big idea" can be outlandish. The "high concept" that drives a story can appear

[4] An inversion—where the classical/scientific is the starting point and the artist enacts the concepts is also viable. Shows such as *The Good Place* and *Dexter* adopt scientific observations and apply them to characters, just as Persig enacts his research with the Narrator's cross-country journey.

incredulous and seemingly derive from wild speculation. But good characterization and plotting can create an experience that feels "emotionally logical". The artist's improved ability to make more precise decisions that show why the character (with this a specific history, set of goals, nature, and nature) would behave this way in these circumstances. By revealing the character's logic (or lack of logic) when making decisions makes a film feel "right" even if the premise is ridiculous.

Each moment of the screenplay is scrutinized for all viable options to tell the story textually and subtextually. Filmmaking conventions, anecdotes in filmmaking texts, and first-hand experience from previous films help filmmakers decide which decisions they think best serves their interpretation and what they want audiences to experience.

Scrientists must listen to their guts about the hypotheses that they think will reveal new information. They seek to find links that no one else has seen, similarly to how artists look for connections between character, behavior, and events that no one else has seen. *Creativity* is operationally defined as seeing connections that no one previously has seen. The creative process is finding the means to show or demonstrate latent connections. Creativity works for both the scientist and the artist.

If artists simply listened to their gut without the critical analysis of the finished product, there would be little growth as an artist, or at the very least, slow growth. They would repeat the same choices. (Even if that choice is to adopt a "random" or "impulsive" decision.) Artistic growth is not measured in knowing how to use filmmaking tools; learning how to properly use different tools is comparatively easy.[5] It can mislead in terms of artistic growth because the execution with a tool might be flawless though the story or content is flawed.

[5] Please note: technical proficiency is necessary to be able to repeatedly apply intentions across projects or to shape the connotation and denotation as intended.

Successful artists need to establish critical, external markers of success in terms of audience response.

If researchers only listened to their guts but did not do the research, testing, and analysis, their work would be marginalized as "speculative" at best. The researcher conducts experiments to prove or disprove connections. The artist should also test to prove and disprove hypothetical connections between what audiences see and hear, how it is seen and heard, and how the audience responds internally and physically.

To gauge success in making an effective choice, the artist must establish testable reactions from audiences. A filmmaker might establish, "at this moment in the story, I want the audience to laugh and then go wide-eyed when they are horrified that they laughed." Then artists must ruminate on all the ways that they can use film's formal elements to invoke that laughter and stunned silence.

When audiences watch the film, artists test to see if their decisions with performance, camera, lighting, sound, set design, location, etc. elicit the intended response in terms of:

1. What happens on the **surface** level—audiences "clearly" understand what happens
2. What happens on the **subtextual**—what is not explicitly seen or heard but is intuited
3. How does the **character** emotionally react to what has happened
4. How should the **audience** react to the character's emotional response[6]

If audiences behave in a manner predicted by the artist, what the artist has done is successfully identify how to solve a problem—how to use film's formal elements to make

[6] The clarity of the film mirrors the need for the scientist's paper or poster to be clearly organized, adopting the intro, methods, testing, analysis, and conclusions.

audiences react intellectually and emotionally as they want them to for this exact moment in this exact film. They have learned something that helps them when facing decisions in this film or even the next film—they have put a solution into their bag of tricks to later retrieve.

"Trusting the gut" is the romantic aspect. It starts with the external elements, emphasizing the emotional response. The "training the gut" is the classical approach applied to the romantic approach.

Training the gut (as opposed to "trusting the gut") relies on the thoughtful, repeated testing of cause and effect when making the film. A Trained Gut predicts how to use film's formal elements (the underlying form) to shape audience reaction. A trained gut reduces or removes the number of confounding variables.[7] A trained gut has repeatable skills that can quickly and confidently be adopted in the future.

A trained gut dips into solution-making process quickly. Subsequent research and hypothesizing becomes shorter because a body of preexisting evidence indicates that this choice will likely be effective. The more similar the situations, the quicker the decisions can be made in a way that will likely be successfully; they more that the situation and potential solutions vary, the more time the artist will have to ruminate on ways to make success likely. This quickness in decision-making is what trusting the gut looks like, when it is in fact a trained gut.

And the truth is this: not only must the artist learn how to solve a specific storytelling problem to a particular project, but the artist must also learn to apply the scientific rigor toward their idiosyncratic artistry. Artists who are thoughtful and continue to set external goals to the audiences who watch their films will be able to see new, novel ways to connect characters and concepts before presenting them to audiences in novel (but relevant) ways. Artists learn the

[7] Confounding variables might include bad decisions, wanton decisions, or decisions which do not coalesce filmmaking's formal elements into one vision.

benefit of slowing down and actively thinking of art as a process of making decisions with intended goals mirrors hypothesizing, researching, testing, and analyzing before putting results in front of audience.

The artist's developed skillset is not to use the same tool or process each time a similar situation appears in the art—it is learning how to creatively problem solve. The creative obligation is to pursue getting closer to a truth as seen by the storyteller than with any pervious project.[8] To continually refine the decision-making so that it traverses from the external and "obvious" to the "internal" and refined insight is to display growth as an artist.

The art points to the underlying, romantic form about people, art, and the world.

The developed skill is not the solution that was successfully used in a particular instance, but rather, the ability to set specific goals in terms of the context, subtext, and the audience. The success in one instance is good—the measurable success in training the gut to make astute decisions is the process.

3. Process: Training the Gut

Like scientists, filmmakers problem solve. Artists have a romantic idea—typically, initially expressed in terms of a screenplay—that they convey to an audience. They read and reread the script, separating what is stated from what is implied[9]. The beginning filmmaker worries about make what happens externally (in terms of some *plot*) and the intermediate filmmaker worries about revealing the subtext—that which is not said, but rather, felt or implied. The advanced

[8] A story "truth" can be a shared perspective about art, people, or the world that has not been previously presented in this particular way.
[9] Separating what is known from what is assumed by audience is a helpful skillset.

filmmaker focuses on how to shape audience's reaction to the character's emotional plight in terms of a humanistic experience. A "truth".[10]

Layering authorial observations tends to make a work rewatchable, with audiences "seeing something new" when revisiting. Orchestrated layers that reinforce each other—so that decisions made in each of film's formal element of camera, performance, editing, sound, light, etc., are in concert—tends to increase the "quality" of the film because the alignment feels similar to several voices making the same argument.[11] Similarly, when the form and the function are in harmony with each other, and they express the concept better than other examples of the same concept—it is said to have higher quality.

The self-evaluation of a project—the cornerstone of training the gut—dissects the project's quality. This is at the heart of the artist's development. The highest quality art will:

1. Feel complete, connected via causal relationships between the choices and executions. It feels obvious and without additional explanation; a quality project will also minimize if not remove unrelated elements
2. All choices and executions will support each other, merging into one system
3. Make the external intention as clear as possible
4. Suggest the clearest subtextual element of what it means as possible
5. Elicit the strongest, clearest, and most consistent emotional or intellectual response from the audience as possible; each choice reinforces other choices to

[10] Not all art or film speaks to "truth" in this regard. Some filmgoing experiences are intentionally bereft of "truths" and emphasize showing the "external" or the "subtextual" parts of the story. The artist's decision to **not** explore universal truths is more than acceptable.

[11] Persig's *Zen and the Art of Motorcycle Maintenance* addresses "quality" as the intersection of intention and execution. Quality can be generally sensed and agreed upon, though each induvial audience member might slightly grade the value of the quality a little differently.

influence not only one audience interpretation without external prompting but suggests clearer insights to the topic or medium than any other similar sample.

The artist should continually perform as if a student, asking the same types of questions to imbue their work with higher quality. To this end, several questions should be repeatedly asked during the ideation, preparation, execution, and delivery of the art medium:

1. What are the goals for this project?
2. Why or how are these goals relevant to an audience?
3. Are there other, less obvious more critical or specific goals that can better achieve these goals? Is this goal passee, trite, or redundant?
4. How do these goals reflect the audience's external comprehension?
5. How do these goals suggest a specific, subtextual meaning at a second. meta level?
6. Does this goal reflect your set of experiences as a human, artists, and member of the culture in a way that no one else can? Can it be reframed to become more widely or narrowly relevant, as necessary?
7. What are physiological responses that the artist wants from the audience right now? What do those physiological responses represent? Are they the best markers for successfully hitting these goals?
8. What are three ways to achieve this goal using the medium's tools and conventions? Which one is most likely going to elicit the emotional and physiological response from the audience?

These questions are agnostic to the medium, though they do 1) presuppose an audience's rection is more important than the self-gratification of satisfying audiences, 2) presume a decision to make something of the highest possible quality given the goals and medium.

Additional questions include:

- Why now? Why does this work need to be presented at this time?
- How does this intention and decision reflect a perspective that only this single artist can offer from my history, training, and belief system?

Training the Gut is the process of creatively solving problems (which is to say, from the artist's specific history, training, and worldly perspective) that uses the connotation, denotation, and interpretation of the artistic medium. Training the gut is slowing the decision-making process down to ask the most insightful questions so that each decision is, on its face, self-evidently the best choice. It is not about asking the same questions so much as reminding the artist of the many facets they should actively consider.

Training the Gut essentially is applying the scientific method: ruminate about a topic, seeking to find a hitherto unforeseen causal connection; declare an objective in concrete terms (in this case, in terms of the audience's response); hypothesize about the best way to achieve the goal; research what has already been done or is common convention/agreed upon "law"; test the decisions with the least number of confounding variable; analyze audience response; draw

conclusions.[12] By comparing individual, concrete choices against external audience responses, an inference can be drawn about the decision-making success.

Training the gut with scientific rigor allows 1) repeatability in the future, 2) quick and accurate decision-making when time is limited, 3) success for when an artist is hired by somebody to achieve a particular outcome, be it commercial, narrative, or otherwise.

4. Creativity in STEM

The arts can apply scientific rigor of hypothesizing, researching, testing, analyzing, and reporting to jump start their personal growth. Artists can reflect on their previous work or decisions before hypothesizing different outcomes from different decisions. They can look for similar circumstances (content, aesthetics, audience members, or goals) in upcoming projects to test. Methodology can improve their creative work both immediately and in the future. Using the analytical knife to cut a system into the relevant subsystems is the best way to "train the gut".

Similarly, STEM presentations came benefit from adopting romantic understanding and effective aesthetics, especially in terms of tacitly persuading readers or audiences to accept results and conclusions.

[12] Arts have the several confounding variables. While one aspect of filmmaking might be tested—such as the decisions made to direct the actor—the photography, lighting, production design, sound, wardrobe, and make-up all affect the audience's interpretation. Typically, this is not really an experiment, where the performance can be the exact same but the one filmmaking process is independently changed. Some conjecture must be applied to the analysis to treat it "as if" the other variables have zero or a reduced impact on audiences.

Stylistic presentation influences audience reception, as stated by both Marhsall McLuhan's "The Medium is the Message" concept and Aristotle's *The "Art" of Rhetoric*. The aesthetics applied to PowerPoint/Deck Slides, Poster Presentations, or Video Pitches shape audience reception, coloring their "belief" in the data and conclusions.

To scientists, the data is objective. It has been collected, parsed, and organized.

To audiences, the persuasive power is not relegated to "just" the data—the logical organization, the creativity or clarity in dissemination, and the presenter's own "street cred" influence how fully audiences trust the data.

Peers reviewing academic papers share conventional expectations, including: formatting, structure, and tone. Readers expect the *Abstract* to precede the *Intro, Methods & Materials, Research, Discussion,* and *Conclusions.* Skipping any of these steps calls into question the scientist's credibility. Not following the paper's conventions tacitly undercuts findings.

Film audiences expect a logical cause-and-effect relationship connecting all the scenes, such that the beginning sets-up a rationally satisfying resolution; peer reviewers expect chapters to set-up and pay-off subsequent chapters with the same kind of logic, expect the conclusions to be "proved" by the intro, methos, research, and analysis. The content's content will always be the most important aspect, but the subsequent organization and exhibition affect the associated value; the aesthetics associated can further help or harm the "read".

Researchers may create the stronger impression of cause-and-effect by placing a "linking" sentence or paragraph at the end of one chapter or sections that is more fully fleshed out in the next section. This makes each section feel inevitable.

Readers who do not trust the presenter—based on sloppy organization, suspect data interpretation, and a lack of logical connection—may be more likely to "believe" a report with

the exact same data when presented in the expected manner. A missed citation, a misspelling, or a missed indentations lowers the presenter's *ethos*—audiences who notes mistakes in the presentation question the validity of the research as a whole. A perfectly presented poster or chapter may persuade even if there are minor mistakes, inconsistent presentation, or imperfect analysis. This is the power of presentation—the work represents the researcher.

Readers who read posters or deck slides that incorporate traditional approaches, and organization will be trusted more implicitly. Presentations should at minimum:

1. Apply perfect spelling, syntax, and grammar
2. Identity the content, such as "Introduction" or "Methodology"
3. Display logical organization across panels as well as with the content
4. Include references
5. Operationally define concepts as necessary

While the content must be logically organized and presented, the structure and aesthetics can shape reader's responses. A creative and elegant presentation will include:

a. Active verb use/present tense, especially with the *Introduction, Methodology*, *Discussion* or *Conclusions*.
b. "Chunking"—relevant information in the same panel/paragraph
c. Scannabilty: organize information from top to bottom and left to righty flow
d. Minimal *linking verbs*
e. The least number of words possible while ensuring clarity

f. One font/typefaces (Create emphasis with different expressions of the typeface: italics, underscore, or bold)
g. Include clear charts and images
h. Use complementary colors—same saturation and intensity in the colors[13]
i. Restrict color use to two colors
j. Use color, banners, and grids to "chunk" similar content
k. Use a grid alignment—with consistent alignment and box sizes

Content and presentation are inextricably intertwined. Hundreds of rambling pages with little "cause and effect" relationship between paragraphs will be less persuasive than the exact same findings presented in a compressed, linear presentation. The researcher's credibility is not only established by the quantity and quality of previous work (as well as where previous work was published) but by the aesthetic presentation.

5. Discussion: External Evaluation

The preferred audience for testing is naïve or blind. Audiences connected to the project's development and production may hold preconceived expectations, creating confounding variables. Audience members comprised of the filmmaker's "clique" may conflate the project

[13] **Hue:** The specific color family (e.g., red, blue, or green). **Saturation:** The purity or vividness of the color. High saturation produces a vibrant, pure color, whereas low saturation introduces more gray, making the color appear muted or washed out. **Intensity:** The overall brightness or darkness of the color. This dictates how much light the color reflects, ranging from deep black to brilliant white.

with the artist. Finding an audience who has no previous interaction or understanding of the film before viewing offers the most trustworthy feedback.

"Testable" qualities are the only valid metrics. The test should be held to a rigorous standard, as if a scientific or social-scientific investigation. Confusing preferences, such as "I like it" or "I don't like that genre", are irrelevant. No student wants to hear that their grade is based on how much it is "liked". It is why academics are increasingly asked to provide clear metrics to students, to "prove" the assigned grade.

When the process tests an independent audience, the artist is more likely to gain clear understanding of 1) the impact of individual decisions, 2) awareness of how multiple decisions can happen simultaneously in the arts (such as the camera influences the light influences the editing….) and 3) that self-created criteria carries more value than an external evaluations (Say, such as peers, teachers, or lay people.) By insisting that the artist take responsibility in the evaluative process, they become more invested.

Grades are a shortcut to thinking critically. They offer no insightfulness or reasons why something is effective or not. An article title "Help Your Students Earn A's by Not Focusing on Grades" from *Inside Higher Ed* from July 31, 2017, addresses how students should be involved in setting their own goals other than "performance-based goals." (Such as earning a specific letter grade help the students succeed better than others.) Empowering students to make choices affecting their goals encourages them to care about the outcome. [14]And in this case, allowing students to ascertain exactly what they want from audiences is critical to their individual, long-term success.

[14] For artists to improve the quality of their decision-making as well as their art, they must care about how it is received by others, as opposed to be able to defensively posture and defer to their own preferences. Artists who wrap themselves in blankets of deflection are not interested in improving, but only self-indulgently creating.

Instructors who encourage students to self-create metrics for their success might want to help the student refine what they are interested in asking or learning; in this case, the faculty member can guide Persig's analytical knife to cut out the extraneous and organize the relevant. The instructor might help the student see the tenuous, latent connections that they were creating but of which they were not necessarily cognitive. Instructors typically have the breadth of experience to see more and to offer more actionable evaluation. They can collaborate with students to apply more "testability" to the process, removing confounding variables, bias; help students better understand what they are testing are separating from they might better test; or what students "really" mean to be testing.

Projects should be tested for their effectiveness. Effective for what? For the efficacy of persuading audiences as intended. Using the audience's response to the cumulative work of creating a hypothesis, researching, testing, analyzing, and discussing to address how effective each director's choice is on audience reception.[15]

What does a metric like this look like or do?

1. The metric is specific
2. It is based on a stated desire by the artist: "This is what I want to see because it represents something important to me"
3. It speaks to a reason why it is important to them (example: "If they laugh and then gasp, they will see the dilemma of the situation, creating stronger character identification")

[15] Making the criteria specific "At this point in the film, the audience should laugh and then gasp in horror that they laughed at it."

4. It is external of the artist's interpretation—it exists completely in the audience's realm
5. It is external to the audience's rationalization—there is no misrepresentation in why they responded as they did, it simply happens spontaneously
6. It is quantifiable as data
7. It is identified as important to the artist[16]

With each question the artist identifies something that needs to be aesthetically addressed—a problem reaching the audience with a clear set of expectations.[17] "Did I achieve my clearly defined goal with a specific choice?" (Or with filmmaking, making several choices that occur simultaneously, such as the additive process of performance + lens choice + lighting style+….)

Some artists may resist the rigor inserted into the process; they can cling closely to the Romantic understanding of filmmaking. Resisting formal analysis—and indeed, one that come from outside of the artist—protects the ego. Rigorous and specific testing undercuts the "you just don't get my art, man" response from a single person because the artist has identified what is important and the results plainly show if the artist's choices work or not.

The artists who avoid responsibility for their choices are the exact individuals who need the process the most. They often—though not exclusively—conflate the artist's ego with the artistic process. They are enamored with doing something "creative" which often means doing something that they (do not think) has ever been done before or applying a stylistic choice because it worked for someone else in a separate project.

[16] Ideally this external moment is linked to something internal for the artist—it is abstractly representative for the artist. This may not be as clearcut as possible.
[17] Much of this paper hinges on the concept that how the audience responds to a project is important. It is built on the idea that the filmmaking is trying to persuade the audience to a specific point of view and emotional response based on the content in concert with how the content is aesthetically presented.

They refuse the classical and embrace only the romantic.[18]

These are the artists who misunderstand "creativity" as doing something unique. They most likely misunderstand that the true creativity is seeing the initial connection between the artistic expression and some other define element. That seeing a connective tissue between a well-defined character with this history, in this specific context with this specific disruption in their life is the creative element.[19]

The creativity is the problem solving—guiding an audience through 1) understanding the plot, 2) inferring the character's latent, emotional responses, and 3) a specific response to the character's response is the source of creativity as opposed to doing something "different". The creativity is in layering film's formal elements to instill a series of specific responses to the story.

6. Conclusions

Teaching and learning in the arts can feel nebulous. External concepts, such as how to execute something, such as operating a light meter are easily understood; similarly, demonstrating a filmmaking convention (maintain *screen directionality*, for instance) is also easy for faculty to teach and test. Teaching how to make effective aesthetic choices is more difficult to vocalize as well as test.

. In particular, beginning artists do not have the breadth of experience to make better, more informed decisions. (Which is to say, decisions that lead to specific results.) They may not have the experience to ask better questions, set better goals, or see past generic/trite approaches.

[18] Fully "romantic" artists can achieve great success; the argument is that it will be unreliable in future endeavors.
[19] A unique presentation is effective when it suggests a connection between character, plot, and audience; it is ego driven when it done because it is "cool" or not previously done, or "because I can".

Experienced artists—including faculty—can help beginning artists to refine their expectations, set more details goals, and make more specific connections in their art.

Artists who expect to get better at their art (which is different than just continuing to make art, using the same approaches and repeat the process without improving their audience reception) should be encouraged to think about what they want the audience to do at specific moments. Using the medium of their choice (which may include multiple technical or aesthetic tools) they should ruminate on a variety of ways to achieve their set goals before selecting the one that best serves the audience's experience.

A *trained gut* is a process of repeatedly asking pointed questions to 1) decide what is the best goal for audience experience, 2) identify the technical and aesthetic decisions that predict and elicit the desired audience response, 3) dovetail the technical to the aesthetic, as well as merge the classical understanding to the romantic. A trained gut offers predictable and effective decisions, raising the apparent quality of the project.

The trained gut learns to quickly identify the relevant and separate it form the irrelevant during script analysis, film production, and postproduction. Artists ask themselves a series of questions to address the plot, the character, the audience, and the interaction between them all. Artist then set a series of external, psychological responses from audiences that are measurable representing internal audience responses; examples include laughter, recoiling, flinching, and the like. These reactions represent an internal, emotional response.

The artist watches the audience, essentially gathering data as if a scientist, to measure the amount of success or failure in predicting a response based on filmmaking approaches. The aesthetics and technical elements are assumed to influence the audience's interpretation of the project's "quality".

Persig indirectly proposes that the quality of the art (or argument) as being equally affected by aesthetic and formal decision-making. He points to the enactment of abstract, latent ideas in both content and form—as such the underlying concepts hit audiences both intellectually and emotionally. When the two forms reinforce each other, audiences feel as if the decisions made and executed offer the best observations possible. The logic and presentation feels self-evident.

To Persig, the script analysis, physical preparation for production, and aesthetics incorporated in production and postproduction, should come from hypothesis of ways to affect audience members; research how to achieve the intended goals based on filmmaking conventions, aesthetics, and technologies; the execution of the filmmaking approaches; the careful evaluation of audience's unmitigated responses; and analysis of the execution matching the intention. This repeatable process produces repeatable responses, allowing the filmmaker's growth to develop clearly and steadily.

References:

Aesthetics of Film Production: A Hands-On Guide to Authorial Voice.

Zen and the Art of Motorcycle Maintenance.

The "Art" of Rhetoric. Aristotle. (by John Henry Freese)

McLuhan, Marshall. *Understanding Media: The Extensions of Man*. McGraw-Hill, 1964.

Article- Inside Higher ed July 31, 2017. Help Your Students Earn A's by Not Focusing on Grades"