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**PHOTOGRAPHIC CHOICES: INTEGRATING TRADITIONAL AND DIGITAL
PHOTOGRAPHY CURRICULUMS TO ENHANCE LEARNING**

by

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**Submitted in partial fulfillment for the requirements for the degree of Masters of Science
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ABSTRACT

The controversial debate of traditional versus digital photography has been a topic of discussion since the advent of digital camera equipment. Questions concerning best practices and choices regarding format preferences are the basis for many of these conversations. I believe that the key element to these choices is not so much about the equipment choice, but rather the knowledge base, thought process, and approach. I also believe understanding core photographic concepts as it relates to technical criteria and visual communication - albeit film or digital is of utmost importance... and is what creates the foundation for all forms of photographic imagery.

The principal goal of this study was to identify best practices in photography education, and to test my hypothesis that traditional core concepts, including the continued teaching of film are critical to student's depth of knowledge in the educational process. In addition, it is expected that the research results may substantiate modifications concerning fundamental teaching methods and strategies in order to enhance curriculum, student learning, and creativity. I propose this study will validate my belief that students who receive comprehensive curricular instruction in photographic core concepts that combines traditional (film/analog) and digital based knowledge achieve a deeper understanding that positively influences their art making.

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CHAPTER ONE:

Introduction

Photography has intrigued people since its discovery during ancient times when Aristotle initially saw images form on the walls of a darkened room. Hundreds of years later in the mid 1800's, photographic images were first recorded on light sensitive emulsion coated surfaces. A great deal of change, development and growth has occurred in photography since then, when the general population could first capture and preserve memories photographically in an instantaneous slice of time. Whether that image is of an endeared family member, a special occasion, or a luminous landscape—capturing that visual memory is what is truly meaningful.

This impulse to save our recorded memories is a powerful force which tells us much about the role of photography in our lives and our constant desire to distil our most precious moments into images. The hundreds of images come together to form a narrative of our lives. They are our story (O'Neill, 2012, para. 1).

For many people, the method used to attain this "Kodak moment" is of no importance. However for the more discerning photography enthusiasts, photography teachers, students, and professional photographers, the multitude of available choices have become grounds for serious contemplation. The vast amount of technological advancements in our world has significantly influenced many areas of our lives, and this is particularly poignant regarding photographic format choices and decisions regarding teaching practices in photography education.

The inception of the World Wide Web, internet explorer, and Adobe's Photoshop in the early to mid-nineties changed the world forever. Digital cameras popularity explosion in the 2000s also had a tremendous impact in all areas of photography (Science Kids, 2014, pg.1, bullet 13). The advent and popularity of digital imaging as the premier choice in photographic mediums has instigated many controversial conversations amongst the professional and educational photographic communities. Much of this debate centers on implications that traditional film/analog photography will soon become extinct, and questions whether or not this choice in photographic mediums will continue to be available, practiced, and taught. For some, this creates concerns regarding whether or not film photography will continue to be considered a viable art form worth teaching or pursuing. The following excerpt from an About.com article, *Advantages and Disadvantages of Film and Digital: Pros and Cons*, offers some insight describing the intensity of this debate amongst photographers:

There are advantages and disadvantages to both film photography and digital photography. In the war of film photography vs. digital photography, it seems to be a love it or hate it proposition. Either you love digital photography and hate film photography or you hate digital photography and love film photography (Masoner, n.d., para.1).

Although multifaceted arenas of controversy exist within the photographic arts, the focus of this study will predominantly be upon examining methodologies appropriate for teaching core concepts in today's photography curriculum. One of the main reasons I

chose this research topic is because of my strong belief in advocating for instruction that supports and promotes student's understanding of the core photographic concepts as part of their creative development. Identifying best practices as it applies to photography education, particularly regarding student's understanding of core concepts, pre-visualization, and creative choices is paramount. While both digital and film/analog systems offer opportunities to teach core concepts, I question: What unique, intrinsic characteristics and attributes does each of these photographic formats offer, and how can educators most effectively utilize a comprehensive approach to provide deeper understandings for our students? How might we best teach our students to utilize the technical capacities of camera settings for creative concepts that demonstrate significant understandings of their choices?

As a professional photographer and twenty year veteran photography teacher myself, I have numerous personal experiences in both traditional and digital photographic formats. I was originally trained in film, and it will always hold a special creative place for me. I am also quite proficient in digital, and greatly appreciate all of the remarkable capabilities it offers. My experiences in teaching both film and digital photography indicate that students can learn about core photographic concepts in either format, provided they are given proper instruction. I also believe that core concepts are most likely best taught using traditional film cameras, as it requires the user to slow down before clicking the shutter release, thereby creating an image. Film single-lens reflex (SLR) cameras are typically more simplified than most digital ones, and provide the

beginning photography student with a more basic approach that can promote greater understandings of the craft. Digital single-lens reflex (DSLR) cameras can initially be intimidating and overwhelming to learn due to the many menu options and various controls offered, as shared by my advanced photography students.

One of my biggest concerns regarding digital photography/imaging is that core concepts may no longer be taught within photography curriculums, and the resultant implications have the potential to diminish the value of the photographic arts. In order for a photograph to qualify as a work of art, criteria similar for any artwork must be met. At the root of this criterion is intent, and while unexpected surprises are often welcome in the creative process, the goal of intentionally creating a work of art is an important part of the artist's way. In my opinion, photography students should be taught to incorporate pre-visualization skills, which include making intentional decisions concerning their creative choices, based upon their understanding of the technical capacities inherently present. As famous photographer Ansel Adams is often quoted: "Visualization is the single most important factor in photography" (Adams and Baker, 1980).

Building a strong foundation of base knowledge effectively encourages the developmental growth of technical skills and the expansion of creative ideas, which is an essential component for the transference of meaning in art. Helping students to create with thought, knowledge, skill, and intent is an incredibly important goal of many art teachers, especially those involved in developing the creative visions of young adults. The goal of this qualitative investigation is to examine photographic instructional

methodologies, in order to gain greater understandings regarding best practices for integrating fundamental concepts and techniques that will ultimately enhance student learning and promote creative choices in photography.

1.1 Statement of Problem

Today's typical student has grown up in a largely technologically influenced era. They live in a fast paced society that relies heavily on electronic media for daily tasks and activities. The technology revolution has brought about many definitive changes in our lives, and this is especially true regarding photography. Many schools have reformatted their programs to focus upon digital imaging, and I fear that some have in fact, removed core concepts and the film/analog component entirely from their curriculum. When formulating my research proposal, there appeared to be substantial support for permitting students to use any electronic device as a means of image capture, with no use of manual camera operations evidenced - and call it a photograph. I find it absurd that in some circles photography seems to have little regard for knowledgeable camera operations, pre-visualization, and visual literacy. I believe this school of thought devalues and discredits the art of photography, and I am curious to decipher where other proponents of the craft are positioned in this matter.

The primary issue examined in this study involves the multitude of photographic methodology choices currently available, with particular interest for understanding best practices regarding student's learning of fundamental photography concepts. More specifically, investigative research to validate reasons for the continued integration of

traditional (film/analog) experiences will be evaluated. I believe most photography instructors would agree that the basic core concepts all beginning photography students should learn are: focus, film speed, aperture, depth of field, shutter speed, exposure, composition, and understanding light (Appendix A: Teacher Survey Original). The question is how to teach these concepts in ways that will best provide students with the fundamental skills crucial to understanding these basics and demonstrate transference of this information to their images, in both film and digital domains.

Passionate, steadfast, and devoted advocates exist for the multifaceted sides of this controversial issue. As an experienced photographer and art educator, I firmly believe that both traditional film and digital photography possess certain intrinsic qualities that promote deeper understandings of the core concepts, skills and techniques inherent to the craft. For example: Film photography tends to be an innately thoughtful process in which the photographer makes choices, not only to obtain correctly exposed images, but also to pre-visualize the final images relative to specific camera setting choices. The immediate view that digital cameras offer is advantageous toward seeing the effects of camera setting choices, and providing options to make adjustments instantaneously. However, I believe that maintaining the inclusion of film/analog experiences alongside digital formats in the educational process is a valuable component for students' comprehensive understandings of fundamental photographic concepts. In an excerpt from a previously referenced About.com article concerning the pros and cons of both photographic formats,

photography enthusiasts advocate for utilizing the best from traditional and digital photography realms in search of integrated creative choices:

Film photography and digital photography both have strong points that should be considered before ruling out either of them. In the end, digital and film both take quality images. The real difference in them is what best fits your photographic style and budget (Masoner, n.d., para. 1).

As art educators, it is important to look beyond the question of traditional versus digital, and to identify what unique characteristics each format offers, and define how we can utilize the best from both in our teaching strategies. Identifying these attributes becomes the ultimate task, and the answers are essential for student's deeper, comprehensive, and experiential understandings of photographic concepts. The questions this investigation explores are ones that I have been anxious to examine for some time, particularly regarding supporting evidence for the continued integrated film and digital photography curriculum in my own high school art program.

1.2 Objectives

In today's evolving world of visual imaging and media arts, the art of photography has undergone significant transformations. My goal is to investigate current trends in education programs to obtain data regarding teaching methodologies and strategies that will provide comprehensive understandings and highly developed levels of learning within photography curriculums. The following research questions guided the investigation and acquisition of data:

- Should traditional photographic methods be taught in today's world of digital imaging and why?
- What unique, intrinsic characteristics and attributes do traditional (film/analog) and digital photographic formats offer?
- How can students utilize and integrate information, knowledge, and concepts from both traditional (film/analog) and digital domains towards gaining deeper understandings that exhibit knowledgeable displays of technical and artistic concepts in their photography?
- How might these methodology choices contribute to decisions students make regarding the creation of photographic artworks that depict intended imagery or meaning?

1.3 Definition of Terms

The following terms are briefly defined to assist in understanding the contextual relationship as it applies throughout this research investigation:

Photography is a process of recording images that originated from the Greek term which translates to mean painting or writing with light.

Traditional (film/analog) photography refers to the photographic format that uses a traditional single lens reflex film camera and conventional emulsion-type film to record the image. Prints are chemically created, and typically minimally edited.

Digital photography depicts a form of photography that entails the use of a digital camera, is composed of pixels, utilizes a memory card as the image storage

device, and often involves considerable post-production editing.

Core concepts in this context, refers to the fundamental information photography instructors believe students should learn and includes: focus, film speed, aperture, depth of field, shutter speed, exposure, composition, and understanding light.

Digital Images/Imaging refers to “electronic snapshots taken of a scene or scanned from documents, such as photographs, manuscripts, printed texts, and artwork” (Cornell University, 2003, para.1).

Adobe Photoshop: A computer based program used to digitally alter and/or edit images, including digital photographs and various visual media.

SLR translates to mean single lens reflex, and refers to cameras that offer manual operations (such as aperture and shutter) as available settings.

DSLR denotes a digital single lens reflex camera, also offering manual operational settings.

Focus/Focal Point describes “the point at which the rays of light coming through the lens converge to form a sharp image” (London and Stone, 1996, p.177).

Film speed (iso) refers to the film’s sensitivity to light. Higher iso speeds are used in low light situations. Both digital and film cameras have iso settings.

Aperture refers to the size of the lens opening that determines how much light is recorded in the image via that mechanism. This variable control is visually significant regarding depth of field or focus through the distance.

Depth of Field “describes the area between the nearest and farthest points from the camera that are acceptably sharp in an image” (London, et al, 2005, p.412).

Shutter speed is the camera control that selects the length of time the shutter remains open, and how much light exposure is recorded. Shutter speed visually pertains to controlling movement, like blurring or stopping the action of moving subjects.

Exposure describes the act of allowing light to strike a light sensitive surface, which is controlled by the combination of aperture and shutter speed settings (London and Stone, 1996, p.177).

Composition denotes “the harmonious arrangement of the parts of a work of art in relation to each other and to the whole” (Composition, 2012, noun, no.5).

Understanding light relates to the photographers ability to understand various lighting conditions and how these affect the final image.

Pre-visualization is about creating images with specific, expected outcomes, derived from knowledge of that topic or idea. Pre-visualization often incorporates a definitive amount of ability to understand and use images in meaningful ways. Ansel Adams describes pre-visualization: “To visualize an image (in whole or in part) is to see it clearly in the mind prior to exposure, a continuous projection from composing the image through the final print” (Adams and Baker, 1980, pg ix).

Creative process in this context describes the process of decision making pertaining to creative choices for artistic means. These choices are often intentional,

experiential, and knowledge based. Happy accidents of experimentation may also exist in this process.

Emulsion is a light sensitive material that records a photographic image, and is the image recording material in traditional film and photographic papers.

1.4 Purpose of the Study

The purpose of the study was to conduct a primarily qualitative investigation to obtain responses, information, and data regarding curricular choices, teaching strategies, and best practices for photography education in today's world. Amidst the technological revolution, a digitally oriented phenomenon exists in the arts, and this phenomenon has raised concerns by those rooted in more traditional artistic endeavors. This is particularly poignant concerning photography, as many purist photographers feel the advent of the digitally dominated age terribly threatening to the very heart and soul of their creative options and choices. These concerns are often associated with retaining core concepts as part of the photographic arts/digital imaging curriculum. I agree with those who believe traditional film photography possesses certain intrinsic qualities that might promote deeper understandings of core concepts more so than digital formats offer. I also think that digital formats may teach certain core concepts like iso, bracketing (for variable exposures/amounts of light) and composition as well, if not better than analog methodologies.

Research that explored whether core concepts are more effectively taught utilizing analog or digital methodologies became a significant component of this study.

Investigations designed to identify teaching practices that best promote student's understanding of core concepts, pre-visualization, and creative choices were also essential research components. Identifying what, if any unique, intrinsic characteristics and attributes both film/analog and digital photographic formats offer was examined as well. Inquiries included how to successfully integrate the best from both realms of photography formats to gain the most educational value in all conceptual areas intrinsic to the craft. Furthermore, how students learn best to manage these correlations and make conscientious choices between the technical/mechanical settings and intentional visual results remained a critical constituent.

One of the primary reasons I chose this thesis topic was to attain a clearer understanding of how I can improve my own high school art and photography program, and most effectively prepare my students to succeed in today's world of digital photography and visual imaging/media. In order to achieve these personal and professional goals I began an investigative study to examine current practices, procedures, curriculums, situations, and opportunities in the photographic arts.

1.5 Significance of Study

The choices of digital cameras and electronic recording options for image capture are endless. Smart phones, point and shoot cameras, numerous levels of DSLR cameras, and video recording devices are just some of the current available choices used for photography. Anyone can take a decent picture, print it out, and call themselves a photographer. My concern is that many educational institutions are implementing

teaching practices that support this constitution of point and shoot images. These practices often eradicate core concepts from their photography curriculums, and may furthermore promote the elimination of film/analog offerings. I believe eliminating traditional (film/analog) options would greatly diminish the quality and depth of students' understanding regarding fundamental photography concepts, and impose undue limitations on creative choices and technical options within the photographic medium. It has been my experience that students attain good levels of understanding about basic camera operations when they can actually see how the mechanical operations of shutter and aperture work. Traditional film/analog experiences also encourage a learning style that promotes slower, more intentional cognizant choices of camera settings, as film frames/per roll of film are limited. Eliminating these factors may encourage greater automatic camera operations, rather than more diligent efforts to understand the effects of manual camera operations.

Examining the relevance and importance of both traditional (film/analog) and digital photography is extremely significant for educational and professional realms of photography. One of the most important goals of this study is to help ensure that today's digitally oriented photography curriculum does not lose sight of the inherent value incorporating traditional (film/analog) photography provides. Investigations like this may prove essential in obtaining credible contributions towards increased advocacy for understanding the merits and unique qualities traditional (film/analog) photography offers. It may also provide evidence for establishing the significance of offering choices

in both film and digital methodologies regarding choices for students whose purpose is creating intentional, and pre-visualized photographic works of art.

I propose these findings will provide data that supports the integration of analog methodologies as a vital component of today's photography curriculum. This holds great personal significance as I steadfastly believe in advocating for continued film/analog offerings and instruction, including in my own high school photography program. In addition, I propose evidence obtained will provide support for retaining the integrity of photography, including appreciation of the unaltered photographic image as a work of art, and assist in maintaining a respectable position for traditional photography in the art world.

CHAPTER 2:

Review of Literature

Although photography's history spans only about two hundred years, it is deeply rooted in tradition, and was predominantly used for portraiture and documentary purposes. During the American Civil War, photojournalists Matthew Brady and Alexander Gardner revealed a new reality and frankness of the horrors of war in the over 7000 negative plates they produced (Freestylephoto, 2014, year 1861-1865).

It was during this time period that artists-especially painters began to use photographs as a visual reference tool to assist in the realistic depiction of various subjects. Photography's innovations allowed portrait paintings to be created using models that no longer required them to sit still for hours. Norman Rockwell's nostalgic illustrations of Americana are transformations of his creative ideas painted from snapshots (Zhang, 2012, para. 2). Edgar Degas, famous for his figurative art works, also utilized photographs as visual references for realistic and detailed information in his paintings and sculpture. Degas' paintings in particular, show the influence of photography in how he began to portray cropped parts of the figure rather than including the whole person (Waldman, 2013, para. 1). Thomas Eakins, a famous realist painter, chose a different path, as the *Heilbrunn Timeline of Art History states*:

Eakins did not generally use photographs as a preparatory aid to painting. To the contrary, Eakins saw a different role for photography - one related to his extraordinary interest in knowing the figure and improving his sensitivity to complex figure-ground relationships. At first his photographs were likely quick studies of pose and gesture; later, perhaps during the process of editing and cropping the negatives, and then making enlarged platinum prints, he saw the photographs as discrete works of art on paper, at their best on equal status with his watercolors (Metropolitan Museum of Art, 2000, Thomas Eakins: Photography, para. 4).

Leaders in photography, like the visionary figure Ansel Adams, brought about a new appreciation for the photograph as a treasured work of art to be admired for its light painting qualities. In 1932 Adams, along with Edward Weston, Imogen Cunningham, et al, formed Group f/64 which was dedicated to “straight photographic thought and production” (Greenspun, 2007, year 1932). This West Coast School of thought was committed to creating photographic images of precise exposures, which displayed exquisite sharpness and details obtained by small aperture settings like f/64.

Over the decades, photography became a highly respected art form in its own right, with photographers becoming more creative, and stepping “out of the box” to create imaginative and eccentric photographic works of art. “Diane Arbus was an American photographer who worked throughout much of the 1960s photographing those living on the margins of society. Her photos were often portraits of so-called ‘freaks and grotesques’ with an emphasis on deviants and anything abnormal” (Persad, 2013, para.1). Artist David Hockney challenged the medium’s traditional norm, and became famous for his experimental photographic collages in the 1970s. Biography.com describes Hockney

as an artist known for his innovative photographs that incorporate various forms of technology, including using photo copiers, laser printers, fax machines, and smart phone apps to create works of art (Hockney, 2014, later work section).

In the 1980s photographers like Jerry Uelsmann, known as a “master of the photo montage and a pioneer of photo manipulation in the darkroom” (Photo District News, n.d., p.1) introduced amazing new combination prints created entirely from traditional film and darkroom printing processes. Artists working in this way paved the road for contemporary digital photographic imagery which often incorporates photo shopped and/or layered combination images. Uelsmann’s surreal imagery has inspired a generation of digital artists, despite the fact that almost all of it is done in a wet darkroom.

Uelsmann’s wife Maggie Taylor creates her “dreamlike world of narrative photomontages” using digital darkroom application programs. She utilizes a “menagerie of found objects, and a flatbed scanner to digitally capture these items”. She then employs Photoshop layers to create her montages (Adobe Systems Incorporated, n.d., para. 3). Contemporary photographer David LaChapelle is known internationally for his exceptional talent in combining uniquely theatrical, highly saturated, hyper-realistic and surreal combinations of art history and contemporary pop culture (Mun-Delsalle, 2014, para.4). Although LaChapelle originally photographed using film, the color options digital offers better suit his expressive voice. Today LaChapelle works using various photographic and artist mediums in combination. It is important to note that many of

today's most famous photographers, like Annie Leibovitz currently work exclusively in digital media.

The options for creating using various forms of photographic mediums are endless, and often incorporate a multitude of visual media to communicate the artist's idea. In order to better understand the rationale for this research inquiry, we should first understand the basic qualities and merits of each photographic format, as they apply to this investigation:

2.1 Photographic Formats

The following terms and concepts are described to assist the reader in understanding the relative ideas, theories, and views regarding the controversy this investigation examined. These terms furthermore, generated topics for the literature reviewed.

Traditional (film) or analog photography refers to the photographic format in which a person uses a traditional single lens reflex film camera, and conventional emulsion type film to record the image. In order to see the captured image, one must first process the film using a series of chemicals which produces negatives, whereby the dark and light tonal values appear in reverse. To view the actual positive image, the negative must then be printed in a darkroom, which typically involves projecting the negative onto a piece of light sensitive paper. The positive image magically appears once the printing paper is submerged into the appropriate print processing chemicals. Visual images are

initially viewed in camera (exclusively through the viewfinder) and can only be seen again once the photographic print is created. Editing of traditional photographs is usually minimal, although many artists have explored creative choices in alternative processing, including various forms of combination prints and surface treatment techniques. I believe a comment from a 2007 Facebook forum posting describing traditional photography summarizes this well: “You know. Film. Light. Response. Single lens reflex cameras. Working in a dark room. Developing your own film. Using an enlarger. Doing the craft and making the magic happen” (Hemphill, 2007, Advocates for Traditional Photography).

Digital Photography refers to a form of photography that employs the use of digital camera equipment, which incorporates utilizing a memory card as the image storage device. Images can be viewed during various stages of the photographic process, with the most significant occurring on the camera’s LCD screen prior to and immediately after shutter release. This fascinating and revolutionary immediate view feature allows photographers to make instantaneous decisions regarding exposure, composition, deletion, and so forth. Menu and operational setting options are bountiful, and one may make various changes in these multiple times during a shooting session. Images are processed electronically, which typically entails transferring images to a computer, where they are stored for future use. Images may be retrieved for viewing and editing numerous times thereafter and can be shared via the World Wide Web. Editing, alterations, manipulation, and creative choices with digital imagery are endless. Prints are characteristically

achieved through a personal printer or sent out for professional photofinishing. Fotoflock.com member Patrick Jean-Philippe in a 2008 web based discussion shared some insight regarding benefits digital format offers:

Digital cameras produce excellent quality pictures. In today's fast paced world the immediacy of digital pictures, the ease of storage, sharing and image processing without having to revert to an external lab or a darkroom equipped with complex gears and chemicals do make the digital camera an obvious winner for practicality sake: no carrying a load of non-exposed and exposed films, selecting a quality laboratory, etc. For a traveler taking pictures almost constantly economics are in favor of the digital camera (Dharod, 2008).

2.2 The Art Debate

Historically conversations like this are not unprecedented, as evidenced in a photo.net forum comment about Nineteenth century painter, Paul Delaroche's response upon first seeing a photograph: "From today, painting is dead".

Well, it didn't die and there are more painters today than in his day. Painting and photography are two vastly different media, and photography is a valid medium in its own right, that is, it is not a substitute for painting (Waller, 2010, p. 2).

In the article, *Your Argument About How Film is Better Than Digital is Old. Like, Really Old*, Chris Knight talks about excerpts from John Szarkowski's 1966 book: *The Photographer's Eye*:

Reading it, one can't help but acknowledge the glaring similarities in the 'digital versus film' conversation when compared to the early days of photography when it was lambasted by that generation's painters. Painters initially accused photography of ruining a visual art medium, when in fact, all it did was expand the

gamut of ‘visual art’ far beyond what had previously been imagined (Knight, 2013, para. 2, para. 4).

Much of this debate relates to the authenticity, importance, creative process, and level of technical skill artisans employ to produce quality art works in a particular medium. It is human nature for people to have diverse opinions regarding the integrity of creative expression and to treasure ways and beliefs that resonate personally. In my opinion, reasons for this controversy involves responses to change, and the difficulties some experience accepting change, especially when new techniques may propose new ideologies about what constitutes art. With particular regard to photography, I believe some of the controversy is not only about the creative skill set, but also includes an authenticity factor, as photography’s original intent was to document and record real life people, situations, and occurrences - with little to no obvious alterations. Nonetheless, the development and integration of photography and digital media art forms continues to incite intriguing, often controversial conversations that question the parameters and integrity of the photographic arts.

2.3 Traditional Film/Analog Proponents

Many who advocate for keeping traditional (film/analog) photography as a creative choice do so for reasons regarding their beliefs in superior picture quality. A guest posting in a fotoflock.com article, *Analog vs. Digital-the Eternal Debate*, shares comments supporting this:

I too have a digital DSLR, and would love to shoot only digital - but digital photos are flat, they really lack perspective. The most important advantage of an analog camera, the reason why most photographers choose it, is the picture quality. The picture quality that can be achieved with a film camera is very high and the images turn out extremely sharp (Dharod, 2008).

The following excerpts from the Digital Photography School.com posting, *Film vs. Digital* provides additional comments supporting film advocacy:

I can definitely acknowledge that film has several advantages over digital – mainly, the dynamic range (or, ability to retain details in highlights and shadows over a wide range of stops), and also the forgiving nature of film when you overexpose it. I love film for its beautiful, characterful look. There is richness and a 3D quality to film that comes out immediately without any post processing compared to digital (Lily, 2012, para. 3, Diaan Em, March 15, 2012).

2.4 Digital Photography Advocates

Digital advocates on the other hand, profess the following items to be superior qualities of their medium: sharpness, color clarity and balance, high image resolution, flexible iso settings, and the convenience of immediately viewing images on the camera's LCD screen. The diversity post production editing offers is also a valuable attribute, which often promotes creative choices. In his photo web site 500th.net, Martin Joergensen shares some thoughts regarding *Why Digital Is Better than Film*:

To a far majority of us and when measured, weighed and analyzed, the modern technologies are in almost all ways better than the older ones. More consistent, better specs, more reliable, more efficient, more accessible, more precise and mostly less expensive too (2014, para. 5). But reality is that film is not nearly as high res or as precise as digital. Film might have an edge on dynamic range – the difference between the darkest and the brightest spot in the image – but even here

it's losing ground. Modern digital cameras have a very good dynamic range (2014, para. 9).

2.5 Multiple Perceptions/Respective Places

Examination of both analog and digital photographic formats provides evidence supporting multiple perceptions and varied viewpoints concerning this topic. This is substantiated in two excerpts taken from the fotoflock.com open forum discussion article entitled: *Analog vs. Digital Photography – The Eternal Debate*:

I fail to understand the entire hype of digital photography replacing analog photography. It is usually perceived as two completely different phenomena, when they are not. Just like most things in this world, photography has evolved into a digital form. Like different lenses have different uses, analog and digital photography have their respective places. Both have their pros and cons, right from various technical aspects, to the individual photographer (Dharod, 2008, para.1).

It really doesn't matter what you use it's the end product that counts. Just because you use a digital camera and can take far more photos, it doesn't mean that you will. If we are talking about photography as an art form, then changing from analog to digital can merely be seen as changing from one medium to another. If I see a truly amazing photo the last thing on my mind is whether or not it was taken with an analog or digital camera (Dharod, 2008, sam445 posted November 5, 2009).

Some people question the integrity of digital imagery, particularly as related to post production editing and its justification and validity in qualifying as a photograph. I believe Katie Hemphill's comments in a 2007 Facebook discussion forum aid in clarifying such viewpoints:

Granted, digital photography has its perks, and I own a digital SLR myself. However, composite images and digitally altered images should not fall under the same category as photography. Photography means ‘to write with light.’ Not to write with Photoshop. Because digital editing does not make photographs. It makes digital images (Hemphill, 2007, p.1).

Further research provided information advocating for practicing and teaching both realms of photography. Insight indicating that some photography enthusiasts’ advocate for utilizing the best from both film and digital photography arenas in search of integrated creative choices is indicated in a comment from a petapixel.com article, *Film vs. Digital: A Comparison of the Advantages and Disadvantages*:

As far as one being better than the other, once again the technology is not what validates, nor invalidates, the images. Compelling images have existed on film for decades, and compelling images are being made today with (mostly) digital. The gear is the tools we use, and when someone tries to elevate the tools above the images, then they miss the reasoning behind photography entirely (Archambault, 2015).

Investigation findings have indicated many supportive proponents share my beliefs that we should employ the best of both worlds, and encourage facilitating appropriate choices and contributions in a comprehensive manner. This is evidenced in a selection from another About.com entitled: *Digital vs. Traditional Photography*:

Digital and traditional photography are complimentary arts. They have their respective places in the lives of amateur and professional photographers. The acquired skills in doing traditional photography will definitely be passed on to the digital world. We can therefore conclude that the world of photography has a room for both the digital photography and the traditional photography. After all,

digital photography is just another tool of modernization showing the advancement of photography in an ever-changing world. Let's just hope that digital and traditional photographers can make the best out of both worlds to produce the best work that everyone would love to have (Diaz, n.d., para. 6, para. 7).

It is very intriguing and thought provoking to learn about the multitude of viewpoints and reasoning surrounding the topic of traditional versus digital photography. I find the intensity of support for both photographic formats exciting and inspirational. It is also refreshing to find proponents that support a complimentary approach of co-existence. Through more extensive research, I aspire to find answers concerning the primary purpose of this investigation. My goal is to determine what methodologies provide beginning photography students with deeper understandings of core concepts to intentionally create photographic works of art

CHAPTER 3:

Methodology

In conducting this investigation regarding choices in photography, a primarily qualitative approach of narrative and descriptive data gathering methods was utilized. Observable facts regarding participant's responses to the research questions included methodologies associated with meaningful perspectives, which reflect individual's predisposed values and personal feelings. These perspectives became vital components of this study, as most collected data echoed the personal opinions of participants, including opinions from on line photography forums. A triangulation of research methods consisting of case study, action research, and survey was implemented. This triangulation process provided a wealth of extensive and comprehensive data, offering a well-rounded and rich array of information.

Utilizing case study methodology, sample groups of students enrolled in various levels of high school photography courses were observed and interviewed, so as to gain information representative of and relative to the comprehensive photography curriculum. The reflective process of action research methodologies was also implemented, and designed to identify teaching practices that best support increasing student's understanding. Data was analyzed by quantifying participant's answers regarding the intrinsic qualities of both traditional (film/analog) and digital photographic formats. In

addition, data was tabulated concerning the integration of conceptual and technical information of both photographic formats, and the role this plays in student's creative choices within the medium. Furthermore, entry and exit surveys and questionnaires, as related to issues of interest and research goals were conducted and tabulated.

Comparisons of responses from participants and observers at various points throughout the investigation assisted in identifying relationships, describing percentages, and determining the importance of findings related to identifying best practices for teaching photography.

3.1 Design of Study

This investigation was conducted as a pilot study, and served as a preface for further action research in which collected data identifies best practices that substantiate changes to teaching methods and strategies in order to enhance curriculum, student learning, and creativity. The following research questions guided the design of this investigation:

- Should traditional photographic methods be taught in today's world of digital imaging and why?
- What unique, intrinsic characteristics and attributes does each realm of these two photographic formats offer?
- How can students utilize and integrate information, knowledge, and concepts from both traditional (film/analog) and digital domains towards gaining

deeper understandings and exhibiting knowledgeable displays of technical and artistic concepts in their photography?

- How might these methodology choices contribute to the decisions students make regarding the creation of photographic works of art that depict intended imagery or meaning in their artwork?

3.2 Participants and Location

Originally, the primary participants in this study were to be students enrolled in photography courses of various levels and formats during the 2010-2011 school year. More explicitly it was proposed that approximately twelve students from each of the following northern Delaware high schools: Archmere Academy, Brandywine High School, and Mount Pleasant High School, would comprise the three groups of students involved in this research investigation. Due to unforeseen circumstances however, the primary participant groups were modified to include students from all three northern Delaware Brandywine School District public high schools: Brandywine High School (BHS), Concord High School (CHS), and Mount Pleasant High School (MPHS). In addition, 21 student participants enrolled in Digital SLR Photography I at Delaware County Community College (DCCC) in Media, Pennsylvania fulfilled the digital component that was originally being provided by Archmere Academy students. The timeframe of the data collections also required adjustments, in part due to scheduled course offerings, and took place during the following semesters: Spring 2011, Fall 2011, Spring 2012, and Summer I 2012.

The 30 Introduction to Photography participants from Brandywine and Concord high schools furnished data which focuses primarily upon traditional film methodologies from a foundation learning level. Ten additional Intro Photo student's information could not be used because they did not return contracts or withdrew from the courses. Data that represents a more comprehensive perspective incorporating learned skills in both film/analog and digital formats is provided by two Advanced Photography participant groups from Brandywine and Mount Pleasant high schools during Spring 2011 semester. These 13 advanced students have been taught core concepts in a traditional (film/analog) photographic format first, and then taught transference of this knowledge to digital SLR photography. The high school participant population ages ranged from 15-19 years old. Ethnicity and gender proved to be predominantly Caucasian females in all of these high school groups.

The 21 student participants from Delaware County Community College were taught the same core curricular photography concepts, employing an exclusively digital format. Seventeen additional student responses from these two Spring and Summer I 2012 classes were not used because no signed consent release forms were provided. Community college student's personal data is characteristically much more diversified, particularly regarding age and ethnography. The majority of these predominantly female college level DSLR I students had little to no prior experiences or training in either film or digital photography practices.

Although participants most directly involved were students, data was also collected from additional participants including their photography teachers, an art college professor, and a local camera shop owner. Interviews with art educators, professionals in the photographic community and advanced photography students provided a more comprehensive scope of insight regarding significance, understandings, attitudes, and values reflective of effective photographic methodology choices, teaching strategies, and current trends.

3.3 Data Collection Procedures

In order to provide information relative to the research questions posed, a variety of data collection procedures were employed at different points during this investigation. Information gathered from case studies of student participants enrolled in semester long photography courses during Spring 2011, Fall 2011, Spring 2012 or Summer 2012 served as the principal source for data collection. Action research guided observations, informal and formal teacher reflections and collaborative conversations generated valuable data. Interviews, questionnaires, and survey answers provided by both student and professional participants also revealed extensive useful information. Additional data was acquired from an examination of site documents including lesson plans, quizzes, and other forms of written assessments. Information collected from surveys, questionnaires, and other research documents was organized by similar levels of study, methodologies, and camera formats.

Student entry level surveys and questionnaires were initially conducted to obtain baseline information about individual's previous experiences and knowledge regarding photographic equipment and core concepts. A range of diverse photographic methodologies describing core concepts was then taught by the participating photography teachers. Beginning student's lessons focused primarily upon comprehension of fundamental photographic concepts, specifically related to the mechanics of aperture and shutter. Extended lessons incorporated making connections of these mechanical operations with visual elements, purposely making conscientious choices towards predicted visual results. Efforts were made to evaluate student's understanding of these core concepts after instructional units in each realm of photography.

Assessments using more intricately detailed differentiated instruments of measure like in-depth product/portfolio evaluations and written reflections were utilized at later stages in the semester to assess student's progress. These later assessments focused more extensively upon demonstrating comprehensive understandings and applying technical criteria with intentional visual results. Data obtained from various distributed assessments (like quizzes and mid-term reviews) proved advantageous in evaluating student's levels of understanding, and also for setting growth goals. Critical conversations and critique dialogs about their photographs provided further insightful contributions towards this endeavor.

Course exit surveys and questionnaires offered data reflecting student's development and learned knowledge. Of particular interest was student's ability to

achieve correctly exposed photographic images, which optimally aligned with pre-visualized concepts. As the research investigator, I was able to collect additional data to more extensively assess my BHS students' comprehension of core concepts and technical skills. Distributed and summative portfolio assessments of student's photographs provided valuable information toward this goal. Evaluations regarding individual's level of understanding and how they believe this photographic knowledge was best achieved were assessed primarily through interviews and conversations with photography students, educators and other professional participants. Further valuable contributions relative to the research goals were acquired through recorded interviews and small group critical conversations provided by advanced photography students. These personal dialogs integrate insight from students with multiple experiences and knowledge of both film and digital formats.

Although participants were primarily photography students, their teachers also offered valuable insight obtained from surveys and questionnaires they completed. Data gathered from conversations with photography teacher participants provided essential information regarding these evaluations and assessments. In addition, interviews with Philadelphia's Moore College of Art and Design's Photography Department chair, James Johnson and Jim Cycyk, owner of a prominent northern Delaware camera shop for over 35 years, offered profoundly relevant information from diverse perspectives.

Furthermore, data collected from internet resources yielded an abundance of varied viewpoints, insight and information regarding current trends and opportunities in

photography and digital imaging. Investigations of art college courses and degree offerings also provided some very relevant information, particularly regarding ideas secondary (high school) educators may want to consider about how to best prepare students for further photographic learning opportunities and possible career paths. Although the focus of this qualitative investigation was to describe actions, events, and relationships as they apply to the research questions, quantitative information used to create calculated generalizations that may apply was also utilized.

CHAPTER 4:

Analysis of Data

The collected data was analyzed to provide information relative to the research questions concerning integrating traditional and digital photography curriculums to enhance learning. Analysis of collected data examined information attained from case studies, action research guided observations and reflections, conversations, surveys, questionnaires, and other relative site documents. A substantial amount of data to support this investigation was acquired specifically from student entry and exit surveys and questionnaires, quizzes, distributed and summative assessments of project evaluations, portfolio presentations, critical dialogues, interviews, and group conversations. Photography teachers and professionals in the photography community also provided pertinent information and insight relevant to the research conducted. Responses and data attained from internet resources, primarily professional photography communities are presented where applicable. In addition, facts obtained from college course curricular content and certificate/degree offerings became significant to this investigation. Data was organized by like methodologies and similar levels of study.

4.1 Introduction to Photography Film Courses

Initial data was collected from students and teachers of three Introduction to Photography (Intro Photo) participant groups at Brandywine and Concord high schools. These courses taught photography employing primarily traditional film/analog

methodologies Syllabi and course outlines from both high schools (Appendix B: BHS Syllabi; Appendix C: CHS Course Outline) indicated alignment in their commitment to teach students the following concepts and skills regarding camera operations: iso (film speed), aperture, shutter, lens focus, and exposure meter readings. In addition to teaching students about the mechanical operations these features provide, teacher participants also shared their conviction concerning the importance of teaching key concepts relating the visual effects obtained by choices in shutter speed and aperture settings. Understanding the integral connections these concepts possess about how various shutter speeds affect movement and different aperture settings provide varied depth of fields are essential for comprehending photographic core concepts. This is particularly essential regarding pre-visualization competencies. In addition, photography teacher participants identified theories in understanding light and creating effective compositions as important elements for becoming proficient in photography (Appendix D: Teacher Questionnaire Original).

Topic:	Joy	Gayl	Penny	Rich
Film Speed				
Shutter Speed	3	3	3	5
Aperture	4	2	2	
Focus	1	1	1	
Depth of Field	5	5	5	3
Equivalent Exposure				4
Understanding Light				2
Composition	2	4	4	1

Figure 1. Teacher Survey Responses

It was reaffirming to learn that teacher participants were in agreement concerning inclusion of curricular content that supports teaching the aforementioned fundamental core concepts upon which the art and craft of photography was founded. These responses also confirmed my belief in the validity of utilizing a comprehensive approach to teach technical skills and aesthetic concepts in correlation with the visual responses. Knowing these teachers personally and the outstanding artworks their students produce in film formats also lend support to my belief that film is an important component in the photographic learning process. Furthermore, it substantiates the endorsement of photography as a bona fide artistic expression. To quote United Kingdom professional photographer Matt Hardy: “Beauty can be seen in all things, seeing and composing the beauty is what separates the snapshot from the photograph” (Microstock, n.d., bullet 3).

These photography teachers also assisted in gathering data from thirty students in BHS and CHS Intro Photo classes. Student participants completed an entry questionnaire to evaluate their prior experiences and knowledge regarding photographic equipment and basic concepts (Appendix E: Intro Photo Entry Questionnaire Original; Appendix F: Intro Photo Entry Questionnaire Responses). These level one students’ entry questionnaire responses indicated that almost all of the participants in each of these three groups had previously operated a point and shoot digital camera (collectively 97%), with the majority (83%) having also utilized automatic preset program modes on these cameras. Only 30% had formerly operated digital SLR cameras and data indicated that a mere 7% of these participants claimed to have minimal experiences operating DSLR camera

systems in manual mode. Consequently, responses indicated that none of these high school students had any real experiential knowledge or skill set in operating DSLR camera systems using manual camera controls.

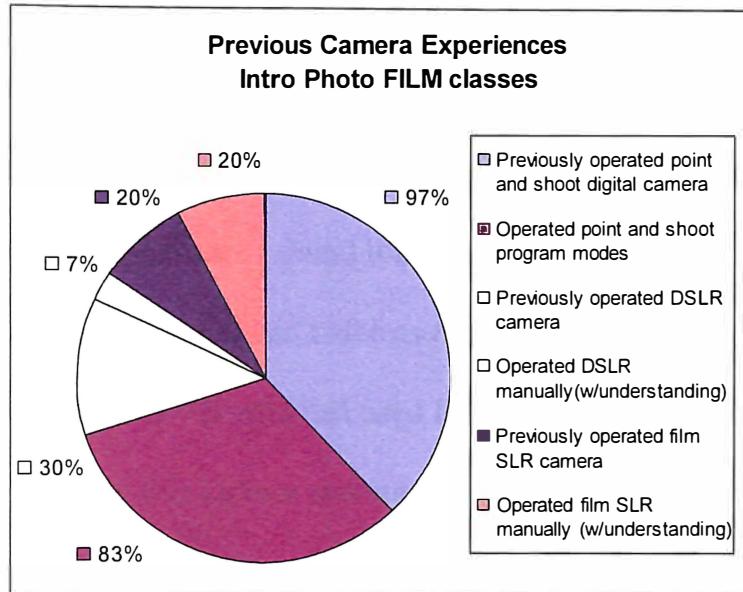


Figure 2. Intro Photo Previous Experiences

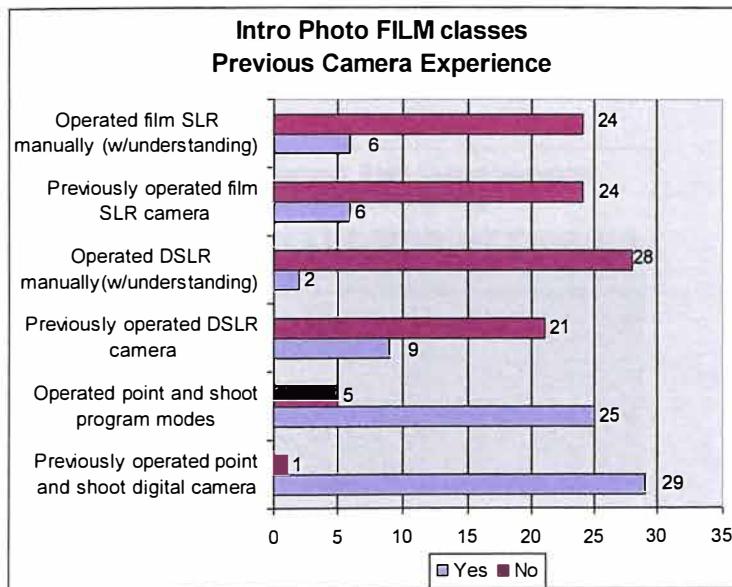


Figure 3. Intro Photo Previous Experiences

Information obtained from the film section of these students' questionnaire indicated that 20% had previously operated a film SLR camera, and out of these six students total, four rated their knowledge of manual operations as minimal (13%). No one alleged to have any more extensive knowledge of SLR manual camera functions. This data reveals that although many students had used point and shoot digital cameras in preset program modes, very few had operated either SLR camera formats using predominantly manual operations. I found it interesting that from the students who had operated either SLR format, more than twice as many (20%) had operated film cameras manually, as opposed to only 7% who had used DSLR cameras manually. I was also intrigued with the fact that this 20% of students who had operated film SLR cameras manually most likely did so after the explosion of digital's popularity in the 2000s. I came to this conclusion by calculating that most of these students were born in the late 1990s, which would make them about 10 years old in 2005, when digital photography was in full swing.

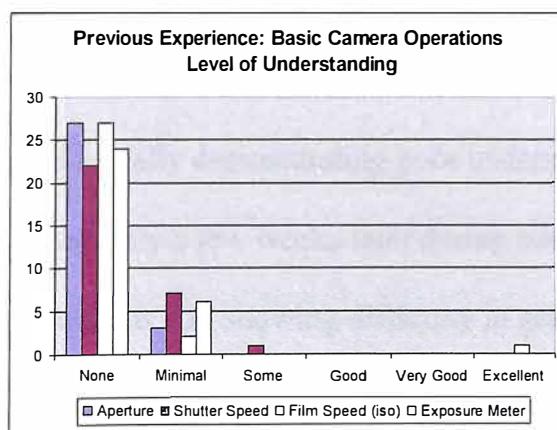


Figure 4. Intro Photo-Basic Camera Operations

As the primary research investigator, I was able to thoroughly evaluate my own BHS students' work utilizing various distributive and summative assessments, regular teacher observations, and frequent informal and formal critique evaluations of their photographs. BHS Intro Photo students completed a distributive written assessment to quantify their understanding of afore mentioned core concepts following instructional lectures and demonstrations (Appendix G: BHS Intro Photo Quiz). Results from the twenty students who took this quiz during fall 2011 and spring 2012 are as follows: two students showed an excellent level of understanding, ten demonstrated very good-good levels, one student scored an average rating and seven exhibited poor aptitude levels.

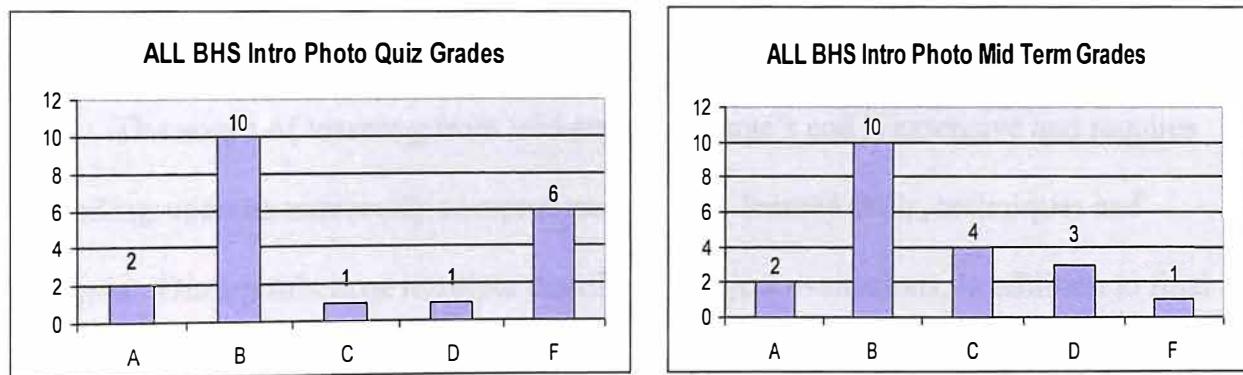


Figure 5. BHS Intro Photo Grades

These seven students initially demonstrating poor understandings made noticeable improvements when evaluated only a few weeks later during mid-term portfolio evaluations, with just four students still showing difficulty in grasping essential concepts and skills. Students exhibiting good-excellent aptitude levels on the quiz demonstrated minimal improvements at mid-term, with levels of understanding remaining essentially

the same: good-excellent. This mid-term evaluation became essential in assessing students' developmental needs regarding knowledge of core concepts, so that areas of curricular concern could be addressed.

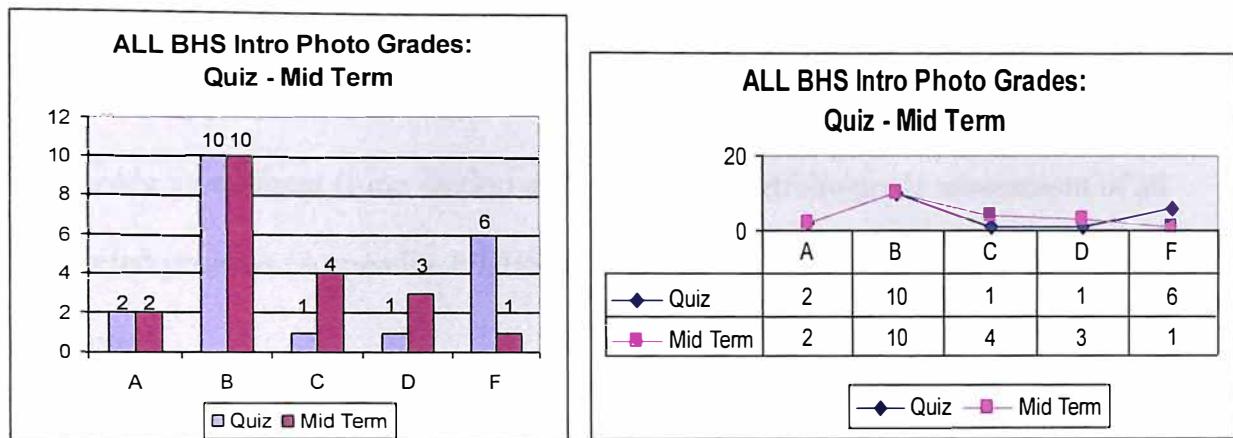


Figure 6. BHS Intro Photo Progress: Quiz - Mid Term

The scope of learning from mid-term to course's end is extensive and requires expanding upon an extremely comprehensive set of learned skills, techniques and concepts. During this time multiple distributed project evaluations, in addition to final portfolio summative assessments were critical components in evaluating BHS Intro Photo student's cumulative level of understandings. Portfolio assessments are designed to measure the quality of student's photographic work for each project in the following areas: film exposure, ability to capture images that creatively meet project objectives, and final print quality including both technical and aesthetic criteria, as described in the photography rubric and final portfolio grade sheet (Appendix H: Photography Rubric;

Summative assessments to evaluate students' depth of knowledge were primarily based upon final portfolio evaluations and critique dialogs. The BHS Fall 2011 and BHS Spring 2012 classes demonstrated various development and achievement levels as shown by their progress throughout the course. These levels of understanding are determined by the following progressive assessments: a quiz given after five weeks of instruction, a mid term grade assessment (nine weeks) and their final portfolio grade assessment of all completed projects (Appendix J: BHS Intro Photo Final Portfolio Grade Sheets-Student Examples).

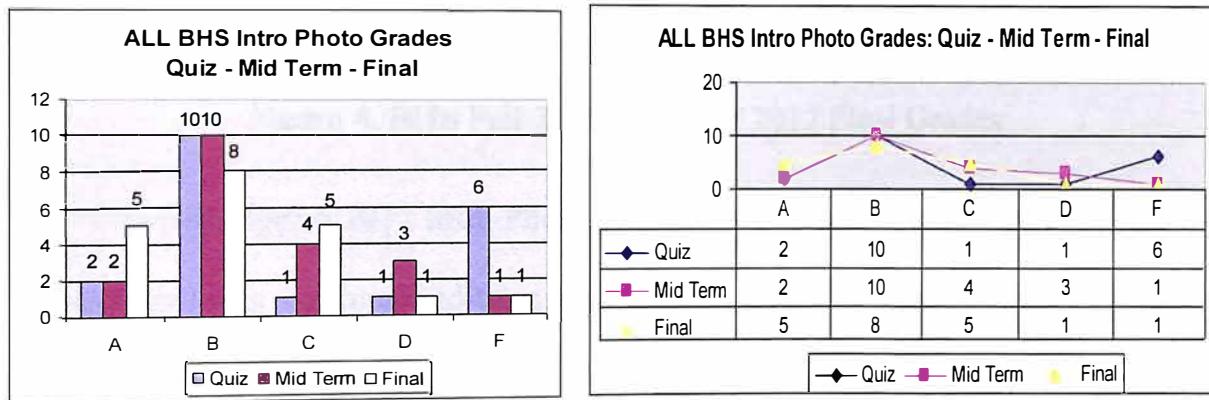


Figure 7. BHS Intro Photo Progress: Quiz - Mid Term - Final

This data further indicates that the BHS Fall 2011 Intro Photo group showed significant growth in their achievement levels at course completion, with 50% of the students demonstrating improved grades (as compared to mid-term) and likewise increased levels of understanding. In fact, at the course's completion, 57% of these students demonstrated good-excellent proficiency levels (A and B grades), with 29% exhibiting average competency levels, and a mere two out of 14 students (14%) earned a

poor performance status. Examples of student's proficiency in creating *B & W* analog printed images can be seen in samples of their final prints (Appendix K: Student Consent Forms; Appendix L: BHS Intro Photo Student Photographs).

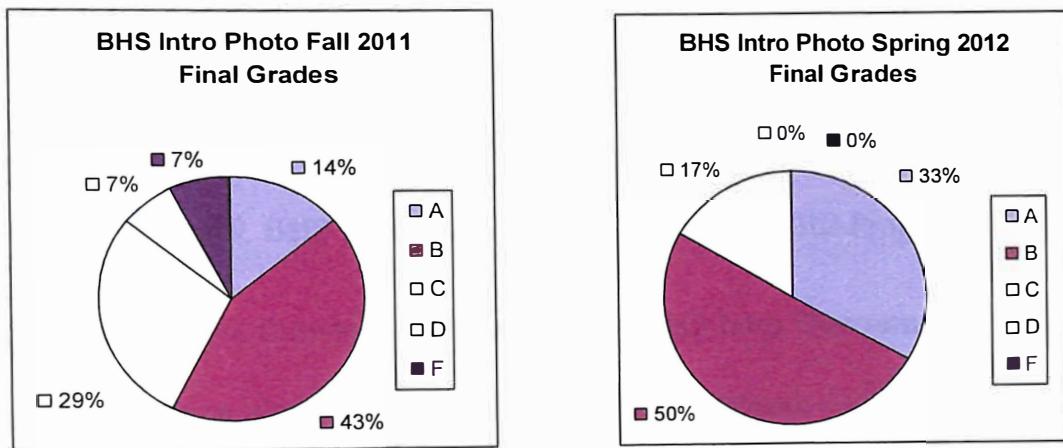


Figure 8. BHS Fall 2011 & Spring 2012 Final Grades

The BHS Spring 2012 Intro Photo participant group's level of understanding remained similar to previous mid-term assessments, with 83% continuing to demonstrate good-excellent photographic competencies. None received poor performance ratings, and only one student from this participant group exhibited an average achievement status (which was also consistent with their mid-term grade). The minimal growth indicated from the Spring 2012 participants does not surprise me, as the majority of these student participants were consistently high achievers, who typically displayed diligence in attaining rigorous goals they personally set. Conversely, the Fall 2011 participant group was diversified in their individual achievement goals and self-expectations.

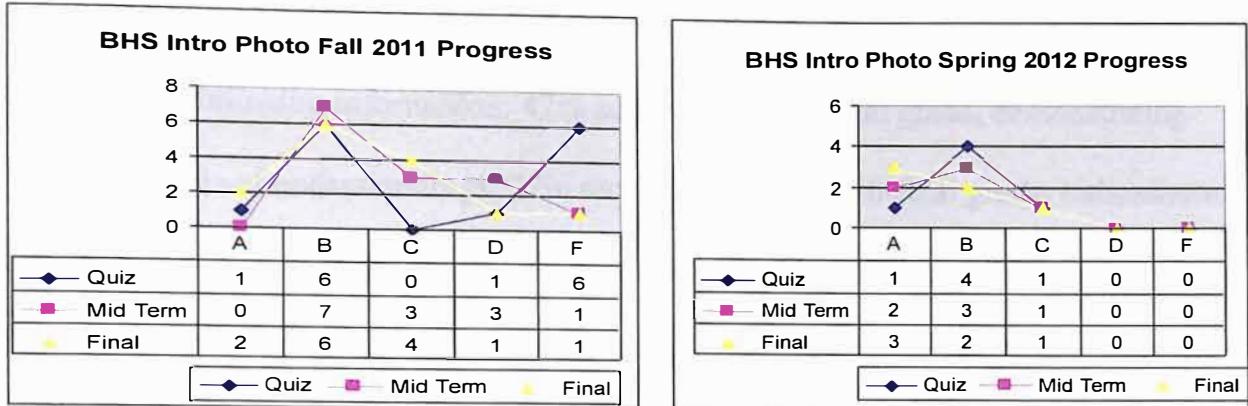


Figure 9. BHS Intro Photo Fall 2011& Spring 2012 Progress

No progressive, distributed assessments for CHS Intro Photo students were provided; therefore no similar conclusions could be ascertained. However, summative assessments revealed that all but one student (90%) achieved an excellent competency level, indicating high levels of understanding of photographic skills, techniques and concepts relative to this study. This also demonstrated significant growth regarding depth of knowledge, as originally 97% of CHS students indicated no real comprehension of photography fundamentals regarding manual operations of basic camera controls on the entry questionnaire.

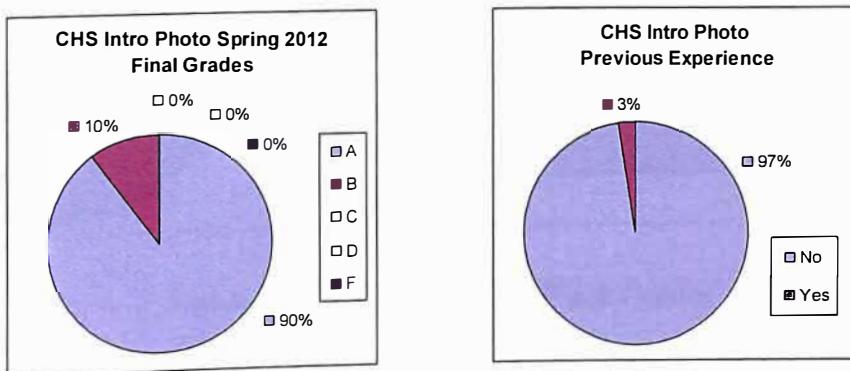


Figure 10. CHS Final Grades & Previous Camera Experience

Final grade assessments of all BHS and CHS Intro Photo participants collectively revealed the following information: 47% achieved an ‘A’ final grade, demonstrating excellent levels of understandings; 27% received a ‘B’ as their final grade, indicative of very good-good proficiency levels. This data therefore indicates that 74% of these Intro Photo students who learned about photography from a traditional film/analog viewpoint successfully achieved notable proficient levels of understandings regarding photographic technical and aesthetic criteria, including: manual camera operations, core concepts, film and print processing, and evaluative critical dialog assessments. An additional 20 % achieved an average aptitude status, earning a ‘C’ for their final grade. If this were added to previous proficiency totals, the results would show that 94% of the collective groupings of 30 Intro Photo high school students achieved acceptable levels of understanding.

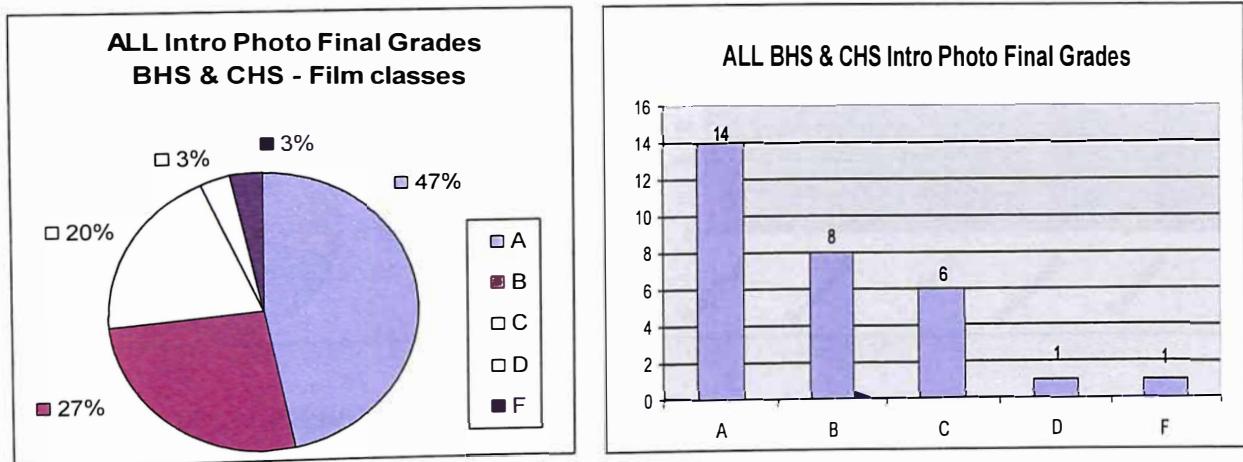


Figure 11. All Intro Photo Final Grades

All three Brandywine and Concord high school's Intro Photo participant groups completed an exit survey which required students to rate their level of proficiency relative to the aforementioned concepts and skills taught during the semester's course (Appendix M: Intro Photo Exit Survey Original). Ten areas specific to mechanical camera controls were quantified collectively. Core concept areas related to shutter speed and aperture were assessed individually. The available level of understanding rating options were: very poor, somewhat, good, very good, and excellent. Twenty nine of the 30 total students from these three film oriented Intro Photo participant groups completed this Exit Survey. Data gathered from the survey revealed that the majority of all BHS and CHS Intro Photo student participants rated their knowledge competency levels pertaining specifically to mechanical camera controls as very good-excellent.

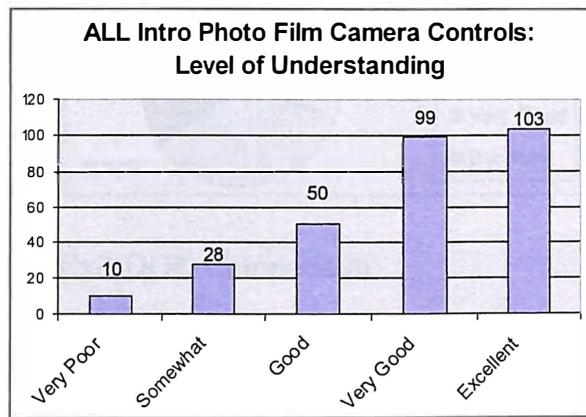
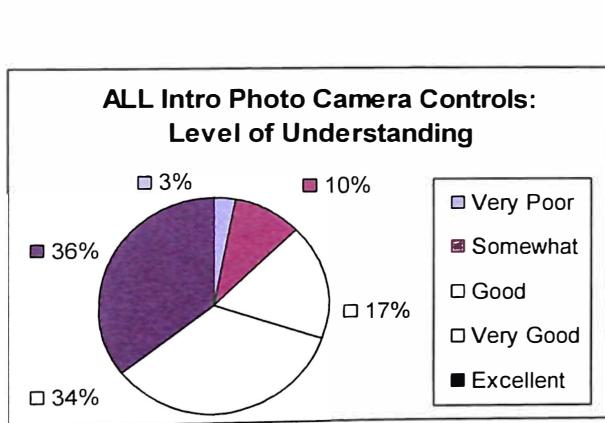


Figure 12. Intro Photo Exit Survey: Camera Controls

Identifying the developmental growth shown in the Intro Photo student's level of understanding regarding film SLR camera operations provided significant information.

Data quantified from all Intro Photo (film oriented) course entry questionnaire responses compared to the same student's exit survey self-assessment ratings regarding depth of knowledge about manual camera operations revealed the following information: At course entry only 20% indicated some knowledge of manual SLR operations. By course completion, 87% rated their level of understanding regarding manual camera operations as good – excellent. That demonstrates a rather significant increase of 67% growth in depth of knowledge as seen in the comparison of data in Figure 13.

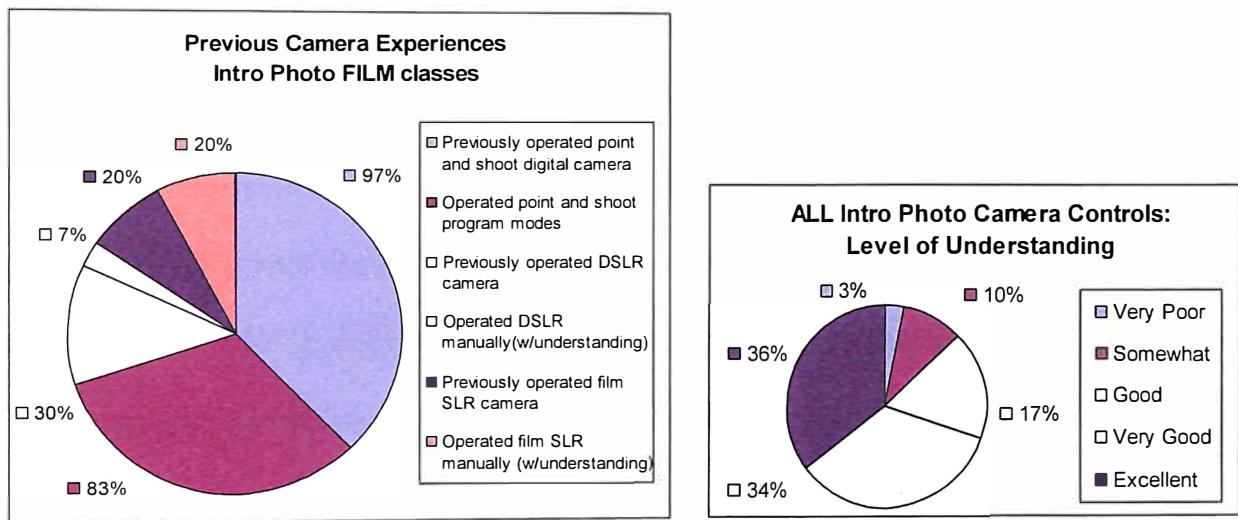


Figure 13. Intro Photo Entry & Exit DOK Comparison

Conversely however, this survey showed a wide disparity in ratings concerning core concepts relative to shutter speed and aperture. These ranged from somewhat knowledgeable-excellent, with good as the most widely chosen overall rating. Although proficiency ratings for shutter speed relative to movement were quite diverse, students indicated that they felt more competent about this skill set when compared to their knowledge regarding shutter speed relative to amount of light. The majority of students

in all three participant groups rated their level of understanding about shutter speed and the visual element of movement as good-excellent on the exit surveys.

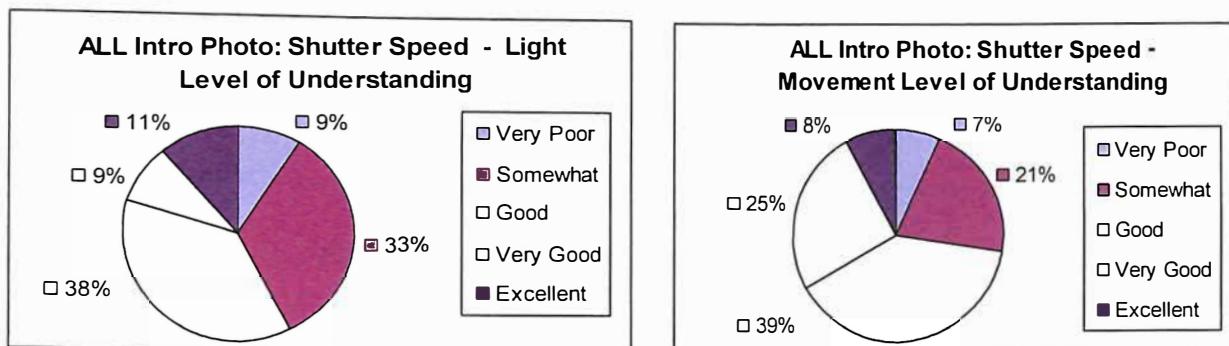


Figure 14. Intro Photo Exit Survey: Shutter Speed

I found it interesting that on the exit surveys students also rated their proficiency level regarding aperture and the visual aspect: depth of field, higher than their knowledge level concerning aperture and amount of light. This was especially intriguing, as data collected from BHS participants at mid-term indicated many students were having difficulty grasping the concept of depth of field, and its relationship to visual effects of focus through the distance. Exit survey data revealed that understanding aperture with respect to amount of light however, received the lowest rating overall, and was strongly rated only somewhat understood by all three participant groups. Although the statistics were varied, it was advantageous to learn that the majority of students connected better to the visually oriented aspect of these core concepts. This was a bit surprising, as I would have anticipated the more technical aspects of shutter speed and aperture easier to comprehend, because they are less abstract.

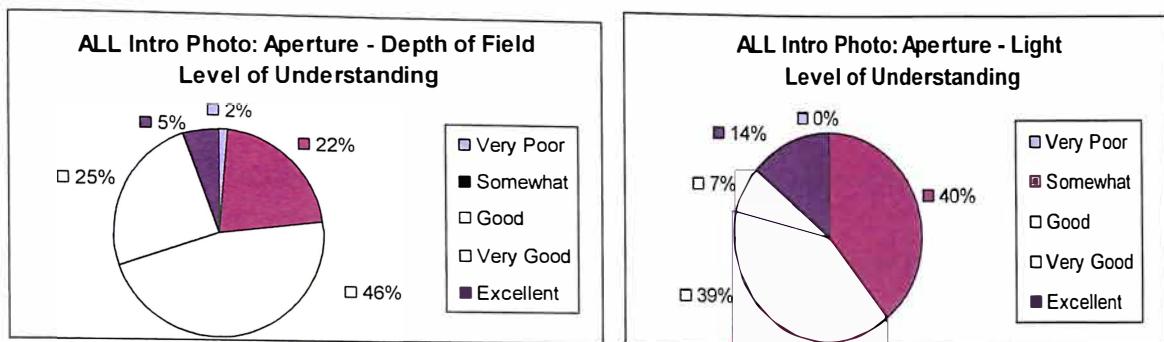


Figure 15. Intro Photo Exit Survey: Aperture

In addition to the exit survey, participants also completed an exit questionnaire. Even though the questionnaire was primarily narrative and rather open-ended, it still provided pertinent information. Many answers proved similar to the aforementioned survey, yet some posed curious contradictions. (Appendix N: Intro Photo Exit Questionnaire Original) For example, shutter speed associated with movement and aperture related to depth of field was identified here by many in all three participant groups as being difficult concepts to grasp. Yet on the check list style survey, students rated their level of understandings regarding these concepts rather highly. Therefore I concluded that although these core concepts can be difficult to comprehend and utilize effectively, the students were in fact able to achieve successful, knowledgeable applications of these concepts, skills and techniques.

Additional information obtained from other sections of this questionnaire revealed once again, that many students found understanding aperture relative to amount of light challenging to comprehend. Further data substantiated students' difficulty in initially grasping aperture as it relates to focus and depth of field. Yet, depth of field consistently

remained a concept they professed to possess highly competent levels of understanding in by the end of the course. Also worthy of notation is the questionnaire response indicating the majority of students identified their most enjoyable experiences and/or strongest assets as taking pictures. It is also interesting to note that while numerous students stated darkroom printing was one of their favorite activities throughout the course, many shared that they found the printing process to be quite challenging (Appendix O: Exit Questionnaire Student Responses).

4.2 Digital SLR Photography I

Data representative of student's understanding from a digitally oriented perspective was provided by 21 Digital SLR Photography I (DSLR I) students attending Delaware County Community College (DCCC). Students in this course were taught the same fundamental core photographic concepts and skills as the film based level one students, only using digital SLR cameras rather than film SLR cameras. (Appendix P: DCCC DSLR Photography I Syllabi/Course Outline) Information obtained from the identical entry questionnaire designed to evaluate their prior photographic experiences and knowledge provided the following data: All students had previously operated a point and shoot digital camera, with 71% having used various preset program and/or manual modes. Seventy one percent had also previously operated a Digital SLR camera, and out of the nine students who experimented with manual operations, only one of these students had any real knowledge or informed experience in DSLR manual operations.

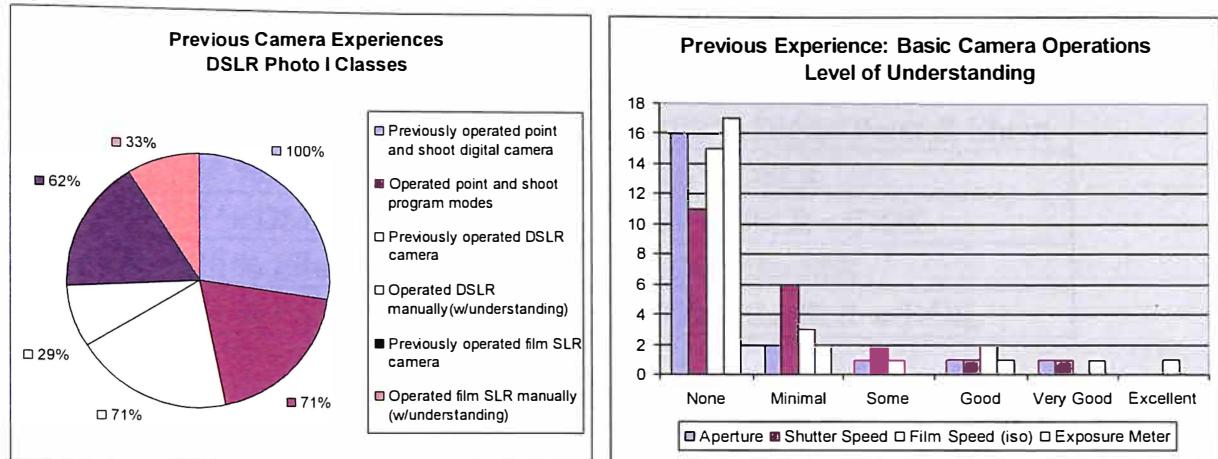


Figure 16. DSLR Photo I: Previous Experience

Slightly more than half (62%) had previously operated a film SLR camera, with one third (33%) rating themselves as having minimum knowledge of manual operations using film cameras. No participants indicated any higher cognitive levels of film SLR manual operations. Data obtained from these DSLR I entry questionnaires indicated that these students possessed higher levels of understanding regarding the operating systems of both camera formats, when compared to the skill set represented by the Intro Photo high school participant groups. This seems logical since these college level students have more years of life experiences to draw from. Figure 17 displays a comparison of the Intro Photo (film based) and DSLR student participant's previous experiences regarding camera operations upon course entry.

Entry Questionnaire Responses: Previous Experiences	
30 Total Intro Film Students	21 Total DSLR I Students
97 % Digital Point & Shoot	100 % Digital Point & Shoot
30 % DSLR	71 % DSLR
7 % DSLR w/DOK	29% DSLR w/DOK
20 % Film SLR	62% Film SLR
20 % Film SLR w/DOK	33% Film SLR w/DOK

Figure 17. Comparison of Previous Experiences

The exit questionnaire completed by DCCC Spring and Summer I 2012 DSLR I participant groups revealed some similar responses to those of the high school film based student participants. DCCC's digitally oriented students indicated that like the film based groups, the concept of aperture related to depth of field was one of the most difficult concepts to comprehend. Also akin to the film oriented participants was the somewhat contradictory responses regarding image making in the editing/print production stages. While some DCCC participants described these editing/printing processes as most enjoyable experience, others identified it as a difficult and arduous task. Yet more similarities exist in that the majority of both college level participant groups, like the high school participants, described their favorite activity and/or strongest area of expertise as taking photographs (Appendix O: Intro Photo Exit Questionnaire Responses). I found it interesting that some students in the Summer I group identified editing as most challenging, while others in the same class shared that editing was their favorite activity. These two DSLR I participant groups did not complete the exit survey, so no further concrete data was available. No other information specific to this study was

provided from which to collect and/or quantify data (e.g. student sample projects, distributed or summative grade assessments). Therefore no further assessments regarding student's proficiency levels of understanding about camera operations or core concepts was available for assessment.. This missing link made it difficult to appropriately evaluate and compare students' depth of knowledge with respect to film versus digital regarding fundamental core photographic concepts, skills and techniques. Likewise, comparing data between the film and digitally oriented participant groups could not really accurately be quantified either. Their instructor, however has indicated that the majority of all these participants did indeed, show good proficiency levels based upon his memory of their final portfolios. Being a former adjunct professor and colleague of the DSLR I DCCC instructor, I know his commitment to teaching students fundamental core concepts in all photography classes, albeit film or digital course offerings. Consequently, data collected from Advanced Photography students working with digital formats became an important component to this study.

4.3 Advanced Photography

In addition to data collected from the level one participant groups, 12 student participants in two classes of Advanced Photography courses from Brandywine and Mount Pleasant high schools offered even more insight. These students provided a rather expansive and comprehensive point of view, as they had originally been taught photography through primarily film methodologies in their Intro Photo courses. In Advanced Photography, students were initially taught to expand upon their previous

knowledge of film methodologies to deepen their understandings of core concepts. The goal of these advanced level students was to more consistently obtain specific, intentional, predictable, pre-visualized, desired results which demonstrated their knowledge of core photographic concepts and techniques. More in-depth and comprehensive information regarding image exposure like photographing in difficult lighting conditions, and zone system exposures relative to mechanical and visual connections were emphasized. Once competent utilizing analog equipment and materials, students were then instructed how to transfer these skills and knowledge to digital technologies (Appendix Q: BHS Advanced Photography Syllabi).

Nine BHS Spring 2011 Advanced Photography students completed an entry survey and questionnaire to obtain information regarding their experiential level of knowledge in both analog/film and digital equipment, techniques, skills and concepts. (Appendix R: BHS Advanced Photo Entry Survey Original: Appendix S: BHS Advanced Photo Entry Questionnaire Original) These students rated the manual operations of the following five areas in both formats: iso (film speed), focus, shutter speed, aperture, and exposure meters. Students' self-assessments indicated significantly greater levels of understanding regarding film camera operations and concepts, with most identifying their abilities as good on the entry survey, and good-very good on the entry questionnaire. Their self-assessment ratings concerning digital camera functions were substantially lower with most scoring themselves as having little to no knowledge of manual

operations at the beginning of this advanced level course. This was not surprising; as most students shared that they had no prior formal training in digital photography.

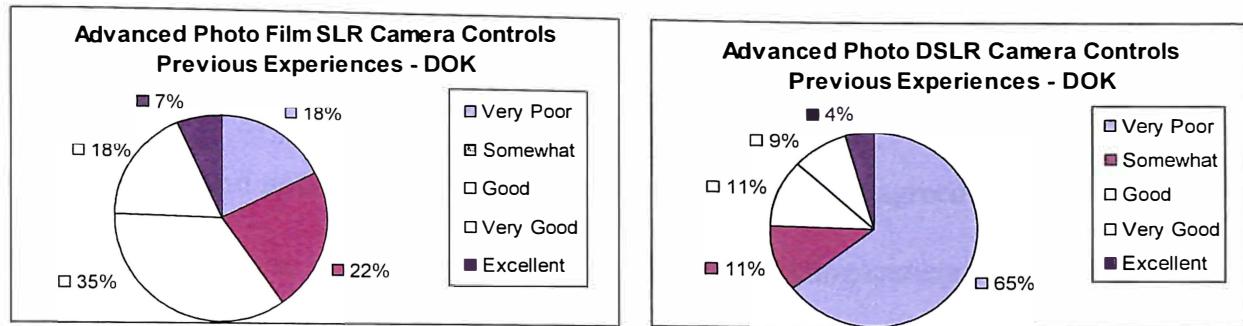


Figure 18. BHS Advanced Photo Entry Survey

The BHS advanced photography students' aptitude was also evaluated utilizing various distributive and summative assessments, such as teacher observations/reflections, critique evaluations, recorded critical conversations, project evaluations, and final portfolio reviews. (Appendix T: BHS Advanced Photo Final Portfolio Grade Sheet Original). Several critical dialogs and small group conversations offered a considerable amount of insight involving assessment of advanced students' level of understandings related to photographic core concepts. Topics of discussion included how their projects demonstrated applicable uses of pre-visualization skills regarding selecting shutter speed to express movement, and how depth of field choices visually affect an image. Inquiries and explanations about their technical choices and the resulting visual images suggested proficient levels of visual literacy by most students. Dialogs also included ideas on how to create prevailing expressive qualities and student responses about the emotive attributes in photographs they had created. Although most students were competent in

their abilities to accomplish pre-visualization goals using film cameras, some were hesitant in their capacity to do so digitally.

With guided instruction and practice however, students became adept in transferring and applying core concepts to obtain pre-visualized image choices relative to shutter speed and aperture in digital systems. Many students agreed that the immediate view digital cameras offer greatly assisted them in selecting camera settings for specific visual outcomes. Students also shared that this tool encouraged more freedom to experiment with unfamiliar territory, i.e. indoor shots and light painting, because it allowed them to modify exposure settings and other unwanted choices, so as to obtain more intently desired visual results. At course completion, most students exhibited competent DSLR skill levels to appropriately utilize the multitude of setting, function and menu choices DSLR cameras offer. This is evidenced on their final portfolio grade sheets, which cumulatively measures proficiency in both film and digital formats, from image capture and exposure to completed final prints. In addition, increased aptitudes can be ascertained from the growth demonstrated by comparing students' mid-term grades to actual final grades (Appendix U: BHS Advanced Photo Final Portfolio Grade Sheet Student Examples; Appendix V: BHS Advanced Photo Student Photographs).

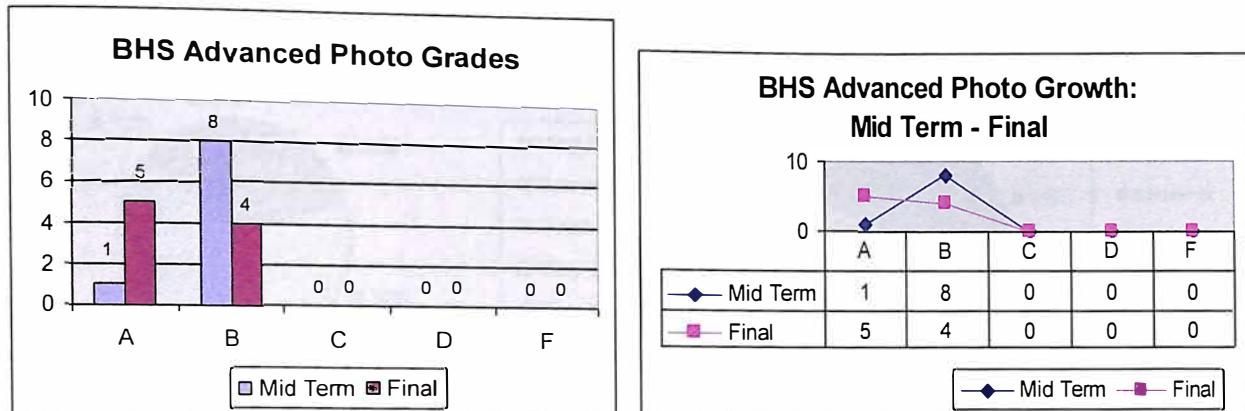


Figure 19. BHS Advanced Photo Grades – Growth

Further support confirming students' proficiency in both film and digital formats regarding equipment knowledge and core concepts can be evidenced in their completed exit surveys. Data attained from these showed growth in both film and digital domains, with the most improved aptitudes having transpired in the digital domain. Digital camera's level of understandings grew from little-no real comprehension to an average rating of good-very good in the same basic areas evaluated concerning film cameras. Ratings for film cameras increased minimally from primarily good to good-very good. This slight increase for film is not surprising, based upon students' higher levels of previous knowledge ratings obtained from original questionnaires. It is worthy of noting that students self-assessments regarding their depth of knowledge at course completion about both film and digital formats was the same (Appendix W: Advanced Photo Exit Survey Original).

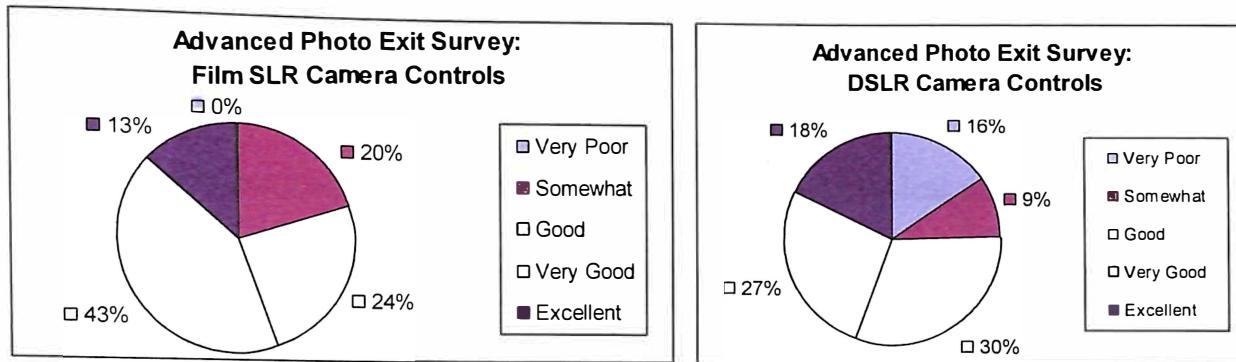


Figure 20. BHS Advanced Photo Exit Survey

Although no exit questionnaire was employed with advanced level participant groups, critical conversations with Brandywine and Mount Pleasant high school advanced photography students provided some remarkably enlightening information. All student participants agreed that core concepts crucial to understanding photography are: focus, composition, exposure meter readings, understanding light, aperture/depth of field, and shutter speed. All students also agreed that film photography should continue to be taught, and that they believe fundamental core concepts are best taught utilizing film/analog methodologies first. When asked why, their responses included these comments: “Film, especially black and white commands more thought” (Yelena, personal communication, May 26, 2011). “There is a greater and more in depth understanding with film photography due to the thought processes required to correctly operate cameras and the time/effort needed to produce darkroom prints” (Sarah, personal communication, June 2, 2011). “Film limits you, it forces you to use learned knowledge and take the time to set up your shots, rather than just click, click, click” (Pat, personal communication, June 2, 2011).

Many students also shared that they enjoy the hands on experience of film photography as being part of the ‘art’ of photography, and compared it to painting via computer applications, indicating that they consider actual physical painting more of an art form than ones created on a computer (Ryan, personal communication, June 3, 2011). Many of these students also shared their belief that film captures more raw emotions, and is more three dimensional looking (Renee, personal communication, May 26, 2011). Several agreed they believe film photography provides greater ownership because it’s more hands on and that it is best suited for “artistic” intentions. Student conversations compared film with vinyl records, and predicted it would become an “underground thing” that vintage aficionados would appreciate (Olivia, personal communication, May 26, 2011). Granted, these students were educated in film first, however they also had sufficient digital experiences and I believe were able to objectively convey knowledge-based, experiential opinions.

During these round table conversations, support for digital was also shared by most for various circumstances and situations. Many agreed they believe digital cameras are best used more so for every day purposes because they are easier to use and are typically less time consuming. They also acknowledged that they think professional and commercial photographers primarily use DSLR cameras because one can quickly adjust various camera controls to suit specific situational needs (Pat, personal communication, June 2, 2011). Additionally students stated they found the instantaneous view capacity of digital cameras advantageous towards making immediate exposure and compositional

adjustments. Further support for digital was avowed “because it’s less expensive and the editing programs and printing processes are more inviting” (Ryan, personal communication, June 3, 2011).

These same students however, expressed concern for those who use digital cameras without thought: “Most people with digital cameras only know two buttons: trigger and auto. They do not know anything about manual adjustments” (Amanda, personal communication, May 26, 2011). Yet another student’s comment shed great light to this topic: “Digital cameras can be an awesome tool for those who have already developed photographic skills. Pre-visualization and the patience required to set up good shots transfers well from film to digital” (Pat, personal communication, June 2, 2011). It was suggested that “limitations be created in digital that mimic film shooting characteristics to act as training wheels” (Pat, personal communication, June 2, 2011). It was refreshing to see them work through this thought process and to demonstrate an understanding of the beneficial values each format’s intrinsic characteristics offer.

4.4 Input from Photography Teachers

In addition to the student participant groups, their photography teachers also completed surveys and questionnaires to share their professional, educated opinions regarding choices in photographic methodologies. It should be noted that all teacher participants teach photography utilizing both film and digital SLR formats. Information collected from research documents, along with personal communications provided significant data relevant to this investigation. Brief descriptions of curricular content and

project assignments revealed consistency in the core concepts believed essential for students to obtain sufficient skills, knowledge, and techniques to create successful photographic images: focus, shutter speed, aperture, depth of field, exposure meters, composition, understanding light, processing images, and making prints. DCCC photography instructor, R. Johnson makes an interesting statement: “these things are critical in understanding how to use the tools in order to bring your vision to life”.

Although narrative answers regarding which methodology they considered best to teach photography fundamentals were somewhat varied, all four teacher participants agreed core concepts can be successfully taught in either film and/or digital format. All also indicated their preference for teaching core concepts utilizing traditional film formats first. Reasons they shared to support this are: “It forces students to slow down and learn basic techniques and processes that will later help them in digital. They might skip manual operations if only learning digital” (G. Pease, 2012). Teaching film first “gives students the foundation and understanding of the history of and practice of the science, craft and art of photography. The techniques are more stable and easier to comprehend” (R. Johnson, 2012). I agree entirely with these reasons, in addition to the ‘magic’ of the hands on darkroom experience another teacher participant speaks of (P. Ruth-Leshock, 2011). In a Yahoo Answers.com article: *Film vs. digital photography in the art world, are both equal?*, a photography teacher shares this sentiment that “Film is a superior medium for instruction because you need to learn the steps, work on composition more, and confront your problems head on” (2006, p.1).

On the other hand, teacher participants shared concerns regarding problematic areas and drawbacks of film photography as follows: “It is more time consuming, and lacks the instant feedback digital offers” (P. Ruth-Leshock, 2011). “It can be expensive, with materials and equipment becoming difficult to acquire” (G. Pease, 2012). “Film chemicals used may have a negative impact upon the environment” (R. Johnson, 2012). Even so, given their awareness of film’s shortcomings, these teachers still value and advocate for the benefits teaching traditional film photography offers.

The teacher participants also shared thoughts about the pros and cons regarding digital photography. One of the biggest advantages most all identified about DSLR cameras was the option to immediately view images, and likewise instantaneously make changes, i.e. exposure and/or composition. Additionally, the multitude of setting and menu options digital cameras offer, i.e. iso and white balance allow for numerous opportunities to make appropriate adjustments suitable to the situation. Keeping students current with technology (G. Pease, 2012), and the large selection of material, equipment, and creative tool options (R. Johnson, 2012) were also cited as positive aspects.

However, many also agreed that the multitude of materials, equipment and software required are costly. Additionally they ascertained that the rapid and continual changes in technology not only add to this expense, but can make it difficult to keep informed and up to date with current trends. Furthermore, those who are somewhat technologically challenged may find the learning curve for digital equipment and programs difficult to comprehend (R. Johnson, 2012). The propensity to use automatic

camera operations, as opposed to making knowledgeable choices in manual modes was also cited as a negative aspect of digital photography. R. Johnson identifies the “lack of thought process in relationship to good image making” as a disadvantage. As a veteran photography teacher and the primary research investigator, I have given a great deal of thought to this topic, and agree that this input summarizes my thoughts, opinions and experiences.

4.5 Insight from Online Resources

Online resources from photography communities, blogs and social media offered a vast array of insight and opinions related to both film/analog and digital realms of photography. Information gathered focuses primarily on two areas: image capture – which chiefly involved the actual shooting process; and output, which concentrated on image quality and archival properties. Additional forum discussions included insight about equipment and expenses. Even more important to the questions posed in the research investigation was information and beliefs attained concerning best teaching practices for photographic knowledge in today’s techno savvy world. Furthermore, investigations of current curricular trends in photography and digital media programs of study were conducted to gain insight reflecting how high school art programs can best prepare students for future success in the diverse array of photographic opportunities currently available.

4.5.1 Film advocates perspectives.

The first area of consideration addressed focuses on data collected supporting film/analog methodologies. Many film advocates believe a greater kinship exists with the art of creating a photograph using traditional equipment. Bart Zoni in his You Tube video: *Film vs. Digital-Film 101* claims that the mechanical, manual, tactile hands on experience with traditional film cameras make real, personal, psychological and emotional connections not necessarily achieved when using digital equipment (2011). In an fstoppers.com article, professional photographer David Geffin shares his reasons for going back to shooting film: Selections are made in camera; you become more observant, and keenly aware of composition. You are forced to attempt pre-visualization and to better understand light, and you learn to practice patience. You get a true sense of achievement and feel ‘the moment’ more (2014, Is Film the Answer?). Chris Knight in another fstoppers.com article affirms his belief that film is a more authentic process: “It’s more deliberate. It takes more forethought and technique, and each frame choice counts. (2013, para. 4). Yet another professional photographer, Ming Thein states:

Film is suited to creative experimentation, where that slight degree of unpredictability might result in something better than full control. Shooting film is my me-time. I now shoot film when I want to photograph in a slower and more contemplative way (2014a, para. 5).

Many film advocates argue that the image quality film produces is better than digital, especially regarding black and white (*B & W*) film photographs. Much of this

conversation relates to the range of rich tonality obtainable in *B&W* imagery, which provides depth, and creates a more three dimensional experience for the viewer. In Zoni's 2011 YouTube video previously noted, he discusses how film produces an expansive range of tonal values, describing the tonality transition of highlights as a soft roll-off, versus the clipping effect many highlight areas in digital images produce. This digital clipping often appears as a type of posterized look of glaring white bands, with no detail, seen for example surrounding a setting sun.

The way that film sees changes in tonality is very similar to the way our bodies process sight and sound sensory perception functions, as subtle transitions. Digital is completely linear... it's just a bucket collecting photons & reporting back about that, and then your software has to put a nice curve back onto it artificially, afterwards (2011).

In a photo.net community forum, member R. Cochran discusses how *B&W* prints characteristically have a "tremendous dynamic range (difference between blackest black and whitest white), including good shadow detail even near the darkest shadows and highlight detail even near the whitest highlights" (Simon, 2010, p. 1). Dialogs about 35 mm negatives and negative scans also indicate that film often produces better resolution quality. Jeff Price, president of a digital marketing services company supports this theory as shared in his video presentation with the Jacksonville Film Photography Meetup Group. Price claims that a good scan of a 35 mm negative will be 50-80 megabytes, and that a RAW digital image from a professional grade camera will only be 36 megabytes, which is substantially smaller in size (Price, 2014). Other data collected from multiple

photography forums indicates that a 35 mm negative image is equivalent to a 20 megapixel digital image.

Numerous people in the photography community also consider the quality of film grain pleasing, and describe it as possessing a gritty, textural, organic quality; full of details, depth and warmth of character. In a froknowsphoto.com YouTube video, photographer Adam Lerner in his You Tube video: *Film photography vs. digital photography-a shoot out of sorts* describes film grain, as a “beautiful collection of silvery tones”, including luscious rich blacks and intricately detailed whites (2011). In addition, many photographers including students, myself and several professionals cited in this research, will proclaim that there is something incredibly special and alluring about the hands on magical experience of watching these beautiful tonalities evolve as darkroom prints!

With regard to archival properties, film may have advantageous attributes here also. Although film cannot be backed up before the developing process, it certainly can be scanned and digitally stored for future use. If something were to happen to that digital capture, the original film could once again be used to create a photographic print or scan. In a digitalphotographyschool.com article, a contributing blogger claims that:

Once processed, and properly stored, film can last for hundreds of years. A properly processed B&W print, properly stored, can last over 600 years as verified by the Image Permanence Institute, acceleration tests. (Lily, March 12, 2012).

The motion picture film industry has also participated in the film versus digital discussion, as they share similar concerns regarding quality, compatibility and archival preservation. This is evidenced in Keanu Reeves 2012 documentary film: *Side by Side*, that “investigates the history, process and workflow of both digital and photochemical film creation, and how - at least for now- the two forms coexist side by side” (PBS, n.d.). Reviews of this movie indicated that many film makers still prefer film, in part for its high resolution and archival properties. All the while digital advocates preside here as well, particularly pertaining to the opportunities advancements in technology offer.

Film supplies and equipment have become more difficult to acquire, replace, and/or repair. As a result options for local purchasing are minimal at best which has forced film enthusiasts to procure necessary supplies from primarily online resources. Ordering online can be challenging to the inexperienced photographer, as a rather intensive familiarity is required to make appropriate purchases. Additionally, unless you have access to processing and printing facilities, you are dependent upon commercial analog photo finishing companies, of which there are very few, especially ones offering affordable quality work.

While some claim film photography has become expensive, especially regarding the consumable spectrum, many profess that film/analog expenditure requirements are actually less costly than digital expenses. These costs would of course be dependent upon the workflow, intent and purpose of the photographer’s work. Film/analog start up expenditure tend to be less than digital requirements. Equipment and materials are more

stable, and the need to purchase upgraded items is rather infrequent. Even when the consumable materials of film and paper are calculated, studies show that film/analog operating costs are often less than digital systems. Some reasons for this are likely due to technology advancements and the need to keep current with these developments. (Appendix X: Cost Comparison Chart).

Opinions and suggestions concerning which photographic format promotes optimum educational opportunities for deeper understandings are rather varied. Those who support film do so because of previously stated reasons, which mostly relate to the actual shooting experience, and the conscientious thought process required to obtain successful film images, including pre-visualization and purposefully chosen exposure setting combinations. Before making any conclusions or recommendations however, a more thorough investigation must ensue to acquire a fully comprehensive collection of data, including professional opinions and educated beliefs relative to this study.

4.5.2 Film/analog concerns.

Some proclaim that film is a poor medium choice for contemporary photographic endeavors. Reasons for this shared by the research's photography teacher participants and internet resources alike, focused upon the following aspects: availability, expense, exposure difficulties, time required to complete the entire process and environmental health/safety concerns related to chemical usage. The limited number of shots each film set provides was also cited numerous times as disadvantageous.

In addition, photography students sometimes have difficulty understanding mechanical camera operations, and find it challenging to obtain correct exposures. Although film possesses great latitude in exposure compensation, difficulties in obtaining good exposures cannot be identified until after the film is processed. This makes it tough to correct and make timely exposure adjustments. Tracking this information can also be laborious and rather time consuming. The process of shooting film, combined with the efforts required to process both film and prints requires a sufficient amount of time and patience. A comment from digital-photography-school.com's *Film-vs-Digital* article by Rebecca Lily supports this: "The downside of film is also its best quality. It requires effort, time and talent to extract the best of it" (2012, March 20).

Concerns regarding possible personal health and environmental disposal hazards incurred from traditional film chemicals are certainly valid. The primary safety concern is for strong concentrations of photography chemicals, and since most working solutions are extremely diluted, minimal hazard levels exist. Environmental hazards are not considered a problem when solutions are flushed with large amounts of water and are emptied into a waste treatment facility, except for fixer which should be disposed of in a silver recovery system. According to health and safety information provided by Ilford, one of the leading manufacturers of photographic products, "most photographic chemicals are non-toxic or easily biodegradable and many therefore pose no problem for the environment" (Ilford, n.d. Health and Safety General Information section).

4.5.3 Digital Proponents.

When investigating the digitally oriented proponents' point of view, it was clear that digital advocates have strong arguments for identifying digital photography as an exceptional and often superior medium for contemporary photographic usages. While many reasons center on keeping up with technology and current trends, conversations amongst those more deeply involved once again, primarily relates to image capture and output. Dialogues regarding capture in the digital realm predominantly focus on the capacity to immediately view your images, and make the necessary adjustments towards improved imagery on the spot. In addition, conversations about image quality relative to sharpness, color management, and changeable iso options are recurrent topics. Digital output discussions frequently include items relative to user friendly ideas, such as ability to easily store, share, process, and edit images - including the creation of prints. Many also advocate that digital processes are economically cost efficient, and environmentally friendly.

One of the premier features of digital SLR cameras is the capacity to immediately view and assess images, make any amount of adjustments desired, and reshoot the image. Beyond compositional modifications, one can easily experiment with various combinations of shutter speed and aperture controls to adjust the light measurements each exposure receives. Adjustments in these controls can also be made for more visually oriented effects, i.e. to blur or stop action and/or for shallow or expansive depth of field; or perhaps a specific focal point is desired. Digital image camera setting information

(metadata) is readily available so when reviewing your shots you can identify how various effects were created. The only way to check this with film cameras is to make note of exposure settings when shooting, and cross reference this with actual printed images later. In a You Tube video, professional photographer Matt Granger professes that the immediate view inherent in digital photography is an excellent learning tool as it offers great advantages for differentiated learning, and accelerates the potential for people to learn (2013). I strongly agree that this immediate view feature inherent in DSLR cameras provides photographers optimum learning opportunities towards understanding camera operations relative to visual literacy.

Some photography aficionados also profess that digital imagery is sharper in part due to the stabilization functions often offered. Norman Koren, inventor of Imatest - a program for testing digital image sharpness has done significant testing that evidences arenas in which digital is in fact sharper than film. He states: "I estimate that a full-frame sensor with 8.3 megapixels would have resolution equal to 35mm film. The simulated resolution of the Canon EOS 10D relative to 35mm film (82%) agrees well with tests on 10D" (Koren, 2004, Simulation technique section). At present, Canon's equivalent camera the 70D, offers a 20.2 megapixel sensor, which leads me to believe that digital imagery shot with this caliber of quality equipment may in fact, be sharper than film created photographs.

DSLR equipment also provides the photographer with a vast array of adjustable menu options that can be advantageous when setting changes are required in the middle

of shooting. An example would be iso adjustments due to changing and/or difficult lighting conditions. Many also claim that digital is faster than film, and possesses the capacity to achieve better quality images in low light situations. These iso “sensitivity settings go far beyond the commercially available film speed options and the digital results generally have less grain and better colour saturation” (photoventure.com, June 26, 2013, p.2). Professional photographer Ming Thein shares this opinion, commenting that he shoots digital when color and color accuracy matter (2014-a, para. 3). Yet another benefit with digital formats is that you do not have to be committed to shooting either color or B&W sequentially for any particular duration, as both options can easily be consecutively achieved. Furthermore, for the less experienced or enthusiastic, digital cameras typically offer numerous automatic preset mode options as well.

When evaluating the inherent beneficial characteristics of digital imagery output, the first thing considered generally focuses upon the ease with which digital images can be stored, shared, processed, edited and printed. Images captured are effortlessly stored on small rewritable storage cards, and can be readily processed and shared using a multitude of electronic devices, internet and social media options or via professional, online labs.

One of the big attractions of digital for most people was not so much the immediacy as the convenience. The digital age brought about the ability to handle all stages of the process independently, from capture to processing and output (Thein, costs 2014-b, para. 3).

Images can be deleted, altered, combined, and perhaps even incorporated into collaborative efforts, for example via Google drive. Comparing images is also easier with digital photography because you can put two or more shots on the screen and compare them at different magnifications, and/or utilizing various editing software applications. Most digital photographers have a vast array of tools they need to make sophisticated edits to their images, many which actually resemble traditional printing refinement techniques. Adjusting contrast, density and color; cropping, adding textures; layering and montaging imagery are just some of the possible editing options in many digital post production editing programs. In addition, identical results in final prints can be achieved, which is not so easily accomplished using traditional darkroom methods.

Patrick Jean-Philippe comments in a Fotoflock.com blog:

Digital cameras produce excellent quality pictures. In today's fast paced world the immediacy of digital pictures, the ease of storage, sharing and image processing without having to revert to an external lab or a dark room equipped with complex gears and chemicals do make the digital camera an obvious winner for practicality's sake: no carrying a load of non-exposed and exposed films, selecting a quality laboratory, etc... For a traveler taking pictures almost constantly economics are in favour of the digital camera (Dharod, 2008).

Discussions concerning cost analysis of digital photography are quite varied, with some proposing that digital expenses are less than film. There are no film processing costs, hence making shooting essentially cost free. In addition, you can print and/or purchase only what you want, which again has the potential to bring down the cost, depending upon individual practices. Once the initial upstart costs of computer and

software are paid for, operating costs can be rather minimal compared to film, particularly for those who find they print only a fraction of what they did with film. Furthermore, digital imaging appears advantageous to the earth, as concerns regarding the possibility of hazardous chemicals involved are minimal at best, leaving a much kinder environmental footprint.

4.5.4 Digital Areas of Concern.

Those who scrutinize digital photography mostly question the following areas: what some perceive as a careless shooting style, quality of imagery, attention given to post production editing, expense, and archival attributes. Other important factors in question relate to concerns about whether teaching fundamental photographic concepts should remain an essential curricular component in contemporary photography. As previously stated, this specifically pertains to knowledgeable choices of technical and aesthetic settings towards pre-visualized images. Additionally, accepting change can be rather challenging for some and photography/digital media arts has transformed considerably since its beginnings as an art and craft. Reference to this can be found in a recent Mazda car commercial: “The camera. Virtually unchanged for 100 years, until technology made it more efficient when one man created the digital camera; Steve Sasson, creator of the digital camera” (Mazda USA, 2014).

The shooting approach that some believe is characteristic of many digital photographers often involves “chimping around with their cameras, and employing much more trial and error as they attempt to make the camera provide a solution” (Digital Rev,

2013). This typically entails taking numerous photos, frequently in automatic modes, with very few images worth keeping. Photographs shot in this fashion are often poorly done with respect to correct exposure, composition, and visual literacy. Evidence of experiential knowledge regarding basic camera operations, and how they correlate to predictable, pre-visualized outcomes is minimal at best. In a digitalphotographyschool.com article, a guest posts:

With Film “most of the time” everybody was more careful before taking a photo, taking care about the quality. With Digital “almost” everybody shot everything and we are surrounded with digital images but only a few of them are good! With film, I used to remove around 40% of photos. With digital, taking photos like I used to with film, I remove 75% of photos (Lily, 2012, March 16).

Although previous discussions about image quality have shown diversity pertaining to superior image attributes, I believe it depends on how the images are being evaluated and for what purpose. While some adamantly regard film as the optimum choice in all instances, preceding dialogs indicate that many believe film is preferred for its exceptional quality images in B&W domains. However, most would also agree that digital prevails for its excellent sharpness and color saturation. Additional controversy exists regarding which format-film or digital is best suited for the creation of large size prints. I have personal experiences in printing 35 mm B&W film images up to 16" x 20" and digital print enlargement sizes up to 24" x 36". Consequently I tend to agree with this assessment, that film is the better option for B&W photographs, and digital superior for premium color prints.

A vast array of digital post production editing options exists, which can be advantageous for corrective and creative purposes. Some of the more conventionally based traditionalists however, seem to have difficulty in accepting these editing opportunities. They tend to perceive them to be deceiving and sinister, as indicated in a digitalimagecafe.com article: “Some of today’s purists look at digital photography as an unnecessary evil” (Hobizal, 2004). People may even find the option to make adjustments in post-production editing phases a bit of a crutch, and rely upon these editing tools to correct mistakes, rather than become proficient in knowledgeable camera functions. Others, like a viewer from a photo.net community forum believe: “that darkroom printing was as much of a manipulation as using Photoshop” (Simon, 2010). Additional interesting insight was offered in another photography community forum posting: “It has been said before that Ansel Adams would have loved digital photography” (Hobizal, 2004). These last two comments pertain to the adjustments and manipulations available and often utilized in darkroom printing, including burning, dodging, split filter and combination printing, which can be somewhat mimicked in digital editing programs like Adobe Photoshop.

With regard to cost analysis, many avow digital is ultimately more expensive than film. The upstart costs for quality camera, computer, scanner, printer, software, and inks is significantly more of a financial commitment than that of traditional film equipment costs. Another important contributing factor regarding the expense of digital relates to the recurrent growth in equipment, and software program options, especially as related to

compatibility issues (Appendix X: Cost Comparison Charts). At Jacksonville, Florida's Film Photography Day 2014, the president of a digital marketing services company pokes fun about (and sheds light upon) our society's drive for bigger, better technology. He addresses how companies marketing savvy participates in this regarding compatibility matters, thus encouraging photo enthusiasts and the general public alike to purchase the most current equipment more extensively (Price, 2014). Similar thought from others exist, as referenced in a digital photography school.com article, where one guest posts: "How many DSLRs are functioning after a few years? The digital upgrade cycle is a mess and expensive" (Lily, 2012).

Conversations regarding digital archival attributes are also fairly controversial, with many claiming that the integrity of digital archiving is questionable. Some of the concerns shared relate to: losing images before transferred and/or not having these files properly backed up if your computer crashes. A guest posting in a digital-photography-school.com article shares his apprehensions regarding accessing files, changing storage formats, operating systems, and software compatibility issues as valid reasons for concern. File conversion, for example in an early RAW format may require extensive creative problem solving to provide compatibility for the continued use of those items (Lily, 2012). In addition, many question the archival integrity of digital photographs, particularly regarding print surfaces (especially color) fading considerably in just a few years time. However, according to the National Archives and Records Administration:

Since the 1990's, the major photographic manufacturers have developed more stable dyes for color photographs, including the type of photographic paper used for snapshots. The good news is that these modern photographic prints will only fade a little over a lifetime, or even in 100 years, if kept in average home conditions. When displayed in moderate light conditions, only slight fading might occur in 25 to 50 years (n.d.).

It is comforting to know that sustained development in digital photographic advancements like archival storage continue to open new doors in this very diverse, growing world of photography and digital imaging/media arts.

CHAPTER 5:

Discussions and Conclusions

When I began this investigation, the digital revolution was at an all-time high, and a very controversial debate of film vs. digital existed within the photography community. It appeared to me as if the elimination of traditional film photography was eminent, in both the professional and educational realms. This was quite disconcerting; in part due to the foreseeable impact it may have for my own photography program at Brandywine High School. I had a multitude of both personal and professional reasons why I felt this investigation imperative, including an innate fondness for the film/printing process and quality. However, many concerns related to identifying current trends in the expansive world of photography and digital media arts, particularly regarding how these findings may impact the educational process. As a teacher I believe it my professional responsibility to reflect upon and identify best practices regarding curricular content, and to implement changes I feel will provide my students with the greatest level of understanding. Additionally, providing students opportunities to attain the most comprehensive experiential knowledge is especially important for those pursuing a career in the photographic arts industry.

One of my biggest concerns in approaching this investigation was that the fundamental core photographic concepts of focus, shutter speed, aperture, depth of field, exposure meters, composition, understanding light, processing film/images, and making

prints, were no longer being taught or valued, primarily in digital domains. This prompted the research question: Should traditional photographic methods be taught in today's world of digital imaging and why? I am pleased to report that many do in fact, seriously value the knowledge base that is intrinsic to the photographic arts, as confirmed in the multitude of detailed information provided in Chapter 4: Data Analysis.

Analysis of data revealed that many professionals, educators, students, and online photography community members believe that traditional film/analog methodologies hold significant value in understanding core photographic concepts, skills and techniques. Data collected also demonstrated support for my conviction that these analog practices should continue to be taught within the photography curriculum. This primarily pertains to the thought process routinely established when using film, regarding knowledgeable choices and pre-visualization skills. Advocates also avow that learning photographic core concepts is best achieved when utilizing a more simplified, basic system inherent in film equipment and techniques. Research findings revealed considerable support for my convictions of teaching film first, as indicated in a viewer's comment from the You Tube video *10 Reasons Manual Film Cameras are Best for Learning*:

Film experience taught me to think about everything up front. Without the knowledge I gained using old school film, I would not even know how to use any camera with 40+ options, or what they are for, much less how to make sense of them (Digital Rev TV, 2013).

My own advanced photography students have expressed similar apprehensions when first learning how to operate a DSLR camera. These students had previously demonstrated good proficiency levels regarding film SLR operations. Further support for providing film based learning experiences first is evidenced by the fact that many college photography programs require students to begin with an analog entry level course. Information obtained from various highly accredited art colleges offering BFA programs also affirmed the importance of film oriented offerings, as substantiated by the advanced level film courses offered. It should be noted however, that the majority of photography/digital media degrees and certifications are predominantly digitally oriented, which is logical since that is currently the premiere format, especially for commercial and professional purposes.

Evidence of methodology supporting teaching core concepts can also be ascertained from the experiences shared by 20 year veteran photography teacher participant, R. Johnson. Although no student exit surveys or summative assessments were provided from his DCCC DSLR Photography I participant groups, he assured me that the majority of his students possessed proficient levels of understanding regarding fundamental photographic core concepts, skills, and techniques at the end of this digitally oriented course. After talking with some of his students and viewing their final portfolios, I can verify his commitment to teaching methodologies which stress the importance of utilizing manual SLR camera operations in knowledgeable ways to obtain

pre-visualized, well exposed, and well composed photographic images - no matter which format - film or digital. It was enlightening to learn that the teaching of digital methodologies supporting core photographic fundamentals exists.

Additional conclusive evidence was obtained primarily from teacher participant survey and questionnaire data, along with a multitude of rationales shared by online professional photography community members. This collected data supports my hypothesis that core concepts can and should be taught comprehensively - in both film and digital formats. Reasons for this frequently relate to the intrinsic qualities each format offers. While analog competencies are typically associated with the image capture thought process and print dynamic range, digital advantages are more frequently related to the immediate view and versatile setting options. The opportunities digital equipment and editing programs offer to make instantaneous adjustments in multiple places and stages during the creation of an image are extremely advantageous for the discerning photographer. Support for proficient photographic aptitudes may also be verified in part by the countless options personal electronic devices and social media offer. Much of this technology actually encourages authenticated photography as evidenced by the numerous applications available promoting photographic knowledge, exploration, and creativity.

Further support regarding rationale for the incorporation of both film/analog and digital skills, techniques, and processes, was provided from an interview with Associate

Professor of Photography, J. Johnson at Moore College of Art and Design in Philadelphia, Pennsylvania. His comments confirmed previous reasons identified supporting a comprehensive photography curriculum, particularly concerning some of each formats most important intrinsic characteristics: "Traditional film practices are good for teaching the basic technical camera applications because it's more hands on; digital is better for displaying the immediate effects of these options". He continued to say "Students respond well to the differentiated hands-on, tactile, analog/film experience (especially the magic of seeing prints come to life in the darkroom), because their world is so technology/computer oriented". It is this prevalence of technology however, that affords us so many more diversified creative opportunities, including those achieved through exploring and utilizing the inherent characteristics in digital photography. The immediate view, variable iso and white balance features available in digital cameras certainly allow for maximal explorations of diversifying those capacities.

Mr. Johnson furthermore states that it is our job as teachers to "help students realize the potential of their ideas, better than they can envision on their own; to identify their personal interests and help them to develop these". I wholeheartedly agree and this directly relates to my research question: How can students utilize and integrate information, knowledge, and concepts from both traditional (film/analog) and digital domains towards gaining deeper understandings that exhibit knowledgeable displays of technical and artistic concepts in their photography? Providing students with knowledge,

skills, techniques, and opportunities in a multitude of diverse photographic media and tools helps them to explore and develop diversified and deeper levels of knowledge and understanding. This in turn promotes creativity, critical thinking, and the intentional creation of works of art. Intentionally creating a photographic artwork involves the application of learned and acquired photography skills, techniques and concepts.

Another conversation I found interesting and relative to this investigation was how experienced photographers find themselves shooting digital and film with different mindsets. Reasons for this often centered on the fact that with digital (since you don't have to pay for each frame) more experimentation is encouraged, particularly because you can immediately see the results, so people tend to shoot and reshoot more.

Professional photographer Ming Thein poses some interesting questions about this topic: "Perhaps the camera conditions us to see a certain way? Maybe it's a complexity thing; there are actually more variables to deal with in digital". Perhaps some of the beneficial characteristics of digital cameras actually encourage a less thoughtful way of shooting, regarding exposure, composition, and visual effects? Some community forum viewers shared their thoughts saying that they find it helpful to approach their digital image captures as if shooting film. They promoted formulating a similar mind set when shooting digital regarding the importance of each image and incorporation of thoughtful choices. In addition, some encouraged not checking the LCD screen as seen in a

viewer's responses to Thein's article: *Film diaries: thoughts on the psychology of shooting film vs. digital.*

Nowadays I use my digital camera as if it has no LCD at all. I just look at the pictures later, and I've found that this shooting discipline has improved my digital keeper's rate. The rate of keepers is now exactly same as that with my film cameras, 30%-50%. (2014-c. pg. 3)

I believe this way of shooting would best satisfy many of my concerns about the integrity of digital photography's artistic value regarding image capture. To quote famous photographer, David LaChapelle: "It's an analog approach shot with digital cameras, but for me the exciting part is to get everything as analog as possible" (Blanch, 2014). It is this 'analog' way of thinking that I believe should be instilled in all who profess to call themselves photographers, no matter what their photographic medium choice, and no matter what post production editing choices they pursue. As a viewer from Adam Lerner's YouTube video: *Film Photography vs. Digital Photography- a shoot out of sorts* states: If you aren't shooting in manual in digital ... then you aren't being a photographer. It's a skill-set based on skill ... not equipment (2011).

I adamantly agree with the importance of a knowledge based skill set in photography in all photographic mediums. I have also come to conclude that neither format is better in all instances, but that each medium has its strong points, and that the proficient photographer will have the aptitude to make good choices to suit their creative needs. This sentiment is shared in a blog by Ming Thein:

I'm fairly certain that a hybrid approach to photography gives the best of both worlds: the learning curve, shot discipline and technical control/ attention to detail of digital, and the forced creative process and slight uncertainty of film: the ultimate upshot is that you want to think before you hit the shutter, and then when you do, have the technical chops to ensure that all of your ducks are in a row and aligned precisely the way you intend them to be (2014).

In conclusion, I truly feel that we are very fortunate to have so many options for growth and exploration in photography/digital imaging/media arts, and that we should take full advantage of all these opportunities available - personally, professionally, and in the educational realm. I also firmly believe it should be our goal as educators to provide our students with optimum opportunities for creative development through the incorporation of (in this case), all available photographic formats to provide for maximum learning opportunities. I am pleased to report that providing learning opportunities which incorporate fundamental photographic art concepts (in all formats) that promote deeper understandings and creative growth are strong components of many educational programs. Rebecca Lily, in her digital-photography-school.com article shares: I agree that you can't conclude that one is better than the other, you can only conclude "which is better for me personally?" or, "which is better for this particular situation?" (2014). Although the focus of this investigation primarily concerns the educational realm, real world preparedness is an essential contributing factor for student's successful experiences regarding "the development of broad-based skills required of professionals today's ever changing image culture, art world and industries" (RIT

programs of Study, 2014). As a result of this investigation I feel very confident in my decisions regarding how to best prepare and educate my photography students in the most comprehensive ways possible towards achieving maximum potential and accomplishments for opportunities in their future photographic adventures. After all my research has been quantified, this study confirms that incorporating a multitude of learning opportunities from various and diverse photographic formats provides for the most in depth knowledge. Excluding options only narrows the possibilities for critical thinking and creative opportunities. I have come to the conclusion that although I still support the intrinsic value film formats offer, the format is not near as important as the methodology, the thought process, the teacher, and the student.

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Appendix A

Photography teacher participant survey to identify photographic core concepts.

Photography Teacher Survey

Teacher Name: _____ School: _____

Degree(s): _____ Number of years teaching: _____

Subjects you teach: _____

Courses you teach: _____

Topic:	Is this a core concept? Identify top 5: 1 = highest 5 = lowest	Best taught using film methodology?	Best taught using digital methodology?	Works well in either methodology.	Briefly explain why you believe this.
Film Speed					
Shutter Speed					
Aperture					
Focus					
Depth of Field					
Equivalent Exposure					
Bracketing					
Understanding Light					
Composition					

Appendix B

BHS Intro to Photography Syllabi

INTRO TO PHOTOGRAPHY ~ BRANDYWINE HIGH SCHOOL

Ms. Littleton. Phone: 302-479-1600, ext. 1230. Email:joy.littleton@bsd.k12.de.us

COURSE DESCRIPTION /GOALS:

Introduction to Photography is designed to teach students the basics of picture taking and image making. Development of both aesthetic understanding and technical control of their photographic imagery are our main goals. Students will develop skills initially in a traditional 35mm film format. They will learn about SLR camera operations and creating good exposures. They will learn how to process their own black and white film into negatives and likewise make photographic prints. We will also be working with digital photography as part of the photographic learning experience. Students will build upon their knowledge of film camera concepts, and expand these into the world of digital photography. Students will further learn how to apply the Elements and Principles of Art to their photographic compositions. Assessments of both technical and aesthetic photographic components will be taught and discussed, often in the form of critiques. In the end, a Final Portfolio of all course assignments must be submitted to the instructor.

GRADING: * *BHS Grading Scale: A=93-100; B=85-92; C=77-84; D=70-76; F=0-69*

Photography students are expected to complete all assigned coursework, including meeting deadlines. Approximately 6 required ‘homework shoots’ (along with in-class) projects can be expected.

STUDENTS ARE GRADED IN THE FOLLOWING AREAS:**FINAL PORTFOLIO:**

~ Consists of all notes, handouts, negatives, contact sheets, and final prints

*** *Completion of assignments:***

~ Field assignments, readings, tests, & quizzes

~ Fulfillment of project objectives

*** *Craftsmanship/ Technical Ability:***

~ Demonstrates an understanding of photographic technical skills and applies to projects.

*** *Creativity/ Level of Difficulty:***

~ The originality and freshness of thoughts used to interpret and fulfill project objectives.

*** *Studio Discipline:***

~ Work habits/effort/ attitude/ attendance

PHOTO CLASS POLICIES and PROCEDURES:*** *Attendance:***

This complies with guidelines found in the BHS Student Handbook and District Policy.

Please review. It is more difficult to make up missed classes in Photography than many other subjects, particularly due to the lab component. Please make every effort to be in class and *be prepared*.

Bring all needed items with you to the start of class. *Time is precious!*

*** *Late Penalty:*** Meeting deadlines is a critical skill that carries across all aspects of one's life. If deadlines are missed, this typically has a "snowball effect", putting one behind on

subsequent projects. Since studio/lab time is limited, it is crucial for students to make wise choices in their use of this time. ***Students, it is your responsibility to keep up with project deadlines as outlined on Assignment sheets.*** Even excused absences are no reason to allow yourself to get behind on project deadlines. Class instruction and lab time are essential for successful completion of this course. ***See me to schedule additional lab time as needed! After School “Open Labs” are offered on a regular/weekly basis, as posted.*** Failure to meet deadlines will result in the following grading penalty: $\frac{1}{2}$ letter grade drop/ per 1 day of lateness (on that project). For example: If you are 2 days late on-project deadline, your grade for that part of the project will be lowered by one full letter grade. The only exception in late penalties is for documented, excused absences. In this case, ***it is your responsibility to see me with an excused absence and your work in progress upon your return to school, so that we can discuss a fair deadline for your assignment(s).*** Failure to do so will result in the enforcement of stated late penalty.

* **Academic Honesty:**

The policy is the same as found in the BHS Student Handbook and District Policy. Please Review. As your instructor, I am strongly committed to upholding standards of academic integrity. These standards, at a minimum, require that you will endeavor to only claim work, which you have actually produced yourself. Claiming the work of others (i.e.: negatives and/or prints) or downloading images and claiming them as yours is considered plagiarism, and will be dealt with in accordance with BHS/BSD academic policies. Please believe in your own creativity and possibilities!

*** Art Lab Computers:**

In order to use the Art/Photo lab computers, students must have a completed Technology Agreement on file. These computers are to be used **only** for Art/ Photography projects (unless special permission by me is granted). **This includes internet use. No personal surfing or game playing allowed! Any misuse of the computers, printers, or scanners will result in the revocation of privileges, and if applicable, issuances of a Student Obligation form.** Think about it this way...how will you complete a computer art/photography project without access to the computer and needed programs?

*** Misuse of Property:**

Ours is the same as found in BHS Student handbook and District Policy. Please review. Additionally, the Art / Photography Department expects ALL students to respect department cameras, supplies, texts and other materials. Any misuse will affect not only the student's grade (under "studio discipline"), but also keep others from doing their work as well. If a student encounters any problems with the loaned equipment, they are to return it promptly and consult with Ms. Littleton. **Do not tamper with equipment in use or try to repair the camera! See me for assistance!** The teacher will file a Student Obligation Form if necessary, for the repair cost or replacement value of the camera/equipment. Replacement camera costs range from \$250.00 to \$600.00 which applies to lost, stolen, or damaged equipment.

*** Department Cameras:**

The Art/Photography Department has a limited supply of 35mm SLR and Digital cameras for students to borrow. Cameras will be rotated out to students for a 2-3 day period, repeatedly. Students and parents are required to sign an ***Equipment Usage Contract*** accepting responsibility of the camera/equipment. This contract must be signed by parents and students and will be maintained on file in the department **before a student is given a camera to borrow**. Misuse of property follows consequences as stated in the BHS student handbook and the BSD District Policy.

****** You will need to bring your photography portfolio binder to every class. This will eventually become your Final Portfolio, and will include all notes, handouts, negatives, contact sheets, and final prints. ******

**** An appropriate textbook will be provided to each student for use during this semester's course. Please take good care of book, as it will be used again and again. This book must be returned by the course end or student must pay for a replacement****

SUGGESTED MATERIALS: (prices are subject to change)

The photography department has limited equipment/supplies that are available to all of our students. Students with their own equipment have a greater range of use, especially for class work out side of the art room. They also tend to take better care of personal property... It is very helpful when students can provide some of their own consumable goods. Please understand ... **NO truly interested and hardworking student will ever be penalized for not providing these items.** Please see me (within the first two weeks of

class) if obtaining your own film and paper is an area of concern for you. ALWAYS ASK RETAILERS ABOUT STUDENT DISCOUNTS ☺

35 mm manual SLR “film” camera (with adjustable aperture and shutter; built-in light meter; manual focus preferred) A UV filter serves as a great lens protector; good, fresh batteries are required. Owned or borrowed, **camera must be checked by Ms. Littleton before** you use it for your course work ☺. Ask around ... many good, usable film cameras seem to be ‘lost’ or hiding in closets!

Although few film SLR's are available to purchase new, if you are interested in purchasing a new camera... Cameras Etc. recommends: (prices subject to change)

Promaster PK 2500 (totally manual - great beginner's camera...easy to understand)

w/ 50 mm lens - \$ 159.00; w/ 28-70 mm lens - \$ 209.00

- Recent recommendations for used camera purchases, have included:
 - Canon Rebel K-2, Minolta Maxxum 50, Nikon N75, Nikon FM10, Pentax K1000.
- Most should be in the \$200.00 range, including a 50 mm or preferably a 28-80 mm lens.
- Beginning photography students will also be using **“Point and shoot” digital cameras** throughout the course. There are many excellent point and shoot digital cameras for sale, starting at about \$100. **If** you are interested in purchasing, please make this choice with the assistance of your family and a knowledgeable sales person. ***Remember-The Art/Photography Department has a limited supply of cameras available to borrow.**

Please refer to the *Equipment Usage Contract*. We will be using manual “film” SLR cameras for the most part. However, we will also be working a

bit with “point & shoot” digital cameras as well.

***Film:** Approximately 7 rolls total. Suggestions and choices will be discussed.

Kodak Tri- X, 24 exp. (iso 400) \$ 5.00 T-Max 24 exp. (100 or 400 ASA) \$ 5.00

***Printing Paper:** approximately 50 sheets traditional photographic paper. Choices & suggestions will be discussed. **OPEN ONLY under SAFELIGHTS!!!**

- Ilford Multigrade IV RC Deluxe: Glossy or Pearl surface

-5 x 7” – 25 sheets -- \$11.50; 100 sheets -- \$38.00

- 8 x 10” – 25 sheets -- \$23.00; 50 Sheets - \$41.00 100 sheets -- \$79.00

!!! Do not buy digital photo paper without consulting instructor, as it must be compatible with our printers!!! **Digital Photo Paper Choices will be discussed.**

***** You should plan to purchase all supplies from suggested Photo Supply Stores.*****

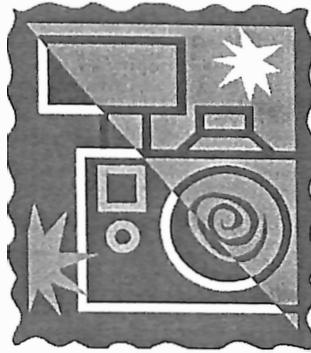
*** Notebook binder:** 11/2 inch-2” ring (hardbound preferred) - Used to hold your handouts, notes, negatives & prints.

OPTIONAL SUPPLIES

*** Print Sleeves:** (8 ½” x 11”) can be purchased rather inexpensively at office supply stores, Target, and Wal-Mart. Crystal clear pages look best with photos, as frosted pages make your images look dull and gray.

*** Lens Cleaning Kit:** (highly recommended if using your own camera)

Lens cleaning fluid - \$5.99; Micro cloth - \$5.99 or Promaster Soft Cloth - \$9.99



INTRO to PHOTOGRAPHY

COURSE AGREEMENT CONTRACT

Ms. Joy Littleton. Room 123. Phone: 479-1600-1230. Email: joy.littleton@bsd.k12.de.us

(Please detach and return by Wednesday, September 7, 2011. Thank you!)

I have received and read the course syllabus, the Art/Photography Department Policies, and the suggested supply list. I will contact Ms. Littleton with any questions I have.

(Print - student's name)

(Print - parent/guardian's name)

(Student's signature)

(Parent /guardian's signature)

(Date)

(Date)

Appendix C

CHS Intro to Photography Course Outline

Introduction to Photography Concord High School

Course outline: Mrs. Pinchin / Mrs. Pease

I. Instructional phase

1. Class operating procedures
2. Course assignments and grading system
3. Purpose of photography and history
4. Camera
 - a. Parts and function
 - b. Metering
 - c. Focusing
 - d. Depth of field
5. Practice roll
 - a. Group assignment in school
 - b. Practice how to use basic functions of a camera
6. Film and film processing
 - a. Load film
 - b. Develop film
 - c. Dry and cut film
 - d. Film exposure

7. Darkroom procedures and etiquette

- a. How to use darkroom equipment
- b. Contact sheets (proof prints)
- c. Test strips
- d. Enlargement
- e. Dodging and burning

8. Test on history and terms

II. Project phase

1. Photographs

- a. Bring in objects from home
- b. Demonstration on how to make one
- c. Make 2 photographs
- d. Make 1 reverse

2. Close-ups in Nature:

- a. A roll of film based on close ups and things found in nature
- b. Develop film
- c. Proof prints and 4 prints due for a grade
- d. Critique

3. Aperture

- a. Function
- b. Great depth of field

- c. Shallow depth of field
- d. Selective depth of field
- e. Selective- focus: near, middle, far
- f. 1 roll of film using near, middle, far
- g. Proof print and 4 prints for grade
- h. Critique

4. Composition

- a. Presentation and explanation on composition
- b. Rules of composition
- c. What makes a good photograph
- d. 1 roll of film based on rules of composition
- e. Proof prints and four prints for a grade
- f. Critique

5. Shutter speed

- a. Function
- b. Frozen motion
- c. Blurred motion
- d. Panning
- e. 2 rolls of film shooting frozen, blurred and panning
- f. Proof prints
- g. 2 prints per each type of motion and panning

h. Critique

6. Light

- a. Function and examination of different types of light
- b. Demonstration shoot in class
- c. Exposure and film
- d. Creating mood
- e. 1 roll of film experimenting with different sources of light
- f. Proof print and 4 prints due for grade
- g. Critique

7. Perspective

- a. People, places and things
- b. Finding or creating environments
- c. Content/self-expression
- d. 1 roll of film based on people, places and things
- e. Proof print and 4 prints due for grading
- f. Critique

8. Mastering a master

- a. Research different famous photographers
- b. Choose a photographer you can relate to
- c. 3 page photographer report
- d. 1 roll of film in the style of photographer chosen

e. Proof print and 4 prints due for grading

f. Verbal presentation

9. Theme

a. Photographers and their themes

b. Different types of theme

c. 1 roll based on theme

d. Proof print and 4 prints due for grading

10. Final

a. Test

b. Notebook with semester's body of work

Appendix D**Photography Teacher Questionnaire**

Name: _____ School: _____

This questionnaire is designed to provide information relative to my thesis research about current practices in photography education. It also questions the significance importance regarding the possible contributions in understanding the core concepts and technical skills of both traditional and digital photography. It is furthermore designed to assess the role of each photographic medium's unique characteristics; pros and cons. Thank you for taking the time to assist in the collection of data so as to provide some very informed and experiential insight towards the research questions posed.

- Please provide a brief description of curricular content about the photography courses you teach: Inclusion of syllabi is welcome!
- Would you please consider sharing a teaching strategy that you have found to be particularly successful in assisting students to more deeply understand the fundamental core concepts in photography? {Please make sure to identify the photographic format: either traditional and/or digital}.

1. Do you believe traditional (film/analog) photography should continue to be taught?

Why or why not?

2. Briefly describe what you believe are the intrinsic characteristics and qualities inherent to each of the two photographic formats?

- Traditional(film/analog):

- Digital imaging:

Kindly list/describe the pros and cons of each photographic format. Consider both the technical and visual aspects, as well as the educational value:

	Pros:	Cons:
Traditional		
Digital		

Appendix E

This questionnaire was designed to evaluate student's previous experiences regarding various camera operations, and general depth of knowledge about manual camera operations.

Introduction to Photography Initial Student Questionnaire – Previous Experiences

Please describe any and all previous experiences with photographic equipment by answering the following questions: Share with me what you know! Share with me what you would like to know!

1. Have you ever operated a digital “point and shoot” camera?
2. Do you/your family own one that you can use for this course? What kind?
3. Have you ever explored or have experience operating a digital camera in various program modes? These are often preset modes that cameras may offer like: portrait, landscape, beach, fireworks, kids & pets, color swap, etc. Be specific ☺
4. Have you ever operated a digital single lens reflex camera?
5. If you have operated a DSLR camera, have you ever operated in MANUAL MODE?
6. If you answered yes to DSLR manual operation, rate your level of understanding (minimal-proficient). Please provide any specific information (i.e.: aperture, shutter, iso, meter, white balance) that will guide me to better understand your knowledge.
7. Describe what experience do you have in post-production editing of photographs?
 - Microsoft Word Programs like:
 - Picture Manager

- Publisher
- Photoshop
- Lightroom
- Other?

8. Do you have any experience operating a single lens reflex (SLR) film camera?
9. Does your family own a traditional SLR film camera (or do you know someone that you think you can borrow one from to use for the course)?
10. Have you ever operated a traditional film camera in manual mode?
11. If so, what camera adjustments are you familiar with?
12. Please describe your level of experience and/or understanding in the following areas:
 - Aperture
 - Shutter
 - Film speed (iso/asa)
 - Exposure meter
13. Have you or anyone in your family/circle of friends ever taken a photography course?
14. Is there any photographic concept, technique or skill that you know of which you are particularly interested in learning about?
15. Do you know of any photographer's work (historical or contemporary) that you particularly enjoy?

Appendix F

Intro Photo: BHS & CHS - Previous Camera Experience Student Responses

Intro Photo - Previous Experience ALL 3 Film Groups - BHS & CHS

	Yes	No
Previously operated point and shoot digital camera	29	1
Previously operated point and shoot digital camera	97%	3%
Operated point and shoot program modes	25	5
Operated point and shoot <u>program</u> modes	83%	17%
Previously operated DSLR camera	9	21
Previously operated DSLR camera	30%	70%
Operated DSLR manually(w/understanding)	2	28
Operated DSLR manually(w/understanding)	7%	93%
Previously operated film SLR camera	6	24
Previously operated film SLR camera	20%	80%
Operated film SLR manually (w/understanding)	4	26
Operated film SLR manually (w/understanding)	13%	87%

Note. 30 total film oriented Intro Photo students (BHS & CHS) shown collectively.
Most important Questions demonstrated as narrative.

Appendix G

BHS Intro to Photography Quiz-given at week five, to establish depth of knowledge regarding core concepts.

Pre Camera Sign Out Quiz

Name: _____

Date: _____ Class/Period: _____

1. The term ‘photography’ literally means what? _____
2. What famous Greek philosopher first discovered the phenomenon of ‘photography’?

3. This phenomenon incorporated the scientific revolution that images travel how?

4. The first ‘camera’ was simply a light – tight box. What was this called?

5. What is the abbreviation for single lens reflex camera? _____
6. List the three main adjustment ‘rings’ found on most camera lenses (3 pts):

7. Draw a diagram of a split screen focus, indicating good focus/alignment (2 pts):

8. The iris diaphragm in camera lenses acts like what part of our body?

9. How is this (iris diaphragm) relative to amount of light? (2 pts.)

10. Identify the difference in (2pts): Aperture = _____

F/stop = _____

11. Commonly used shutter speeds are measured in _____

12. Which is the faster shutter speed - 1/2000 or 1/2? _____

13. Which shutter speed lets in more light-1/2000 or 1/2? _____

14. What part of the camera measures the amount of situational light, and serves as our
“guide to good exposure”? _____

15. What is the incredibly important caution ‘rule’ relative to a camera’s shutter?

16. What is the slowest shutter speed recommended for hand holding a camera? _____

17. Other ‘terms’ for film speed are: _____

18. What is Ms. Littleton’s term for shutter release? _____

19. Where is the film speed adjustment typically located on traditional cameras?

20. What 2 cautionary measures must we take when advancing film?

21. Identify the 2 operational procedures necessary when rewinding film:

22. What is the light sensitive material found in film and traditional photographic paper?

Appendix H

Photography Rubric

	A=4: Exemplary Performance	B=3: Above Average	C=2: Average	D=1: Below Average
WORK HABITS	Student always arrives prepared for class, and works very effectively at all times. They consistently assist in studio care/ maintenance. Student always works in a safe, responsible manner. Student always meets deadlines.	Student regularly arrives prepared for class, and works effectively most of the time. They generally assist in studio care/ maintenance. Student routinely works in a safe, responsible manner. Student usually meets deadlines.	Student mostly arrives prepared for class. Works somewhat effectively. They sometime assist in the studio care/ maintenance. Student usually works in a safe, responsible manner. Student occasionally meets deadlines.	Student rarely arrives prepared, and often works ineffectively. They seldom assist in studio care/ maintenance. Student often works in an irresponsible, unsafe manner. Student does not usually meet deadlines.
GUIDE-LINES	Student meets and often exceeds project objectives. Thoroughly completes all required steps, processes, and/or techniques.	Student generally meets the project objectives. Significantly completes all required steps, processes, and/or techniques.	Student somewhat meets project objectives. Partially completes all required steps, processes, and/or techniques.	Student minimally meets project objectives. Somewhat completes required steps, processes, and/or techniques.
TECHNICAL QUALITY	Student's work demonstrates mastery of equipment, materials and techniques. They show excellent camera and print exposure knowledge and skills. Images are well focused exhibiting strong compositions. Prints have excellent contrast; tonal values. Prints are always clean with good borders.	Student's work generally demonstrates effective use of equipment, materials and techniques. They adequately apply camera and print exposure knowledge and skills. Images are generally well focused and exhibit good compositions. Prints have good contrast; tonal values. Prints are clean with good borders.	Student's work demonstrates a fairly effective use of materials and techniques. They somewhat adequately apply camera and print exposure skills. Images are sometimes focused and exhibit fair compositions. Some prints exhibit good contrast; tonal values. Prints are sometimes clean with okay borders.	Student's work demonstrates poor knowledge of equipment, materials and techniques. They rarely apply acceptable camera / print exposure skills. Images are often poorly focused, and exhibit substandard layout.. Prints frequently show poor contrast; tonal range. Prints are dirty with bad borders.
LEVEL OF DIFFICULTY	Student demonstrates a high level of difficulty in several areas like: scope/size; expertly applied learned technical skills, and/or incorporates complex, sophisticated, multi-layered ideas, with great clarity.	Student demonstrates good levels of difficulty in a some areas like: scope/size; learned and adequately applied technical skills; and/or incorporates multi-layered ideas that are generally clear.	Student demonstrates some level of difficulty in a few areas like: scope/size; learned and somewhat adequately applied technical skills. Occasionally incorporates some layering of ideas.	Student demonstrates an inadequate level of competency in areas like: poor application of technical skills and scope/size is minimal. Ideas are mundane, simplistic and/or trite.
CREATIVITY	Artwork demonstrates unique solutions and originality. Work is extremely innovative, reflects personal introspection, meaning, and/or highly expressive ideas. Techniques and/or materials are used in creative ways.	Artwork demonstrates some original thought and insight. Work shows developed ideas exhibiting some introspection, expressive qualities, and meaning. Perhaps techniques and/or materials are used in creative ways.	Artwork demonstrates modest original thought, and lacks insight. Ideas are common place, exhibit minimal expressive quality, or meaning. Techniques and/or materials are not really used creatively.	Artwork exhibits trite images that show no real original thought. Ideas are not interesting, and ineffective in translating expressive qualities and/or meaning. Materials are not used in creative ways.

Appendix I
BHS Intro Photo Final Portfolio Grade Sheet Original

INTRO to PHOTOGRAPHY FINAL PORTFOLIO GRADE NAME: _____ Date _____

	EXPOSURE LOG	NEGATIVES: Image & Exposure Quality	CONTACT SHEET, Tests & Proofs	ENLARGEMENTS- Tests & Proofs	FINAL PRINTS	PRINT LOGS	COMMENTS: Effort, Technical Skills, Level of Difficulty, Creativity
PROJECT 1: "PARTNER/SCHOOL"							
PROJECT 2: "BIRD'S EYE/WORM'S EYE"							
PROJECT 3: "COMPOSITION"							
PROJECT 4: "ONE THEME"							
PHOTO NOTEBOOK ORGANIZATION/PRESENTATION							
WORK HABITS/ STUDIO DISCIPLINE							

Appendix J1

BHS Intro Photo Final Grade Sheet Sample

INTRO to PHOTOGRAPHY (Spring 2012) FINAL PORTFOLIO GRADE

DATE: 6/5/12

STUDENT NAME: [REDACTED]

	EXPOSURE LOG	NEGATIVES: Exposure Quality / Fits Assignment	CONTACT SHEET, Test Strips & Proofs	ENLARGEMENTS- Test Strips, Proof Prints	FINAL PRINTS	PRINT LOGS	Comments:			
							Effort, Technical Skills, Level of Difficulty, Creativity			
PROJECT 1: "SCHOOL"	✓/+	✓/+	✓/+	(2)	✓		8x10 - Miss Square Stet! - Wish sharper... nice patterns. 8x10 - Arista & Army - nice capture			
PROJECT 2: "BIRD'S EYE/WORM'S EYE"	✓	✓/+	✓/+	✓	(1)	4	8x10 - arbor - great shot!! lots more possibles! Wish more prints!!			
PROJECT 3: "COMPOSITION"	✓	✓/+	✓/+	✓/+	(4)	✓	8x10 statue - like it! 8x10 cherubs - dark, gray Again, so many great shots! 5x7 - big pot w/ sculptures - great eye! 5x7 - pool - love idea... good print?!			
PROJECT 4: ^{(1) 8x10 Images... B} "Human Interaction" "Nature" "One Theme" ^{Joint exhibition}	✓	✓/+	✓/+	✓/+	(1)	✓	8x10 "labyrinth" - maze/stone sculpt. Should be an A!! 8x10 - "labyrinth" - maze/stone sculpt. Should be an A!!			
PHOTO NOTEBOOK ORGANIZATION	B/C	Ps. put all good prints 1st, w/ tests etc behind it in sleeve... Good contact w/ my								
WORK HABITS/ STUDIO DISCIPLINE	B	So wish you'd been able to come to more open labs. So many really good shots in? Need good prints!								

Appendix J2

BHS Intro Photo Final Grade Sheet Sample

INTRO to PHOTOGRAPHY (Fall 2011) FINAL PORTFOLIO GRADE DATE: 1/13/12

STUDENT NAME: [REDACTED]

PROJECT	GRADE	EXPOSURE LOG	NEGATIVES:	CONTACT SHEET, Test Strips & Proofs	ENLARGEMENTS- Test Strips, Proof Prints	FINAL PRINTS	PRINT LOGS	COMMENTS: Effort, Technical Skills, Level of Difficulty, Creativity
		Exposure Quality / Fits Assignment						
PROJECT 1: "PARTNER/SCHOOL"	B+	✓/+	✓+	✓/+	① B	✓/		8x10 - building + tree - good contrast + framing - great timing value great shot!)
PROJECT 2: "BIRD'S EYE/WORM'S EYE"	B+	✓+	✓+	✓/+	② B/C	✓/		8x10 person behind tree - low, ideal, still not convinced of blurry tree. I'd crop it out... larger print possibles - sad, no more
PROJECT 3: "COMPOSITION"	B+	✓	✓/+	✓+	① B	✓/		8x10 - road sign - nicely done!
PROJECT 4: "ONE THEME" Architecture??	C	✓	✓+	✓+	✓/+	②		8x10 - castle - uninteresting ah! promising - come print DISPLAY!!
PHOTO NOTEBOOK ORGANIZATION/PRESENTATION	B							Prefers neg + good contact open together. Wish done!!
WORK HABITS/ STUDIO DISCIPLINE	B							Wish you had come to more open labs to PRINT!! Absences - missed theme project due date half.

Appendix J3

BHS Intro Photo Final Grade Sheet Sample

INTRO to PHOTOGRAPHY (Fall 2011) FINAL PORTFOLIO GRADE								DATE: 1/16/12	
STUDENT NAME: [REDACTED]									
PROJECT	GRADE	EXPOSURE LOG	NEGATIVES:	CONTACT SHEET, Test Strips & Proofs	ENLARGEMENTS- Test Strips, Proof Prints	FINAL PRINTS	PRINT LOGS	Comments: <i>Sat night</i>	
		PROJECT 1: "PARTNER/SCHOOL"	D	✓ Really?	✓ 1/4	proof print 1/4 only	print 1/4 only	✓ 1/4	✓ 1/4
PROJECT 2: "BIRD'S EYE/WORM'S EYE"	B/C	✓ ✓/+	✓ ✓/+	✓ ✓/+	✓ ✓/+	① ✓	✓ ✓/+		
PROJECT 3: "COMPOSITION"	B-	✓ ✓	✓ ✓/+	✓ ✓/+	✓ ✓/+	② B	✓ ✓/+	<p>Looks promising - need full contact sheet.</p> <p>5x7 - shell great pt of view</p> <p>5x7 - boat & ship cool - so wish darker</p> <p>5x7 - palm trees</p> <p>8x10 - potential</p>	
PROJECT 4: "ONE THEME"	B+	✓ ✓	✓ ✓/+	✓ ✓/+	✓ ✓	③ B+	✓ ✓/+	<p>8x10 fold front grill - love it! > DISPLAY RIS</p> <p>5x7 - wheel > ok -- nicely abstract > ? focus</p> <p>5x7 - 289</p>	
PHOTO NOTEBOOK ORGANIZATION/PRESENTATION	C/ D	<p>pls place all Project Items together - organised in order of this grade sheet</p> <p>Did not do well w/ organizing per request & difficult to grade :-)</p>							
WORK HABITS/ STUDIO DISCIPLINE	B/ C	<p>Come to some open days :-)</p> <p>Too much wasted time</p>							

Appendix K1**IRB General Consent Form****RESEARCH STUDY INFORMED CONSENT FORM****Photographic Choices: Integrating Traditional and Digital Photography Curriculums**

Joy Littleton - Research Investigator

You are invited to participate in a research study investigating photography curriculums currently employed in education. The purpose of the study is to conduct a primarily qualitative investigation to obtain responses, information, and data regarding curricular choices, teaching strategies, and best practices for photography education in today's world. Assessments of various traditional and digital photographic methodologies will be explored. Of particular interest in this study is determining what teaching practices best provide students with deeper understandings and comprehensive knowledge of core photographic concepts.

This study is being conducted by Joy Littleton, Brandywine High School Art and Photography teacher, Master of Art Education graduate candidate at Delaware State University. You were selected as a possible participant in this research because of your enrollment in a photography course, your interest in photographic educational programs, or professional practices. If you decide to participate, you will be asked to complete questionnaires and surveys regarding your experiences and knowledge in photography. In addition, you may be asked to create reflective narratives or participate in conversations or interviews, which may be audio taped, provided you consent. A separate audio/video/photographic recording consent form is attached.

The investigation will take place during the 2011-2012 school year, primarily from January through May. Approximately ten participants from three participant groups (approximately 30 students) will be invited to contribute. No foreseeable discomforts, inconveniences, liabilities or special risks are expected above and beyond daily routine procedures. Appropriate safety procedures are taught and followed regarding traditional film chemical situations. In case of injury or severe adverse reaction, on-site school medical personnel will be available.

The intended benefits of this study are multi-faceted. Information gathered will assist in obtaining better understandings towards best practices for teaching students photography in a comprehensive way. Projected benefits for students are directed towards them gaining greater understandings of photographic concepts and criteria to be considered when making personal creative choices within the medium. Any information obtained in connection with this research study that could identify you will be kept confidential. All students names will be withheld from published documents, electronic transmissions, or other related documentation related to this study. No identifiable photographs of your child will be used without a separate permission consent request. Student artwork, however, will be used for data collection procedures. Research reports will be kept in a password protected computer and/or secure storage. Data analysis should be complete by May 2012. I will then destroy all original reports and identifying information that can be linked back to you.

Participation in this research study is voluntary. Your decision whether or not to participate will in no way affect your course grade, or any future relations with Ms. Littleton, Brandywine High School, or Delaware State University. If you decide to participate, you are

free to stop at any time without affecting these relationships, and no further data will be collected.

If you have any questions, please feel free to contact me, Joy Littleton at 302-479-1600, ext 1230, or by email: joy.littleton@bsd.k12.de.us If you have other questions or concerns regarding the study and would like to talk to someone other than the researcher, you may also contact Dennis Rubino at Delaware State University Office of Sponsored Programs Institutional Review Board, at 302-857-6810. You may keep a copy of this form. Please read this form and ask questions before you decide whether to participate in the study. Your signature indicates that you have read this information, and you are making a decision to participate. Even after signing this form, please know that you may withdraw from the study at any time and no further data will be collected.

Please sign and return to Ms. Littleton.

I hereby consent to participate in the study.

Student Name:

Course/period _____

Signature of Participant

Date

Parent/Guardian Name:

Phone: _____

Signature of Parent, Legal Guardian, or Witness

Date

Email: _____

Appendix K2**IRB Photo/Video Consent Form****AUDIO/VIDEO/PHOTOGRAPHIC RECORDING OF HUMAN SUBJECTS****Research Media Records Release Form**

You have already agreed to participate in a research study entitled: Photographic Choices: Integrating Traditional and Digital Photography Curriculums to Enhance Learning conducted by Joy Littleton. As part of this project I would like to include photographic, audio, and/or video recordings of you while you participate in the research. I am asking for your permission to allow me to audiotape, videotape and or photograph your child as part of that research study. The recording(s) will be used to most accurately record participant responses regarding research related questions in interviews and conversations. These will be used exclusively for educational purposes, most predominantly regarding data collection and analysis to support my thesis presentation defense.

You do not have to agree to be recorded in order to participate in the main part of the study. I will not use any photographs, recordings or other identifiable information about you in any way without your consent. In any use of these records, your name will not be identified.

The audio and video recordings will be destroyed as soon as the discussions have been transcribed, and in any event no later than one year after they were made. Until that

time, they will be stored in a secure location. My four chosen thesis committee members and I will be the only people to have access to these recordings.

Please indicate below by initialing what uses of these records you consent to. This is completely up to you. I will only use the records in the way(s) that you agree to.

Your initials _____ indicate your permission to audio record for research study purposes.

Your initials _____ indicate your permission to video record for research study purposes.

Your initials _____ indicate your permission to photographically record for research study purposes.

Your signature on this form grants the investigator named above permission to record you as described above during participation in the above-referenced study. The investigator will not use the recording(s) for any other reason than that/those stated in the consent form without your written permission.

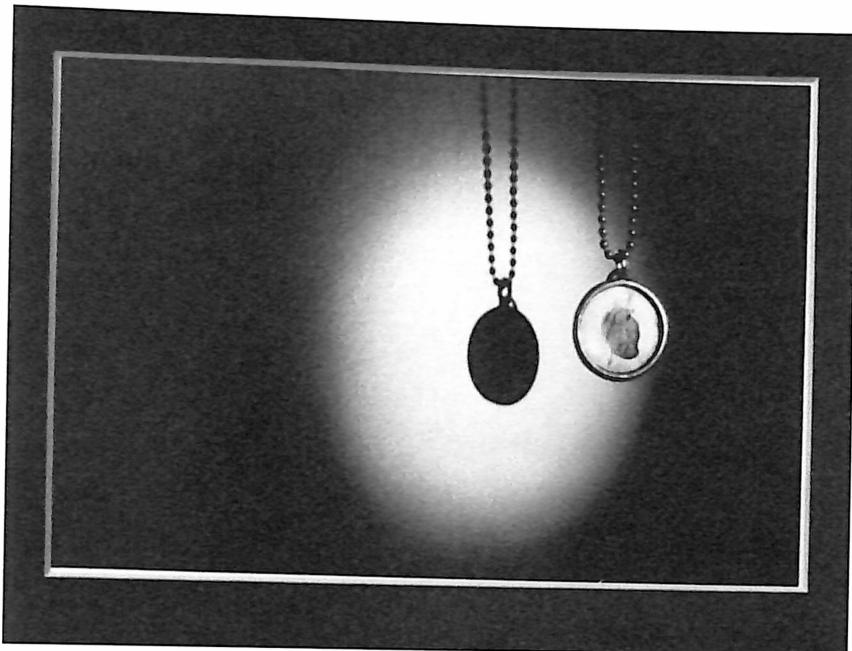
Student Name: _____ **Course** _____

Signature of Participant _____ **Date** _____

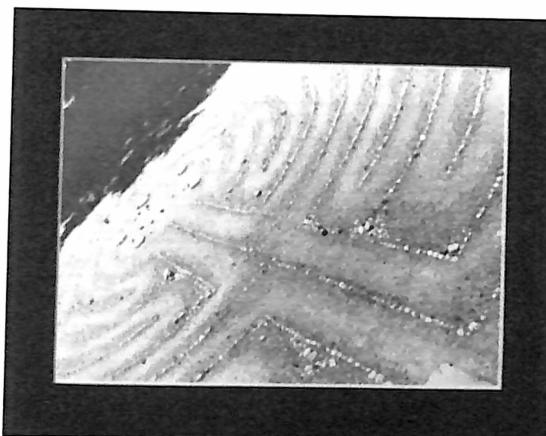
Parent/Guardian Name _____

Signature of Parent/Guardian _____ **Date** _____

Appendix L 1
BHS Intro Photo Student Photographs



Appendix L2
BHS Intro Photo Student Photographs



Appendix M

Intro Photo Exit Survey Original

Rate your level of understanding / proficiency level in each of the following areas:

Concept, Technique or Skill	Very Poor	Some-what	Good	Very Good	Excellent
Film Camera Controls:					
~ setting the film speed					
~ focusing the lens					
~ light meter reading					
~ setting the shutter speed					
~ setting the aperture					
~ releasing the shutter					
~ advancing the film					
~ rewinding the film					
~ loading the film					
~ unloading the film					
Core Concepts:					
Shutter Speed: Amt. of Light					
~ lots of light					
~ little light					
~ 2 factor rule (1/2 & 2x)					
Shutter Speed: Movement					
~ stop action					
~ ghost-like blur					
~ slowest ss > handhold					
Aperture: Amt. of Light					
~ maximum amt. of light					
~ minimum amt. of light					
Aperture: Depth of Field					
~ shallow depth of field					
~ maximum depth of field					
~ focusing for optimum dof					
~ how distance effects dof					
Film Speed:					
~ slow					
~ fast					
Equivalent Exposures					
Bracketing					
General Vocabulary:					
~ stopping down					
~ opening up					

Appendix N

Intro to Photo Exit Questionnaire

Intro to Photo Exit Questionnaire

Name: _____ Date _____

- What do you think was the most difficult concept, technique, or skill?
- What do you think was the easiest concept, technique, or skill?
- What was your most enjoyable classroom experience?
- What was your favorite activity?
- What was your favorite photographic assignment?
- What do you feel is your strongest area of photographic ‘expertise’?
- What suggestions might you offer to improve the course?

Appendix O

Intro Photo Exit Questionnaire Student Responses

Intro to Photo Exit Questionnaire				
Student Responses: Most common answers - total number of students identifying items. Students often listed multiple answers.	BHS & CHS film classes: 30 students total	DCCC Digital classes: 21 students total	Totals	Collective Percent
Most difficult concept, technique, or skill?				
Aperture: Depth of field	8	3	11	22%
Darkroom printing/digital editing	6	7	13	25%
Shutter: Motion	6	1	7	14%
Film processing/digital image uploading	5	0	5	10%
Exposure meter/manual camera settings	2	3	5	10%
Easiest concept, technique or skill?				
Taking photographs	6	7	13	25%
Exposure meter/manual camera settings	5	1	6	12%
Aperture: Depth of field	2	6	8	16%
Shutter: Motion	3	2	5	10%
Film processing/digital image uploading	5	2	7	14%
Most enjoyable experience/favorite activity?				
Taking photographs	18	11	29	57%
Darkroom printing/digital editing	23	18	41	80%
Critiques	6	8	14	27%

Appendix P

Digital SLR Photography I Syllabi

Delaware County Community College

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Digital (SLR) Photography I

COURSE DESCRIPTION

Digital Photography I will be approached from both a technical and an aesthetic viewpoint. Emphasis will be placed upon developing sufficient skills for the student to become self-reliant in the following:

- Proper handling and operation of the Digital SLR Camera
- Calculating exposures under different lighting conditions
- Understanding the technical differences among various lens
- Understanding the use and operations of the white balance and histogram functions
- Understanding and using depth of field and motion creatively
- Applying the elements of composition and subject lighting
- Describing the technical and artistic merits by which photographs are evaluated

- Preparing a portfolio of prints which exhibit technical competence and artistic merit

REQUIRED MATERIALS

Text: "A Short Course In Digital Photography" by Barbara Upton & Jim Stone" available at the DCCC Bookstore.

Equipment: 35mm Digital SLR camera and lens with adjustable shutter and aperture with lens and memory card. The camera must be at eight megapixels or higher. If you have any questions concerning the camera you intend to use or purchase, please ask, I will help you make the most appropriate decision.

- You will also need either CD-R's, DVD-R's, jump drive, and or pocket Drive with fire wire capability.

- You might need an extra battery for your camera.

- One package of 8 ½" x 11" Inkjet printing paper. I will discuss this in class. **Please do not make this purchase until I have gone over this topic in class.** It is advisable for students to share a package of printing paper. Inkjet paper is sold in 25 and 50 sheets.

Portfolio: You will make (2) two copies of each print. The first copy will be your record of work. The second and most important copy of each print will be compiled into a portfolio that you will submit for a final grade. This portfolio will also be reviewed for at least one to three appropriate submission entries into the annual student juried art exhibition. You will be responsible for mounting at least one to

three prints. *Your portfolio must be submitted with a protective holder. An inexpensive 8 1/2x11 or 11x14" manila portfolio, will protect your prints and keep them sorted. Manila folders can be purchased for approximately \$2.00 at the DCCC bookstore.

Optional: Lens care kit: consisting of a dust brush, lens tissue and cleaning fluid.

Tripod: for camera steadiness at slow shutter speeds

Readings Assignments: Chapters 1 thru 10

GRADING: A letter grade will be given on the basis of:

- a. Completion of assignments
- b. Class attendance and participation
- c. Mid-term exam
- d. Portfolio

ATTENDANCE

A maximum of 2 unexcused cuts will be allowed. Thereafter, the instructor may withdraw you for discontinued attendance with a grade of 'W'. Overcut students must speak with the instructor.

TEACHING METHOD

Classroom lectures and demonstrations add to and clarify the text. It is important to keep up with all reading assignments and come to classes prepared. **Students needing accommodations in this class due to a learning, physical or psychological**

disability, should please contact Ann Binder Director of Special Needs Services in the Career and Counseling Center, room 1320, (610) 325-2748.

Laboratory: More than half of the classes will be labs spent developing the practical knowledge necessary to process and print B&W film paper.

REQUIREMENTS FOR YOUR FINAL EVALUATION

A CD or DVD of your best 10 images covering each assignment.

All exposure logs for each assignment.

Two copies of your images representing each assignment

PORTFOLIO REQUIREMENTS

- 1 print from composition assignment
- 2 prints from portrait assignment
- 1 print demonstrating light on the subject assignment
- 1 print from the assignment demonstrating texture
- 1 print from the assignment demonstrating shape or form
- 1 print from the assignment demonstrating patterns
- 1 print from the assignment image trading action

= TOTAL OF 8 PRINTS

(Submit your portfolio in the appropriate folder), I will show you an example of this.

ASSIGNMENTS- REMEMBER TO LOG ALL EXPOSURES

Assignment #1: Composition

1. Make 15 exposures. Read Chapters 9 &10. Make a contact sheet of this assignment.

a. Choose one subject -Try to make every frame a different visual approach. Always use your viewing card before making exposures.

Consider the following:

1. Move in very close to your subjects: shoot details
2. Change perspective or point of view: look up/look down/place yourself in various positions.
3. Move back: Photograph the entire subject from a distance
4. Walk around the subject: photograph your subject from many different angles.
5. Utilize the rule of thirds.
6. EXPLORE YOUR SUBJECT VISUALLY!!
7. Always use the light meter

Assignment #2: Exposure Calibration:

Make 15 exposures, and read Chapter 3. You will make a contact sheet of this assignment

1. You will photograph a black, white and gray card, in the same frame, without changing your position, by doing the following steps
2. (remember to keep records of all exposures). The gray card should be positioned in the middle of the white and black.
3. Calculate the correct exposure by metering your gray card. The purpose of this exercise is to determine a personal ISO from results obtained from this assignment

You will bracket your exposures in the following manner:

- a. First frame shoot a blank space - cover the lens with a lens cap and make and exposure.
 - b. Write your name large on a piece of paper with a marker and photograph this.
 - c. Put lens cap back on and shoot another blank frame. Then start with the following exposures of your subject:
 - i. Overexpose the subject by two stops.
 - ii. Overexpose the subject by one stop.
 - iii. Expose the subject normally.
 - iv. Underexpose the subject by one stop.
 - v. Underexpose the subject by two stops.
2. Photograph a person against the skyline from a distance of 5 feet. The purpose of this exercise is to demonstrate incident light meter reading techniques.
- a. Calculate a normal exposure take a picture.
 - b. Step up and meter the person's face, set exposure.
 - c. Then move back to your original camera position and take another picture, ignoring any changes in your meter reading.
3. With the remaining 8 frames you are to set up and photograph various still objects as possible. Make note of the color of the objects on your log sheet so that the results can be compared. The purpose of this exercise is to show how colors are depicted in your digital camera and your printing media.

Assignment #3 Depth of Field Study (DOF):

Make 20 exposures, and read Chapter 9. You will make a contact sheet of this assignment

1. Choose a compositional arrangement with subjects far enough apart from each other so that you may perform this exercise without difficulty. This exercise should be done outside; focus on the middle subject; and **DO NOT** change your camera to subject distance. **MAKE SURE THAT ALL INFORMATION IS LOGGED ON YOUR WORKSHEET.** A Tripod is almost a given for this assignment. You will develop the film and make enlarge contact sheets of this assignment. A demo will be given in class.

Example: Position yourself so that you have objects in the foreground, middle ground, and background.

Make one image at

F/2 the same image at F/16

F/3.5 - F/16

F/4 - F/16

F/5.6 - F/16

F/8 - F/16

F/11 - F/16

You will have two images of the same subject.

One with the minimum DOF

One with the maximum DOF

MAKE IMAGES: Show/minimum and maximum DOF for as many situations as possible. It isn't necessary to show absolute minimum or maximum--work with the available light and whatever shutter speeds you're comfortable with.

Example: Make two images of the same subject one at F/2 the other at F/4

F/3.5 - F/5.6

F/4 - F/8

F/5.6 - F/11

F/8 - F/16

F/11 - F/22

Assignment #4 Motion Study:

Make 20 exposures, This assignment will be explain in class You will make a contact sheet of this assignment

Creatively express motion with your camera's shutter by suing the techniques discussed in class.

1. PANNING: Use 1/30 sec. or 1/60. Follow the direction of your subject's motion and gently squeeze the shutter.

2. BLURRING: Use 1/30 sec. or slower with the camera on a tripod or hold firmly to intentionally blur the subject.

3. STOP ACTION: Use 1/250th sec. or faster, to freeze the subject.

4. PEAK MOMENT: Use 1/60 or 1/124 sec. to capture your subject at the crest of action
5. CHANGE DIRECTION: Photograph the same subject head on, sideways and from the back.
6. Experiment, try both blurring and stop action with the same moving object; try panning with slow, medium and movement.
7. Try photographing from different angles etc.
8. Remember that a moving object needs space in front of its direction of movement.
9. Think of composition.

Assignment #5 Portraits:

This exercise consists of 8 different images using 24 exposures. Use eight frames to cover each assignment. A tripod on some type of camera support will be needed

1. Head and shoulders portraits. The object is to study the effects of different light sources and angles on both form and texture.

Photograph a person using both direction and diffuse light sources. You can use window light with a fill card to reflect light back into the dark side of the face. Use Rembrandt lighting and also side, front, back, and butterfly lighting (See the text for info). Remember to observe the effects in a darkened room with the subject at least 5 to 6 feet from the background and the camera at 3 to 4 feet from your subject. Try to reveal some aspect of the sitter's personality.

2. Self-portrait. Photograph yourself either, head and shoulders, partial or full length

at work, study, rest, play, meditation, etc. Use the rest of the roll to portray some aspect of your personality

3. People in their environment

Photograph people, or person, in a setting that relates to, and reveals, some aspect of their character.

Final assignments for portfolio requirements:

Make 20 exposures for each subject. These assignments will be explained in class.

You will make a contact sheets for each assignment.

For your final assignments you will use your camera to demonstrate the following subjects:

Composition

Portraits

Light on the subject

Shape or form

Patterns

Action

Again you will make two copies of each print. One copy for your records and the other copy of four possible entries into the student show. With each of the aforementioned subject matter you should try to be creative and selective to make the best images you possibly can apply in all the principles and techniques you have learned up to this point. Remember that the camera speaks in a language without words, therefore less

is more.

Take the necessary time needed to complete all assignments and be sure to use the viewing card which you made after the lecture on composition.

OUTLINE FOR B&W PHOTO I

Introduction to the course and syllabus

The anatomy of the digital SLR part one

The anatomy of the digital SLR part two

Composition lecture and assignment

How to make digital contact sheets

Assignment review

Lecture on exposure techniques with a digital SLR

Contact sheet printing

Review of the exposure assignment

Lecture on depth of field and lenses assignment given

Lecture on portraits assignment given

Contact sheet printing

Portrait assignment review

Motion assignment contact sheet's due and review

Midterm test

Introduction to editing and printing demo

Editing and printing

Mounting demo

Mounting

Mounting

Final Review

Appendix Q

BHS Advanced Photography Syllabi

ADVANCED PHOTOGRAPHY ~ BRANDYWINE HIGH SCHOOL

Ms. Littleton. Phone: 302-479-1600, ext. 1230. Email: joy.littleton@bsd.k12.de.us

COURSE DESCRIPTION /GOALS:

Advanced Photography will challenge you to expand upon and refine the techniques and concepts learned in previous photography classes. The main goal of this course is to further develop your artistic and technical understanding of photographic imagery by expanding your knowledge and creative abilities in areas like: camera exposure, film development, and print production/experimentation/manipulation. Throughout the course, you will be introduced to advanced concepts including the zone system, and various approaches to composition and lighting. Expanded ideas in creative visualization will be encouraged and pursued. Learning experiences in using tripods and various camera filters will be provided, as students will be expected to use these for some of their coursework. Students will build upon their knowledge of traditional film/camera concepts, and expand upon this repertoire as it relates to the world of digital photography. Advanced photo students will be using DSLR cameras and Adobe Photoshop CS2 for digital image making. Assessments of both technical and aesthetic photographic components will be taught and discussed, often in the form of critiques. Awareness and enlightenment of the photographic world - both historical and contemporary – in print, exhibition, and in our own environment- will be further

explored. In the end, a Final Portfolio of all course assignments must be submitted to the instructor.

PREREQUISITE: A passing grade of “C” or better in Intro to Photo and/or Photography 1 & 2.

GRADING: * *BHS Scale: A=93-100; B=85-92; C=77-84; D=70-76; F=0-69*

Photography students are expected to complete all assigned coursework, including meeting deadlines. Approximately 10 required ‘homework shoots’ (along with in-class) projects can be expected.

Students are graded in the following areas:

FINAL PORTFOLIO:

~ Consists of all notes, handouts, negatives, contact sheets, and final prints

*** *Completion of assignments:***

~ Field assignments, readings, tests, & quizzes

~ Fulfillment of project objectives

*** *Craftsmanship/ Technical Ability:***

~ Demonstrates an understanding of photographic technical skills and applies them *

Creativity/ Level of Difficulty:

~ The originality and freshness of thoughts used to interpret and fulfill project objectives.

**** Studio Discipline:***

~ Work habits/effort/ attitude/ attendance

PHOTO CLASS POLICIES and PROCEDURES:

*** Attendance:**

This complies with guidelines found in the BHS Student Handbook and District Policy. Please review. Know that it is more difficult to make up missed classes in Photography due to the lab component. Please make every effort to be in class and *be prepared.*

*** Late Penalty:**

Meeting deadlines is a critical skill that carries across all aspects of one's life. If deadlines are missed, this typically has a "snowball effect", putting one behind on subsequent projects. Since studio/lab time is limited, it is crucial for students to make wise choices in their use of this time. ***Students, it is your responsibility to keep up with project deadlines as outlined on Assignment sheets.*** Even excused absences are no reason to allow yourself to get behind on project deadlines. Class instruction and lab time are essential for successful completion of this course. ***See me to schedule additional lab time when needed! After School "Open Labs" will be offered on a regular/weekly basis, as posted.*** Failure to meet project deadlines will result in the following grading penalty: $\frac{1}{2}$ letter grade drop / per 1 day of lateness (on that project). For example: If you are 2 days late on a project deadline, your grade for that part of the project will be lowered by one full letter grade. The only exception in late penalties is for documented, excused absences. In this case, ***it is your responsibility to see me with an excused absence and your work in progress upon your return to school, so***

that we can discuss a fair deadline for your assignment(s). Failure to do so will result in the enforcement of previously stated late penalty.

* **Academic Honesty:**

The policy is the same as found in the BHS Student Handbook and District Policy.

Please Review. As your instructor, I am strongly committed to upholding standards of academic integrity. These standards, at a minimum, require that you will endeavor to only claim work, which you have actually produced yourself. Claiming the work of others (i.e.: negatives and/or prints) or downloading images and claiming them as yours is considered plagiarism, and will be dealt with in accordance with BHS/BSD academic policies. Please believe in your own creativity and possibilities!

* **Art Lab Computers:**

In order to use the Art/Photo lab computers, students must have a completed Technology Agreement on file. These computers are to be used ***only*** for Art/Photography projects (unless special permission by me is granted). **This includes internet use. No personal surfing or game playing allowed! Any misuse of the computers, printers, or scanners will result in the revocation of privileges, and if applicable, issuances of a Student Obligation form.** Think about it this way...how will you complete a computer art/photography project without access to the computer and needed programs?

* **Misuse of Property:**

Ours is the same as found in BHS Student handbook and District Policy. Please review. Additionally, the Art / Photography Department expects ALL students to respect department cameras, supplies, texts and other materials. Any misuse will affect not only the student's grade (under "studio discipline"), but also keep others from doing their work as well. If a student encounters any problems with the loaned equipment, they are to return it promptly to the instructor. **Do not tamper with equipment in use or try to repair the camera! See me for assistance!** The teacher will file a Student Obligation Form if necessary, for the repair cost or replacement value of the camera/equipment. Replacement camera costs range from \$250.00 to \$600.00 which applies to lost, stolen, or damaged equipment.

* **Department Cameras:**

The Art/Photography Department has a limited supply of 35mm SLR and Digital cameras for students to borrow. Cameras will be rotated out to students for a 2-3 day period, repeatedly. Students and parents are required to sign an ***Equipment Usage Contract*** accepting responsibility of the safe use of camera/equipment. This contract must be signed by parents and students and will be maintained on file in the department **before a student is given a camera to borrow**. Misuse of property follows consequences as stated in the BHS student handbook and the BSD District Policy.*** You will need to bring your photography binder to every class. This will

become your Final Portfolio, and will include all notes, handouts, negatives, contact sheets, and final prints, etc. ***

* An appropriate textbook will be provided to each student for use during this semester's course. Please take good care of book, as it will be used again and again. This book must be returned by the courses end or student must pay for a replacement.

SUGGESTED MATERIALS: (prices are subject to change)

The photography department has limited supplies that are available to all of our students.

Students with their own equipment have a greater range of use, especially for class work outside of school. They also tend to take better care of their own personal property... It is very helpful when students can contribute in providing some of their own consumable goods.

Please understand ... **NO truly interested and hardworking student** will ever be penalized for not providing these items. Please see me (the sooner, the better) if obtaining your own film and paper is an area of concern for you. **ALWAYS ASK RETAILERS ABOUT STUDENT DISCOUNTS.**

➤ **35 mm manual SLR “film” camera** (with adjustable aperture and shutter; built-in light meter; manual focus preferred) A UV filter serves as a great lens protector; good, fresh batteries are required. Owned or borrowed, this **camera must be checked by Ms. Littleton** before you use it for your course work ☺. Ask around ... many good, usable film cameras seem to be ‘lost’ or hiding!

Although few film SLR's are available to purchase new, IF YOU ARE INTERESTED in purchasing a new camera... Cameras Etc. recommends prices subject to change):

- Promaster PK 2500 (totally manual - great beginner's camera...easy to understand)

w/ 50 mm lens - \$ 159.00; w/ 28-70 mm lens - \$ 209.00

- Recent recommendations for used film camera purchases have included: Canon Rebel K-2, Minolta Maxxum 50, Nikon N75, Nikon FM10, and Pentax ZX-60, Pentax K1000.-

Most should be in the \$200.00 range, including a 50 mm, or preferably a 28-80 mm lens.

➤ *Advanced Photography students are required to use manually operated DSLRs (Digital Single Lens Reflex) cameras for their digital coursework.* While we have a few DSLRs for borrowing, you may want to consider purchasing a DSLR. Nikon's D3000, along with Canon's Rebel series (T3) make good starter DSLR cameras. These cameras typically cost about \$400.00 - \$700.00.

*Take GREAT CAUTION if considering purchasing a used camera...i.e. on line.

ALWAYS purchase from a reputable dealer (use resources list), as you may otherwise receive faulty equipment. Cameras Etc. in Newark has many used cameras for sale and offers a limited warranty on used equipment.

*** Remember...The Art/Photography Department has a limited supply of cameras available to borrow. Please refer to the *Equipment Usage Contract* ***

***** Advanced Photography students will be using film SLR cameras, along with DSLR cameras (both operated in manual mode) throughout the semester *****

*** Film: Approximately 8 rolls total. Suggestions and choices will be discussed.**

Kodak Tri- X, 24 exp. (iso 400) \$ 5.00 T-Max 24 exp. (100 or 400 ASA) \$ 5.00

- *** Printing Paper: approximately 100 sheets traditional photographic paper. Choices & suggestions will be discussed. **OPEN ONLY under SAFELIGHTS!!!****
- Ilford Multigrade IV RC Deluxe – Glossy or Pearl surface.

- 5 x 7" – 25 sheets -- \$11.50; 100 sheets -- \$38.00

- 8 x 10" – 25 sheets -- \$23.00; 50 Sheets - \$41.00; 100 sheets -- \$80.00

!!! Do not buy digital photo paper without consulting instructor, as it must be compatible with our printer!!!* *Digital Photo Paper Choices/Print Options will be discussed.***

******You should plan to purchase all supplies and materials from suggested Photo Supply Stores.* *****

* **Notebook binder:** 2-3 inch 3 ring (hardbound preferred) - Used to hold your handouts, notes, negatives & prints.

OPTIONAL SUPPLIES

* **Print Sleeves:** (8 ½" x 11") can be purchased rather inexpensively at office supply stores, Target, and Wal-Mart. Crystal clear pages look best with photos, as frosted pages dull your images. Advanced photo students may want to purchase Archival print pages from a camera supply store, as your prints will never deteriorate when using them.

* **Lens Cleaning Kit:** (highly recommended if using your own camera)

Lens cleaning fluid - \$5.99 Micro cloth - \$5.99 or Promaster Soft Cloth - \$9.99



ADVANCED PHOTOGRAPHY COURSE AGREEMENT CONTRACT

*Ms. Joy Littleton
Room 123*

Email: joy.littleton@bsd.k12.de.us

Phone: 479-1600, ext.1230

(Please detach and return by Wednesday, September 7, 2011. Thank you!)

I have received and read the course syllabus, the Art/Photography Department Policies, and the suggested supply list. I will contact Ms. Littleton with any questions.

(Print - student's name)

(Print - parent/guardian's name)

(Student's signature)

(Parent /guardian's signature)

(Date)

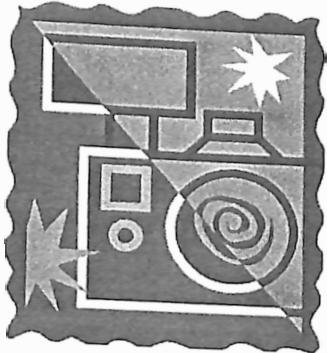
(Date)

Appendix R

BHS Advanced Photo Entry Survey Original

Rate your level of experience, knowledge , and comfort in ALL of the following areas:
 Indicate if you are interested in learning about specific area.
 Please provide narrative insight where appropriate :)

Item:	Very Poor	Some	Good	Very Good	Excellent
FILM CAMERA OPERATION manual adjustments of:					
film speed					
focus					
shutter speed					
aperture					
exposure meter					
DIGITAL CAMERA OPERATION manual adjustments of:					
film speed					
focus					
shutter speed					
aperture					
exposure meter					
white balance					
auto-bracketing					
• Tripods					
• Cable releases					
• Camera Filters					



**ADVANCED PHOTOGRAPHY
COURSE AGREEMENT CONTRACT**

*Ms. Joy Littleton
Room 123*

Email: joy.littleton@bsd.k12.de.us

Phone: 479-1600, ext.1230

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(Print - parent/guardian's name)

(Student's signature)

(Parent /guardian's signature)

(Date)

(Date)

Appendix R

BHS Advanced Photo Entry Survey Original

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Item:	Very Poor	Some	Good	Very Good	Excellent
FILM CAMERA OPERATION manual adjustments of:					
film speed					
focus					
shutter speed					
aperture					
exposure meter					
DIGITAL CAMERA OPERATION manual adjustments of:					
film speed					
focus					
shutter speed					
aperture					
exposure meter					
white balance					
auto-bracketing					
• Tripods					
• Cable releases					
• Camera Filters					

Appendix S

Advanced Photo Entry Questionnaire Original - Previous Experiences

ADVANCED PHOTOGRAPHY QUESTIONNAIRE

1. What, if any personal photographic equipment do you plan to use for the course?
2. Please provide information regarding your skill set /comfort level /interest in learning in the following areas:

- Camera operation (manual adjustments of aperture, shutter speed, iso, focus, meter)
- Film SLR:
- Digital SLR
- Tripods & cable releases
- Camera Filters – ie: colored, polarizing
- Camera exposure:
- Aperture
- Shutter Speed
- Film Speed
- Exposure Meter... including various/difficult lighting conditions...
- Film Processing:
- Enlarger operations/Print Processing:
- “Darkroom Fun”/Surface treatments:
- Computer knowledge-photo transfer/quick edits/Photoshop ...on school computers?

3. What are your areas of strength?

4. What are your areas of weakness that you need to understand better/become more proficient in?
5. What concepts/techniques do you find the most difficult to grasp?
6. What ‘shooting’ assignments have you completed?
7. Which of these projects did you enjoy the most? Are there any you’d like to do again?
8. What assignment ideas do you have to suggest?
9. What specific areas of interest would you like to explore?

Appendix T

Advanced Photo Final Portfolio Grade Sheet Original

ADVANCED PHOTOGRAPHY FINAL PORTFOLIO GRADE

Student Name: _____ **Date:** _____

Appendix U1

BHS Advanced Photo Final Portfolio Grade Sheet Sample

Advanced Photo-Final Grade sheet Spring 11.xls
Student Name: [REDACTED] Spring 2011

PROJECTS:		NEGATIVES - Exposure Quality? Meets Objectives?	CONTACT SHEETS (including tests)	FINAL FILM PRINTS!!! Tests & Proofs	DIGITAL IMAGES: Good Exposure/ Project Objectives	CONTACTS / FOLDER	DIGITAL "EDITS & "FINAL PRINTS"	Camera Exposure log / PRINT NOTES ...	COMMENTS:
Effort, Technical Skills, Level of Difficulty, Creativity									
PROJECT 1: Darkroom Experiments - Photograms, Paper Negatives, Vignetting, Sanwiched Negs	(B)		(3)				V-		photogram - 2nd exposure + swirls + 2 backs back photogram - black test w/ paper Star Sepia tone like the selective sepia tones (wish a bit neater...) # other vignetting?!
PROJECT 2: Uelsmann Inspired Combination FILM Photographs 2 Rolls of FILM	(A)	1 Roll ✓	✓/4 (12) West!				✓		Lots - 7 pics - lots - blue snow ✓ boy in window ✓ girl behind bars Sepia smattered girl in bars ✓ girl behind bars - tree clouds blue camera snow kid - tree shadow tree (sepia) girls on poles/snow play - window (blue) girl behind bars - boy's face clouds in trees - speed limit Sepia tree w/ snow/vignetting clouds Motel sign Sepia & blue
PROJECT 3: "Compositional Formating" Film Roll #1 ✓ Film Roll #2 X	(B+)	1 roll ✓	✓/4 (5)				✓		11 contact sheets - room, me music, people, park, city Final Digital print - swingset - tornado guy - 3 guys in mirror
PROJECT 4: DSLR 'Practice'	(A)			4 sets! ✓	✓/4 folder	9	✓	Last Contact	Thank you for your feedback values & clouds
PROJECT 5a: "Photographer Emulation" PAPER	(B)								Edward Weston - awesome - curves - figures, pepper, wheat, bowl.
PROJECT 5b: "PHOTOGRAPHER EMULATION" "Roll/Set #1" "Roll/Set #2" ✓ "Roll/Set #3"	(A)								b&w - (finals) 3 contact sheets (7) - 1 photo of beach - little boy, seductive - 2 def pic of clouds person, naked, digital, (finals 1) - camera/flower clouds, people, trees, objects, park, water Not so sure these images fit chosen photographer well. why? clouds?!
PROJECT 6: "Light Chaser" Roll/Set #1 Roll/Set #2	(A)								D&W - 3, contact sheets (7) - flowers, - focus? - beach v white lace? Beach, people, clouds lights sun, - house - distracting little kids flowers - blurry eyed (final digital photos: view) Beach - beach/land - beach/big cloud Rockin - beach/tornado - 2 red beachys Final pic reflection of clouds in water blurred mirror love expand 2 contact sheets - reflections of diff stuff
PROJECT 7: "Reflections"	X								
Portfolio Presentation	B	Lots of interesting B&W's - none really quality (old family photos) * lots of images. Is shooting digitally? - Quality?							

Another Project ON BACK →

Appendix U2

BHS Advanced Photo Final Portfolio Grade Sheet Sample

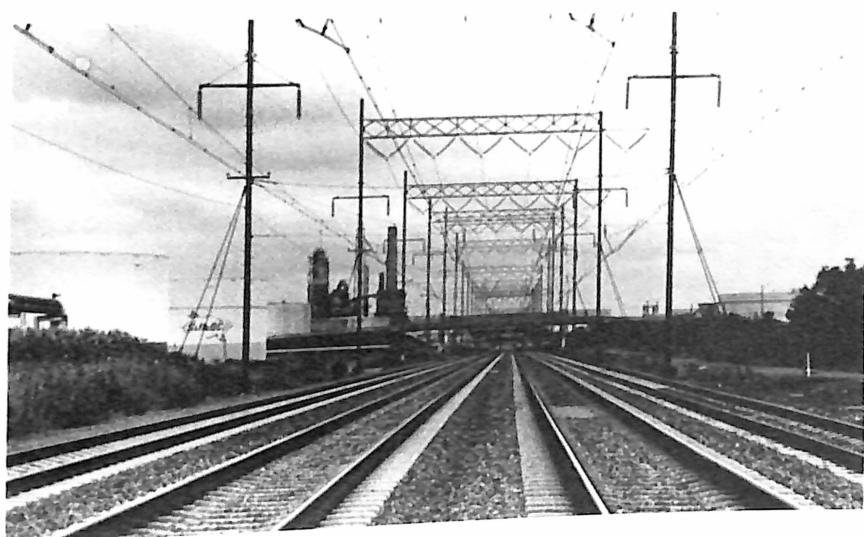
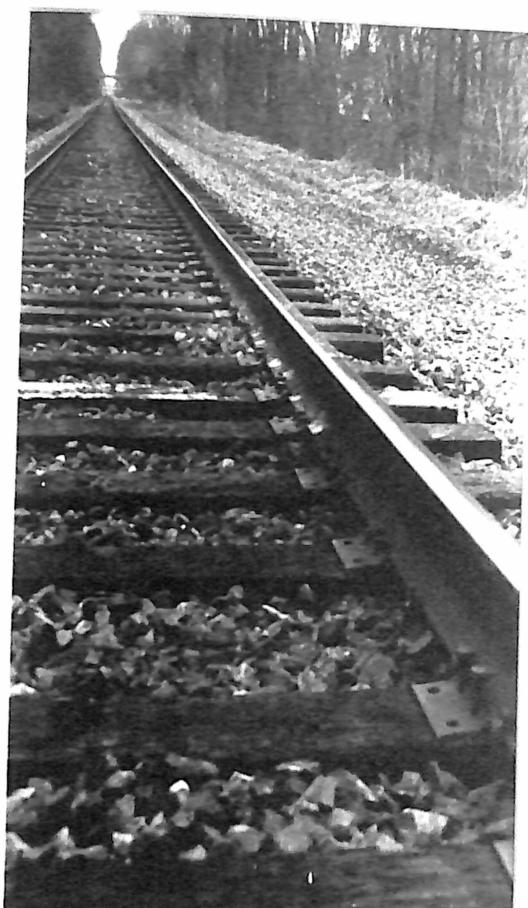
ADVANCED PHOTOGRAPHY FINAL PORTFOLIO GRADE
NAME: [REDACTED]

Date: May 24/2011

PROJECTS:	NEGATIVES - Exposure Quality? Meets Objectives?	CONTACT SHEETS (including tests)	FINAL FILM PRINTS!! Tests & Proofs	DIGITAL IMAGES: Good Exposure/ Project Objectives	CONTACTS / FOLDER ORGANIZATION	DIGITAL 'EDITS' & "FINAL PRINTS"	Cam. Exposure log? PRINT NOTES ...	COMMENTS:
[REDACTED]								Effort, Technical Skills, Level of Difficulty, Creativity
PROJECT 1: B+ Darkroom Experiments- Photograms, Paper Negatives, Vignetting, Sanwiched Negs			4					8x10 photograph 3orig 8x10 photograph + color added 8x10 fence colored :) Also peace sign + fun
PROJECT 2: A Uelmann Inspired Combination FILM Photographs 2 Rolls of FILM ✓	✓/t	✓	10!					8x10 horses multi exp. enjoy this! 8x10 Abstract lines fun! (decorative) 8x10 Abstract tree minimalist 8x10 Bridge Running Men " " love
PROJECT 3: A "Compositional Formatting" "SHAPES" Film Roll #1 ✓ Film Roll #2 ✓	✓/t	✓	4					8x10 Bird in tree 8x10 Splash 8x10 bridge 8x10 playground 8x10 levels Strong. Nice variety
PROJECT 4: DSLR 'Practice'	X							Included ::
PROJECT 5a: "Photographer Emulation" PAPER	A							ANDREW PROKOS > Architecture - angles / bird's eye - worm's eye - skyscrapers, cathedrals - fine lines (timelessness?)
PROJECT 5b: A "PHOTOGRAPHER EMULATION" "Roll/Set #1" ✓ "Roll/Set #2" ✓ "Roll/Set #3" ✓				✓ Conflicts ✓ (lets) Folder				Solar Flare Night Time, Day Time Legal House Wow!! Stormy Barn Way impressive! Rock wood blue house
PROJECT 6: A "Light Chaser" ✓ Roll/Set #1 ✓ Roll/Set #2 <i>Flowers</i>				✓ Cows ✓ Folder				all prints in show there was the multi colored flowers, blue peacock, hyacinths, blue peacock, pansies
Seniors Exempt PROJECT 7: "Reflections"				Contact Folder				N/A *Cows in snow = "classic"
Portfolio Presentation	A							

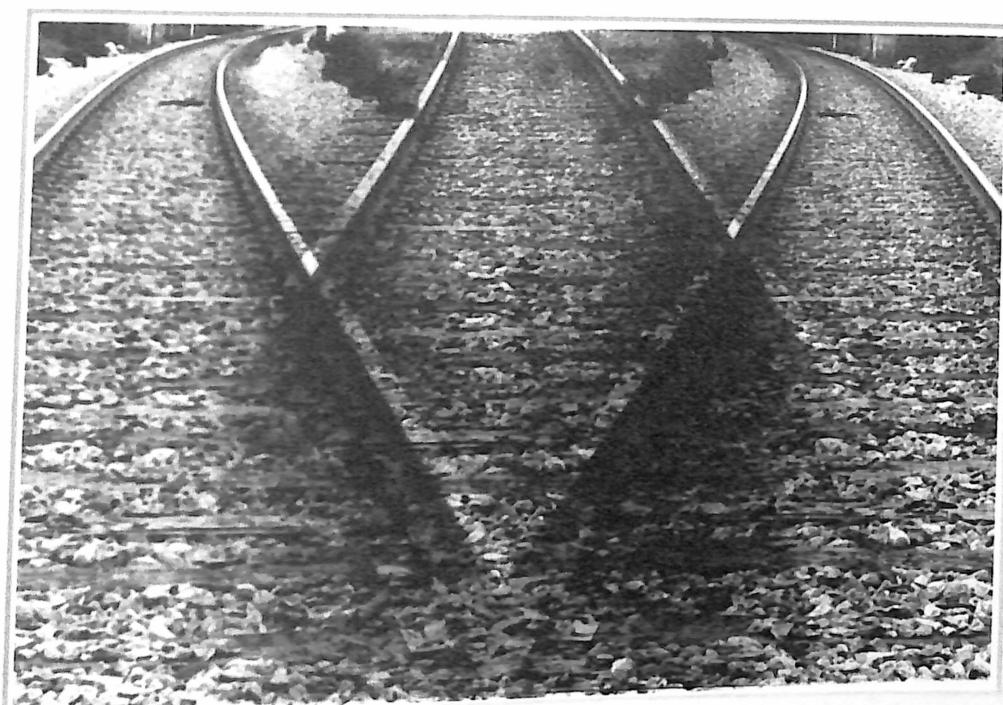
Appendix V1

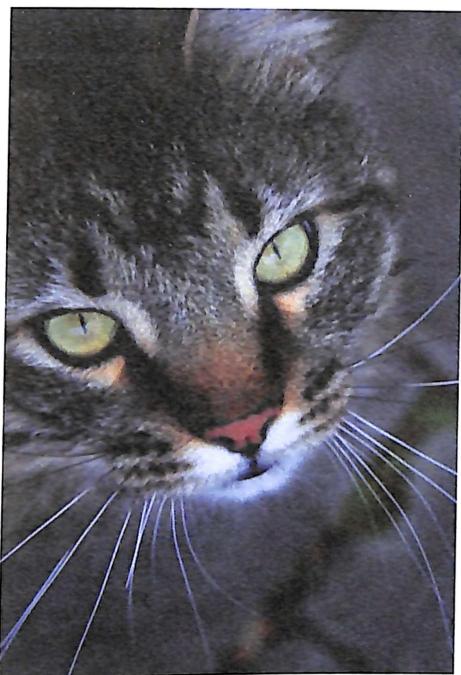
BHS Advanced Photo Student Photographs: *B&W Film*

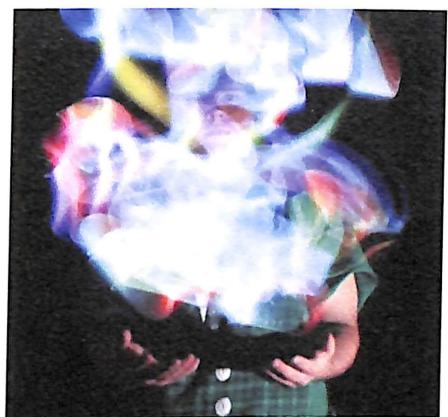
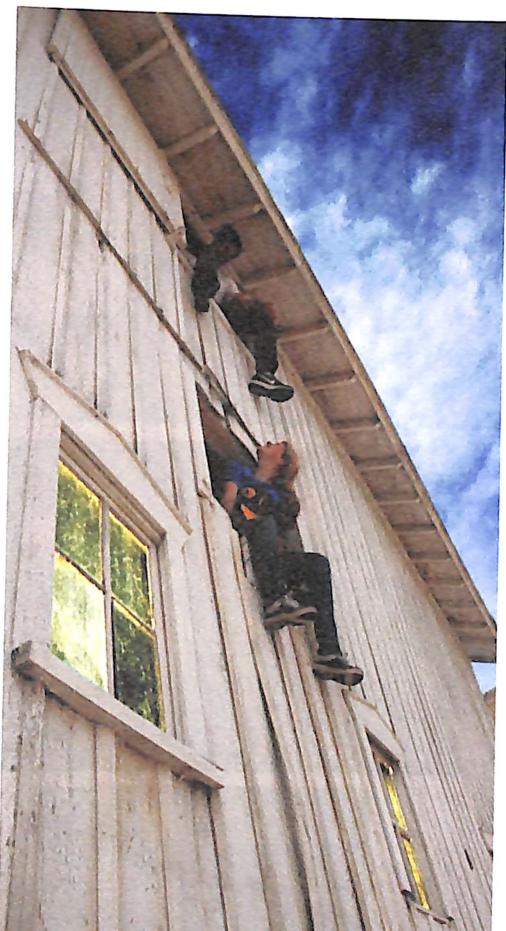


Appendix V2

BHS Advanced Photo Student Photographs: *B&W Film*

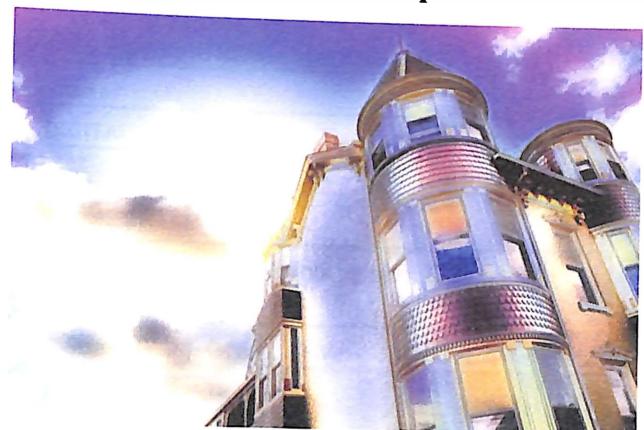
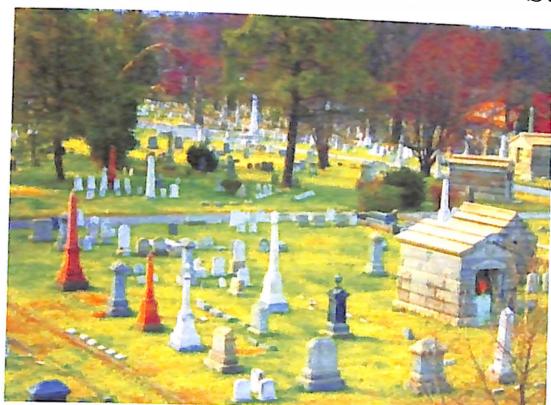


Appendix V3**BHS Advanced Photo Student Photographs: Digital Darkroom**

Appendix V4**BHS Advanced Photo Student Photographs: Digital Darkroom Extended**

Appendix V5

BHS Advanced Photo Student Photographs: Photoshop Fun



Appendix W

Advanced Photography Exit Survey Original

Course EXIT- Equipment & Skills Assessment - Spring 2011

What, photographic equipment did you use for this course?					
FILM	DIGITAL	OTHER			
Rate your level of experience, knowledge , and comfort level in ALL of the following areas: Please provide narrative insight where appropriate					
Item:	Very Poor	Some	Good	Very Good	Excellent
FILM CAMERA OPERATION manual adjustments of:					
film speed					
focus					
shutter speed					
aperture					
exposure meter					
Bracketing					
DIGITAL CAMERA OPERATION manual adjustments of:					
film speed					
focus					
shutter speed					
aperture					
exposure meter					
white balance					
auto-bracketing					
OTHER:					
• Tripods					
• Cable releases					
• Camera Filters					

Appendix X

Cost Comparison: Film vs. Digital (as referenced from The Red Building Group- a Digital Media Marketing Company)

Cost Comparison- Year 1				
	Film		Digital	
Camera Body	Canon AE-1	\$69	Canon 70 D	\$1,099
Lens	50 mm 1.4 FD	\$109	50mm 1.4	\$399
Scanner	Epson v600	\$193	x	x
Film	50 rolls Kodak Portra	\$368	x	x
Processing	\$7/roll	\$350	x	x
Memory Cards	x	x	2 16 GB	\$36
Year 1 Total	\$1,089		\$1,534	

	Film	Digital
Year 1	\$1,089	\$1,534
Year 2	\$718	x
Year 3	\$718	\$1,028
Total	\$2,525	\$2,562
Film is actually \$37 less!		

Curriculum Vitae

Joy Littleton

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EDUCATION:

2015 Masters Candidate, Delaware State University

1990: Art Education Certification, Moore College of Art & Design, Philadelphia,
PA

1986: Bachelor of Fine Art in Photography/Printmaking minor. Moore College of Art
& Design, Philadelphia, PA

TEACHING EXPERIENCE:

1990- Present: ART TEACHER – BRANDYWINE SCHOOL DISTRICT, DE

2005- Present: BSD Art Teacher - Brandywine High School, grades 9-12.

1997- 2005: BSD Art Teacher - Claymont Elementary, grades 4-6

1990-1997: BSD Art Teacher - Maple Lane Elementary, grades 1-3; Burnett
Elementary, grades 4-6

1991- 2004: Art Teacher – BSD Summer Fine Arts Institute Enrichment Program

1986-2010: Adjunct Professor. Delaware County Community College, Media, PA

1986-1990: Photography Instructor. Young Artists Workshop. Moore College of Art

1989-1990: Art Teacher (part time, and /or long term substitute) at: Archbishop Prendergast High School, The Woodlynde School, and Allen's Lane Center– all in The Philadelphia area.

RELATED EXPERIENCE:

1986-1989: Head Photographer – INS/Pharmacology Art & Photo Shop – University of Pennsylvania, Graduate Medical School, Philadelphia, PA

Responsibilities: Business management and production of photography and art for major medical research/teaching facility. Consult and assist faculty and students in the creation of artworks for publication, presentation, and grant applications. Public relations photography.

1984-1990: Freelance photographer and/or studio assistant for various local artists, events and photographers.

1984-1985: Staff Photographer – Philadelphia Zoo

1982-1986: Photography Studio/Lab Assistant, Moore College of Art

AWARDS/GRANTS/MEMBERSHIPS:

1992, 1994, 1996: Delaware Artist in Residence program grants-Maple Lane School

1986: "Outstanding Senior Photography Award"; Dean's List-Moore College of Art

1990-present: National Education Association member

1998-present: National Art Education Association member

RECENT EXHIBITIONS/ART SHOWS:

- 2005 Galan Fine Gifts & Furnishings: "Clay Arts & Photography" Glen Mills, PA
- 2004-2005 Home Show Sale & Open House, Wilmington, DE
- 2004 Long Beach Island Arts Festival - Long Beach Island, NJ
- 2003: Media Arts & Crafts Fair - Media, PA - 2nd place award
- 2002; 2006: Christina Cultural Arts Center, Wilmington, DE - BSD Faculty Show
- 2002-2003: Montessori Arts Festival - Wilmington, DE
- 2001: Christina Cultural Art Center, DE - "Echoes of Life", 2 person show
- 2001-2008: Consignment/exhibiting artist at various local DE & PA high end art & craft 'galleries' including Rehoboth Arts League and The Kennedy Gallery; Earth & State, Terre Culture, and Galan Fine Gifts & Furnishings
- 2000-2009: Absalom Jones Art Studio - Newport, DE - many group shows & events
- 1986: Moore College of Art BFA Exhibition - Muse Gallery - Phila, PA - proposed, organized and executed seniors fine art exhibition
- 1985: T. J.'s Corner Café Restaurant - Rehoboth Beach, DE
- 1985: Moore College of Art "Collaboration"- Philadelphia, PA - proposed, organized, & executed group show of students from four Philadelphia art colleges.
- 1985: University of Delaware Student Photography Exhibition - Newark, DE
- 1984: Village Dock Restaurant - Oak Orchard, DE
- 1983-1986: Moore College of Art Student Art Shows - Philadelphia, PA
- 1982: University of Delaware Student Show- Newark, DE