# DIGITAL CINEMATIC TECHNOLOGY AND THE DEMOCRATIZATION OF INDEPENDENT CINEMA

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## ABSTRACT

This thesis explores the significance of digital cinematic technology within the independent film community. The main objective of this study is to demonstrate how various forms of digital technology (including cameras, non-linear editing software, and projection systems) are "democratizing" the processes of production, post-production, distribution, and theatrical exhibition.



## RÉSUMÉ

Cette thèse explore l'importance de la technologie digitale dans le domaine du cinéma indépendant. Cet ouvrage accorde une attention particulière aux façons dont les technologies numériques (y compris les caméras digitales, les logicieux de montage non-linéaire et les projecteurs de cinéma) représentent "une vraie démocratisation" des pratiques liées à la cinématographie, au montage, à la distribution et à la diffusion (en salle de cinéma) des films indépendants.

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# CHAPTER ONE: DIGITAL TECHNOLOGY AND THE DEMOCRATIZATION OF INDEPENDENT CINEMA

**In the twentieth century, cinema was celluloid; the cinema of the twenty-first century will be digital...Film is going to be photographed and projected digitally. The recorded image will go automatically into a computer and most post-production will take place in a computer...We made it through the silent era to the sound era and from the black-and-white ear to the colour era, and I'm sure we'll make it through the digital era...**

**Filmmaker George Lucas (1999).**

## 1. INTRODUCTION

Over the last century, technological innovation in cinema has been enabling major film studios to create motion pictures of increasing technological complexity. One innovation was the incorporation of sound into film in the late 1920s. Another was the popularization of computer-generated imagery (CGI) in science fiction and fantasy films in the early 1990s. Although technologically complex films require a high production budget, these same big motion picture studios producing them gamble that they will yield a high box office return. For instance, Twentieth Century Fox's *Titanic* (1997) cost 200 million (USD) to make but grossed 600 million (USD) in the U.S. and a whopping 1.84 billion (USD) worldwide.[1]

As renowned filmmaker George Lucas points out, digital technology is cinema's latest innovation. Over the last decade, the general public has been inundated with digital effects-heavy Hollywood blockbusters ranging from James Cameron's aforementioned epic love story to the *Lord of the Rings* trilogy (2001, 2002, 2003). Due to the proliferation of such cinematic fare, one might assume that digital cinematic technology refers only to expensive, complicated 3D animation and graphics used in big budget films. Consequently one might think that such technology is irrelevant for the independent film community working with limited budgets. At different points over this ten-year span, digital cinematic technology in fact has been *democratizing* the production,

post-production, distribution, and exhibition processes for independent filmmakers.[2] Digital cinematic technology has been liberating such processes by making them cheaper and more user-friendly for emerging or veteran independent filmmakers working outside the studio system.[3] In other words, it has been serving as an affordable and easy-to-operate way for them to shoot, edit, and distribute their films theatrically. At the shooting stage, digital cinematic technology takes the form of standard definition (SD) and high definition (HD) digital cameras. At the post-production stage, it is represented by the digital non-linear editing software Final Cut Pro. At the distribution and exhibition stage, it is embodied by digital projection technology. Such screening technology refers both to the distribution format (i.e. a compressed computer file for digital screenings in a theatre) and to the exhibition system (i.e. a computer server receiving films as DVDs, satellite feeds, or broadband transmissions and projecting them via digital projectors).[4]

Digital cinema has become a popular topic of academic research over the last decade. As I elaborate in Chapter Two, numerous scholarly works have focused on digital technology's role in concealing or highlighting special effects used in big budget Hollywood films or on its impact on the viewing of such films. In contrast, my dissertation explores a comparatively unstaked area of critical inquiry: digital cinematic technology's function as a democratizing force for the independent film community engaged in the processes of production, post-production, and theatrical distribution and projection. My analysis explores how the technology makes such processes more economical and functional for independent filmmakers.[5]

Evidently the theme of cinematic democracy can be interpreted in two major ways. One logical view centers on the democratization of spectatorship. For instance, if I applied Bertolt Brecht's *epic theatre* concept to motion picture, I could explore how a

film narrative emancipates spectators by inspiring them to reflect critically on the real world and to effect positive social change.[6] Within my analysis, I concentrate exclusively on the other view – the democratization of modes of cinematic production from a liberal democratic (rather than a Marxist) perspective.

I base this analysis on two specific assumptions about liberal democracy.[7] Referencing the liberal democratic idea of one's right to self-fulfillment, I regard democracy as the right of every filmmaker to reach his or her full potential as a motion picture artist-storyteller. However one's right to self-actualization also depends on another form of democracy. This consists of the right of every filmmaker – ranging from an unknown newcomer to a recognized cinéaste – to have full and equal access to the technological means to produce, post-produce, and project this work. In this regard, access refers to one's financial access (i.e. one's ability to afford such technology) and/or technological access (i.e. one's ability to utilize it easily). I therefore posit that digital cinematic technology serves as a democratizing force because it fulfills both democratic rights. Being cost-effective and user-friendly, it can be accessed by filmmakers with varying budgets and experience. Consequently they can realize their desire for creative self-expression.

I have three major research objectives. First I examine key factors that make digital production and post-production technologies cheaper and easier to operate than their analog (i.e. non-digital) counterparts. I also study the key factors that make digital distribution and theatrical projection systems more affordable than 35mm film release prints and 35mm film projection technology. Consequently I explore how such technologies dispel the myth that feature film production, post-production, and/or

theatrical distribution and exhibition are financially and technologically inaccessible to independent filmmakers, producers, distributors with low or modest budgets.

Secondly I identify key factors that make some members of the independent film community reluctant to utilize digital cinematic technology. These factors relate to the technology's limitations, external forces (including the technological climate of a given period, the economic concerns of a given film industry, and an individual filmmaker's artistic choices) and the pervasive myth of the *idealized aesthetic referent*. This myth purports that the "authentic" or "real" look of film is celluloid. Lastly I reveal that certain individuals' decision to use (or not to use) digital cinematic technology is one that reconciles their views toward these aforementioned pros, cons, and myths. From a soft determinist standpoint, I argue that their decision to shoot, edit, circulate and exhibit their films digitally (or not) is based on a compromise. Their compromise accommodates their positions on such issues and ideologies. By meeting these three research objectives, I reveal two things. One is that digital cinematic technology has been contributing to the survival of the independent film community in the digital age. The other is that such technology has been ensuring the community's continued existence as an alternative space for films shot, edited, and distributed outside of a studio system. Since this particular subject has not been explored extensively in the past, my work attempts to fill this lacuna in film scholarship.

## 1.1. BRIEF HISTORY

### 1.1.1. DEFINING THE TERM *INDEPENDENT CINEMA*

In a general context, the term *independent cinema* could refer to the production of films made outside of the studio system, including art films, autobiographical films, home

movies, ethnographic films, and even participatory or activist-related films. In the given context, I narrow the scope of my research to North American and Western European filmmakers engaged in fictional or documentary work done outside a commercial film environment. I therefore limit my definition of independent cinema to fictional or documentary filmmaking that is done outside a studio system and that enables the filmmaker to retain full artistic control. However it does not imply that he or she must completely reject the commercial film industry. Film historian David E. James (2005) traces this broad, flexible definition back to the 1920s. In this period, numerous European filmmakers, such as France's René Clair and Germaine Dulac and Germany's Walther Ruttmann and Oskar Fischinger, worked in the avant-garde and commercial sectors. They thus infused each domain with techniques and styles from the other. In Hollywood, American-born filmmakers (e.g. L.A.-native Dudley Murphy) and European expatriates (e.g. German-born Charles Klein) created "calling card" experimental films to "facilitate, not preclude, the commercial distribution of their works and to bring them contacts and contracts in the industry" (David E. James 22). In the present day, Steven Soderbergh is a famous example of an independent filmmaker who, like those from the 1920s, teeters between the industrial and non-industrial realms. He divides his time making big-budget Hollywood films such as *Ocean's Eleven* (2001) and *Ocean's Twelve* (2004) and low-budget dramas such as *Bubble* (2005) and *Full Frontal* (2002).

According to James, independent cinema as filmmaking done separately from a commercial film industry (such as the Hollywood studio system) did not gain recognition as a concrete alternative practice until 1943 (38). In that year, avant-garde filmmaker Maya Deren released *Meshes in the Afternoon.* Shot on 16mm film, this home-made experimental film popularized the trance film movement (celebrating a non-narrative,

self-reflexive film structure) among post-war avant-garde filmmakers. For Deren, it reflected her uncompromised creative expression as an artist and freedom from the industry pressure to ensure a box office winner. One therefore can argue that Deren expanded the meaning of independent cinema. From her perspective, it came to refer to filmmaking separate from for-profit film practices. Although this version of the term continues to circulate amongst experimental filmmakers, I posit that the definition at the start of this subsection more accurately describes the objectives and activities of the independent film community today. It therefore is the definition I endorse.

### 1.1.2. MODES OF PRODUCTION

In the 1920s, Bell and Howell and Kodak began marketing amateur 16mm film cameras for consumer use.[8] From that time to the present day, 35mm film camera technology nonetheless has remained the dominant, standard form for professional film production technology. Even avant-garde filmmakers, ranging from the Surrealists and Dadaists to German Expressionists, used 35mm film cameras to shoot their works in the early quarter of the 20th century (Sklar 306; David E. James 138). Early generations of independent filmmakers could infuse their works with their unique vision and in effect retain artistic control over it. Although Maya Deren legitimized the use of 16mm within the avant-garde filmmaking crowd in the early 1940s, the lack of easy availability to such equipment, coupled with its reputation as an unprofessional medium, did not make it popular among independent filmmakers interested in breaking into the Hollywood film industry or in garnering commercial exposure or success. Until the postwar period, they generally worked on their artistry independent of any cost-effective mode of production.

After World War II, less expensive celluloid camera technology began to be welcomed by the independent film community in North America and Western Europe. This took the form of higher quality, lightweight, portable 16mm cameras and faster 16mm black and white film stock. In fact two major post-war film movements demonstrate how 16mm film camera technology could serve as a more affordable and user-friendly alternative to 35mm film camera technology for independent cinema: the French New Wave (1958-1964) and American Cinéma Vérité or Direct Cinema (early 1960s to late 1970s). While the French New Wave is recognized for its influence on fiction filmmaking, American Cinéma Vérité or Direct Cinema is well-known for its impact on documentary filmmaking.[9]

French New Wave scholar Richard Neupert (2002) attributes the proliferation of sophisticated 16mm film cameras in the late 1950s to the emergence of the television medium since such cameras became popular for on-location field reporting (40). 16mm camera technology, which is cheaper than its 35mm counterpart, was immediately embraced by a collective of inexperienced young French filmmakers, including François Truffaut, Jean-Luc Godard, Claude Chabrol, and Eric Rohmer. Nicknamed *la nouvelle vague* (the New Wave) for their idealism and unconventional filmmaking philosophy, these directors were dissatisfied with the types of films being made under the French studio system at that time. From their perspective, the film narratives produced within this system were uninspiring in form and content. In their eyes, such films, mostly adaptations of literary works, did not speak to the everyday experiences of people and suffered artistically from stale filmmaking conventions and aesthetic styles. They attributed the mediocrity of such narratives to the filmmakers' lack of artistic control over their work within the studio system. As such they advocated the creation of films independent of a

studio system. In this way, filmmakers could assume full authorial control over their respective work. However the ability of the *nouvelle vague* filmmakers to exercise authorship over their films depended on what they could accomplish creatively on shoestring budgets. Claude Bernard-Aubert, a lesser known French New Wave member, explains the way in which their artistic vision related to finance: "We were all forced to begin with tiny budgets because most of us had no money, so we filmed subjects we were interested in and that fit with our budgets" (qtd in Neupert 41).

Such technology played an integral role in bringing to life their artistic desire for an unadorned visual style. French New Wave staples such as Truffaut's *400 Blows* [*Les 400 Coups*] (1959) and Jean-Luc Godard's *Breathless* [*À bout de souffle*] (1959) demonstrate that this particular aesthetic can be created through a combination of on-location (rather than studio) shooting, natural lighting, and a handheld shooting style. As a result 16mm film technology was a good fit. For instance, handheld, portable, and lightweight 16mm cameras (such as Éclair's Cameflex and NPR cameras) could enable a French New Wave film crew to work free of heavy camera mounts, such as dollies and tracks, and follow its actors into actual locations around Paris. The fact that French New Wave filmmakers shunned the use of studio lighting techniques meant that black and white 16mm TriX film stock was indispensable for on-location shoots in natural light. Being a faster film stock, it still could capture visibly perceptible albeit grainy imagery in low lighting conditions. All in all, it is evident that these independent filmmakers' artistic vision (i.e. desire for a realistic narrative based on an unadorned visual style) was impacted as much by their budget as by 16mm film technology. Neupert succinctly sums up this idea: "[T]he generating mechanisms of finances and technology dramatically affected the stories and styles of the new generation [of French New Wave filmmakers]"

(41). In other words, the technology's physical traits, such as portability and lightness, provided them with the physical freedom to bring to life their artistic vision, one aiming to liberate French cinema from the artistic restraints of the studio system. At the same time, the cheaper cost of 16mm film camera stock compared to that of 35mm film stock provided some monetary relief since they were working with limited financial resources.

Film historian Robert Sklar (1975) relates the rise in the use of professional 16mm camera technology for documentaries to the availability of surplus war cameras. Employed by the Allied forces to shoot propaganda films during World War II, 16mm cameras were integral to the flourishing of America Cinéma Vérité, a documentary film tradition popular from the early 1960s to the 1970s.[10] According to author Stephen Mamber (1974), the act of documenting real people in uncontrolled situations was of fundamental importance to American Cinéma Vérité documentarians including Robert Drew, Richard Leacock, Albert and David Maysles, and D.A. Pennebaker. In a Vérité context, the filmmaker does not act as a director since none of his or her subjects are told what to say or how to act. Figuratively portrayed as an eavesdropping fly on a wall, the filmmaker is an unobtrusive observer of the action occurring around him or her.

Shooting in uncontrolled situations would require lightweight, handheld, and portable equipment working well in low or natural light. American Cinéma Vérité documentarians regarded 16mm film cameras as an ideal technology for achieving this feat. In summary, 16mm film technology endowed these documentary filmmakers with technological freedom since it enabled them to follow their subjects to naturally or low-lit locations without the constraints of dollies or tripods. It also provided them with financial freedom since the cheaper costs of 16mm film stock allowed them to shoot more footage. In both ways, it helped them to achieve their artistic goal of uncontrolled filmmaking.

From the postwar period to the late 1980s, 16mm film technology remained a popular format for independent fiction and documentary features slated for theatrical release. Today it is still often used for independent fictional shorts. However standard definition (SD) digital camera technology, one of two defining types of digital camera technology, emerged in the mid-1990s as a competent professional alternative to 16mm for fictional and documentary works and steadily rose in popularity from that period to the early 2000s.[11] In that time span, various professional SD digital camera formats emerged. These included the Sony Digital Betacam and the Panasonic DVCPro, which could be used for independent filmmaking or ENG-style TV news reporting.

In this same period, consumer SD cameras, including the Canon XL2 and the Panasonic DVC-100, which use the mini DV (also known as the DV) tape format, came to be called *prosumer cameras*. Initially marketed to the general public, they were given the *prosumer* moniker because they began to be used in a professional context by the independent film community. A major cause of this phenomenon is that notable Danish independent filmmakers Lars von Trier and Thomas Vinterberg set in motion Dogme 95, a no-frills filmmaking movement, in this same time span. By paying aesthetic homage to the French New Wave, American Cinéma Vérité, and even home video, Dogme 95 popularized the use of consumer cameras in its films, the most well known being Vinterberg's *Celebration* [*Festen*] (1998) and von Trier's *The Idiots* [*Idioterne*] (1998). Since the movement required that narratives be filmed on location and make use of natural lighting and handheld cameras, Dogme enthusiasts gravitated toward consumer cameras, due to their innate financial and technological benefits. Not only was digital tape considerably cheaper than 35mm or 16mm film stock but SD digital camera's portability, lightweight, and easy functioning satisfied the aforementioned regulations. These

regulations, along with other "dos and don'ts," are outlined in von Trier and Vinterberg's manifesto The Vows of Chastity.[12]

The Dogme manifesto of filmmaking rules has been viewed as pretentious and impractical by some of von Trier and Vinterberg's contemporaries, including American filmmakers Spike Lee and John Waters (Quart 2000). Furthermore Dogme pioneers von Trier and Vinterberg no longer completely abide by all their outlined Vows. From the mid-1990s to the early 2000s, the Dogme 95 movement nonetheless managed to inspire numerous independent filmmakers worldwide to appropriate, either loosely or religiously, the Dogme 95 aesthetic for their own projects. These ranged from acclaimed British filmmaker Mike Figgis, whose independent feature *Time Code* (2001) is loosely informed by such vows, to relatively unknown South Korean filmmaker Daniel H. Byun, whose feature *Interview* (2000) so completely abides by the Vows that von Trier and Vinterberg officially certified it Dogme.[13]

What has accounted for the staying power of the Dogme 95 film movement in various independent film communities worldwide over the last decade? One plausible explanation is that its artistic mandate, reflected in its Vows of Chastity, is pragmatic. In his analysis of Dogme 95's enduring global appeal, Scott Mackenzie (2003) theorizes that the Vows of Chastity are popular among independent filmmakers because they offer "a rhetoric which [only] addresses modes of production and does so without...offering an ideological critique as a necessary corollary to the goals of the aesthetic renunciations at the heart of the Dogme project" (50). In simpler terms, Mackenzie posits that the Dogme objective is to liberate cinema from the superficiality of a film's narrative content or aesthetic form by leading the art form to a "purer" (i.e. less audio-visually polished and therefore less "artificial") state. This goal is not based on some nebulous or abstract

concept of artistic freedom. Instead it focuses on achieving artistic freedom through the production process.

Jean-Pierre Geuens (2001) elaborates on Mackenzie's line of thought. He theorizes that the studio system (e.g. in Hollywood or Mumbai) makes one obsess over maximizing profit. Such obsession leads to staleness of dialogue, predictability of plots, and one-dimensionality of characters. To explain, studios depend on production processes that generate narrative content and aesthetic forms which they assume can make a "hit movie." This process makes use of production equipment (i.e. 35mm film stock, big floodlights, studio set design) and production techniques (i.e. smooth pans and tilts achieved by a mounted camera, well-lit scenes, highly made-up actors) intended to secure a hit. In most cases, this desire for a hit does not allow much room for elements conducive to artistic creativity or innovations, such as unconventional storylines or experimental shooting techniques. Vinterberg himself notes that "[w]hen a film director makes a [studio] film, it quite automatically gets done in a particular way. You have a unit of 30 people around you, lots of lighting and all that...It's a large ponderous machine. The result is a particular kind of film" (qtd in Jensen 2000). Geuens concludes that one way to challenge the conventionalism of "that kind of film" generated in a studio system involves altering the types of production tools and techniques employed. This challenge is taken up by the Vows of Chastity. Although the Vows do not overtly advocate the use of digital filmmaking technology, Dogme devotees believe that the Vows are best achieved through it. One can reason that the rugged, shaky, grainy aesthetic associated with the trademark *pared-down aesthetic* of a Dogme film thrived from the mid-1990s to the early 2000s since it could be easily – and cheaply – generated through SD digital cameras. I discuss this subject in detail in Chapter Three.

Although the Dogme film movement was en vogue from the mid-1990s to the early 2000s, its popularity within the independent film community has been dwindling from the early 2000s to the present day. The waning interest among independent filmmakers stems from an aesthetic shift. In general independent filmmakers' interest in attaining a pared-down aesthetic has been replaced by an interest in recreating the look of a film shot on 35mm film. This latter *pro-regular movie realistic aesthetic* has arisen since the emergence of high definition (HD) digital camera technology in the early 2000s. I also discuss its significance in Chapter Three.

Even though SD digital cameras continue to be used in the present day, they have been competing with HD digital cameras for the hearts and minds of independent filmmakers. Like SD digital cameras, HD digital cameras are divided into two classes one professional, the other prosumer. The professional class utilizes the HDCAM tape format and its most popular model is the 24p HD Cine Alta digital camera. Within the prosumer class, the HDV (High Definition Video) camera is the most well-known and uses the miniDV or DV tape format. Despite the existence of two categories of HD digital cameras, the independent film community has been drawn primarily to the professional class since it is thus far the one digital format that best approximates the look of celluloid. In all likelihood, George Lucas's much-publicized use of the 24p HD Cine Alta digital camera to film *Star Wars Episode II: Attack of the Clones* (2002) alerted the independent film community to the technology's ability to generate imagery indistinguishable from that of 35mm film, to the average moviegoer. This is possible due to the camera's progressive mode function that replicates the 24 frames per second (fps) speed of celluloid film. The surging popularity of the pro-regular movie realistic aesthetic within the independent film community was apparent at the 2005 Sundance Film Festival.

Nearly 50% of all fictional and documentary features and shorts in competition were shot with a 24p HD Cine Alta digital camera.

### 1.1.3. MODES OF POST-PRODUCTION[14]

Over the last century, much experimentation has occurred in the domain of editing. This has ranged from Sergei Eisenstein's use of discontinuity editing in such films as *Battleship Potemkin* (1925) and *October* (1927) to French New Wave director Jean-Luc Godard's deliberate play with jump cut editing in *Breathless*.[15] Although an array of editing styles flourished from the 1890s until the mid-1990s, visual post-production technology, in this time period, consisted of only a few types of editing machines. For instance, from the postwar period to the mid-1990s, the traditional editing system consisted of two models of editing machines. From the 1950s to the 1970s, the Moviola, which was created by Ivan Serrurier in 1924 and which resembles a hand-cranked upside-down movie projector, was commonly used. From the 1970s to the mid-1990s, the Steenbeck or KEM flat-bed machine was in prominence. On both machines, 16mm or 35mm celluloid film could be viewed, spliced (i.e. pasted or taped together), and cut during the post-production stage. Editors would spend countless hours sorting through reels of film, organizing them, and splicing sections to create narratives. Such manual labour entailed much time spent on repetitive tasks. In her study on digital non-linear editing (NLE), Michele Pierson (1999) theorizes that editors on digital platforms could save such time by redirecting it to presumably more creative tasks. However Walter Murch who has utilized both analog (i.e. non-digital) and digital film editing systems offers a different perspective. Although digital NLE is indeed quicker and more malleable than traditional equipment, he argues against the idea that speed and flexibility breed

creativity (Cellini "Adapting to Digital" 2004). I explore these contrasting claims in Chapter Four.

From the 1960s to the early 1980s, analog linear video editing technology became popular for editing TV programs shot on video. By the late 1970s, the non-digital Betacam SP video camera replaced 16mm film cameras as a cheaper and more user-friendly medium for on-location news reporting (McKernan 88). Consequently independent documentary filmmakers who wanted to release their work (for broadcast consideration) could shoot their work on Betacam and edit it on an analog linear editing system from that period to the mid-1990s.[16] However this post-production system was incompatible with celluloid film. It was unsuitable for independent fiction filmmakers who wished for a theatrical release and needed to shoot their films on 16mm or, if the budget allowed, 35mm film. To edit film efficiently on any video editing system, they would require a system that could process celluloid film.

The answer to their needs came in the form of digital non-linear editing (NLE) software, a computerized visual post-production system.[17] Although Avid Technology introduced the first digital NLE software to the market in 1988, digital NLE technology only began to take off in the mid-1990s. As early as 1994, for instance, 90% of Warner Brothers' feature films were being digitally edited (Pierson 32). From that period on, it has become the dominant post-production system for cinema and television worldwide. Over the last decade, numerous film and TV editors have used Avid Media Composer and, in some older cases, Lightworks and Media 100. Digital NLE technology also has become the dominant means of post-production within the independent film community. In various filmmaking schools and independent film cooperatives throughout North America, there has been an emphasis on training individuals on a digital editing platform,

rather than on traditional manual machines. For instance, such film and video cooperatives as Main Film (in Montreal), Trinity Square Video (in Toronto), and Film/Video Artists (in New York City) provide editing workshops on Apple's Final Cut Pro, while most university filmmaking programs, such as those offered by Concordia University and New York University, train their future filmmakers both on Avid Media Composer and Final Cut Pro.

One significant factor to consider is that, over the same decade, Avid Media Composer has become the dominant professional digital NLE system for major motion picture studios and the independent film community. Although earlier digital NLE systems included Lightworks and Media 100, Avid Media Composer, sold as a software-hardware system, has conquered their market and driven them into obscurity. In this period, Avid Media Composer's de facto status as the standard technology for digital NLE editing has earned it the reputation of being a financially and technologically inaccessible system among independent filmmakers. It is an unaffordable post-production system for those on modest budgets. For instance, the rental cost of an editing studio equipped with the Avid program would set an independent filmmaker back thousands of dollars. According to such picture editors as Peter May (2002) and Patrick Inhofer (2006), Avid Media Composer also is more technologically complex than Final Cut Pro. Thus emerging filmmakers who want to cut their own films but have little or no editing experience would view it as an unfriendly and daunting system to use.

For both reasons, I explore how digital post-production technology can be a financially and technologically democratizing force through an analysis of Avid Technology's chief rival – Final Cut Pro. Released into the market in April 1999, Final Cut Pro has been viewed by the independent film community as more economical and

easier to operate than Avid Media Composer and even Avid Xpress.[18] Final Cut Pro's affordable price tag makes it an alluring professional alternative to either Avid system. Its cost-effectiveness, user-friendliness, and compatibility with ordinary consumer Mac computers has made it an attractive investment for independent filmmakers wanting to off-line edit their films at home. An off-line edit, the first stage of visual post-production, involves a low-resolution edit of one's film. The online edit, the second stage of the process, consists of upgrading the low-resolution edit into a high-resolution cut replete with colour correction. The online edit is usually done at a professional post-production studio since it requires an extremely powerful computer system to handle uncompressed footage and special effects.[19] All in all, Final Cut Pro has been weakening Avid Media Composer's stronghold over the independent film community over the last seven years. The Apple software is poised to break the Avid program's dominion over the studio-driven feature film and commercial TV industries.

### 1.1.4. MODES OF THEATRICAL DISTRIBUTION AND EXHIBITION

For as long as there have been independent filmmakers in North America, there have existed non-commercial distribution channels and exhibition outlets to disseminate their works. From the 1920s to the late 1950s, common projection venues for the independent film community included colleges, universities, museums (such as the Museum of Modern Art (MOMA), film appreciation societies – and a few early repertory cinemas (movie theatres devoted to art, foreign, and/or independent fare). In the post-war period, repertory cinemas surged in popularity in the U.S. Douglas Gomery (1992) reasons that, in the aftermath of World War II, an interest in foreign culture and art forms, especially European, grew among American military men returning home after living in Europe.

David E. James (2005) also attributes the financial viability of repertory cinemas in the 1960s to the period's counterculture zeitgeist whose celebration of non-conformism matched the spirit of many an art film. Both authors note that such cinemas continued to thrive throughout the 1970s. This was related to the heavy attendance (especially by college students) of weekend midnight screenings of such indie fare as John Waters's *Pink Flamingos* (1972) and the cult favorite *The Rocky Horror Picture Show* (1975). Since the emergence of VCRs in the 1980s and DVD players in the late 1990s, these cinemas have been forced to compete with video and DVD rental shops. While decreased attendance has forced some of these theatres, such as the Regency and the Bleecker St (in New York City) and Paris Cinema and Cinéma Parallèle (in Montreal), to close, others have survived and expanded. One notable example is the Landmark Theatres chain (the subject of my case study in Chapter Five) whose flagship venue, the West Los Angeles Nuart Theatre, opened its doors in 1974. Throughout the U.S. and Canada, many more new repertory cinemas have arisen including the Angelika Film Center (in New York City) and Excentris (in Montreal).

Over all of these years, the 35mm release film print has remained the dominant exhibition format for the majority of these repertory cinemas. Any independent filmmaker wishing to screen his or her work in several theatres at once had to endure the expensive process of creating a 35mm release print for each screening room. Until the late 1990s, the independent film community and major motion picture studios had been resigned to such costliness. It had been the necessary price to pay for theatrical release in a cinema equipped only with 35mm film projection technology. This feeling of resignation started to change with the arrival of digital projection technology in 1999. The resignation felt by

major film studios was replaced with a feeling of skepticism over this arrival, whereas the resignation felt by independent filmmakers was replaced with optimism.

A brief explanation of the 1999 event that marked the arrival of digital projection and that caused the divide is in order. In that year, George Lucas made headlines by instructing four U.S. theatres to screen *Star Wars Episode I: The Phantom Menace* on a digital projection system.[20] Digital cinema scholar John Belton (2002) writes that, at the time, the media heralded digital projection technology as the "technology that would change the face of the big motion picture industry" (103). Over the next six years, mainstream film exhibitors proved reluctant to embrace a screening system through which a film is received via satellite feed, broadband transmission, or DVD playback, and screened from a computer server connected to a digital projector. During the making of *Star Wars Episode II: Attack of the Clones*, the second of his new millennium trilogy, George Lucas predicted that by the year 2002, 2000 screens worldwide would be equipped to operate the format. When the film was released in that year, only 90 screens worldwide were equipped with this technology and traditional 35mm release prints of the film had to be used for most screenings (Griffin D6).

According to Andrew Downie (2004), two major factors that have made mainstream theatres hesitant to welcome such systems are the high costs of purchasing and installing digital projection equipment and the concern over movie piracy. In fact their skepticism over digital projection technology has extended to major Hollywood film studios.[21] Like theatre exhibitors, these studios also have been concerned about a third factor. From 1999 to July 20, 2005, the primary concern had been the lack of uniform technical standards to ensure professional quality performance of all manufactured digital projection systems. For this reason, July 20, 2005 marked a turning point. On that day,

Digital Cinema Initiatives, a technical standards committee made up of seven major motion picture studios, released official industry-wide technical specifications for digital projection systems.[22] Since this date, the general wariness felt by mainstream studios and cinema exhibitors has started to dissipate.

Whereas it took the creation of formal technical specifications to make mainstream studios and exhibitors serious about digital projection technology, repertory cinemas and independent film festivals have been welcoming since its emergence in the early 2000s. For instance, the Independent Filmmaking Professionals (IFP), the largest independent film association in the U.S., partnered with Microsoft from September 30 to October 3, 2002. The IFP employed Microsoft's Windows Media 9 (WM9) Series-based digital projection technology to screen four independent films at the 2002 Independent Film Market (an independent film convention) in New York City.[23] In that same year, the Sundance Film Festival also used the Windows Media 9 Series-based system to exhibit four feature films. A year earlier, entrepreneur Daniel Langlois was putting in place a satellite-based digital projection system in Excentris, his repertory film theatre in Montreal. These examples reveal that repertory film exhibitors have been turning to digital projection technology in order to screen works by independent filmmakers falling under one of two groups. The first consists of those who cannot afford to convert a SD- or HD-shot film to the standard 35mm theatrical screen format. The conversion process for a feature-length film costs roughly $50,000 (USD) and each 35mm release print thereafter made ranges from $1000 to $2000 (USD). The second group is made up of self-distributing independent filmmakers or their distributors. Although these individuals can afford to make a modest amount of release prints for limited theatrical distribution, they may wish to make more prints for a wider release.

Each of the aforementioned examples has been short-term or small-scale endeavors. For this reason, the Landmark Theatres chain, which embraces the works of both groups, stands out from the pack. From 2002 to the present day, the chain, which is arguably the largest network of repertory theatres in North America, has been most consistent in its highly publicized commitment to the use of and experimentation with digital projection technology. Over these years, under two different owners, the Oaktree Capital Management LLC and 2929 Entertainment (owned by Mark Cuban and Todd Wagner), the Landmark circuit has been employing the technology in various branches. Consequently the Landmark Theatres chain is central to my case study on digital projection technology and its function as a financially and technologically democratizing force for independent filmmakers, distributors, and repertory theatre exhibitors.

## 1.2. METHODOLOGY AND CHAPTER BREAKDOWN

According to theorist Tony Bennett (1996), interventions are styles of critique that aspire to challenge the exclusionary effects of a given subject (e.g. styles of critique that comment on a modern art museum's perpetuation of intellectual snobbery) (310). Bennett takes a cautionary stance toward interventions since they can themselves be elitist and exclusionary if critics employ them in a manner that caters to one type of audience but then alienates all others. In this dissertation, I therefore employ Bennett's notion of intervention through a methodological approach – or style – that appeals to at least two, if not more, groups of potential audiences. The first group consists of members of the independent film community. It includes but is not limited to fiction and documentary filmmakers, picture and sound editors, distributors, producers, film festival organizers, and cinema exhibitors. The latter group represents the academic community and includes

scholars from such interrelated academic fields as cinema studies, new media studies, communications, cultural studies, and educational technology.

I intend for my dissertation to appeal to practitioners and theorists of various forms of digital technology, including film, photography, graphic design, and web design. For this reason, my methodological intervention employs the following approaches: (a) an overview of theoretical concepts and a literature survey of relevant scholarly works in Chapter Two; (b) a textual analysis of published interviews with independent film practitioners in Chapters Three and Four; and (d) a case study in Chapter Five. I also want my work to be analytically engaging for both parties. Therefore such approaches appropriate, problematize, and/or reference concepts and arguments drawn from the academic disciplines and digital practices mentioned above.

This present chapter has been the point of departure for the subsequent chapters. In the previous pages, I provided an introduction to my dissertation research and a brief historical overview of key cinematic trends impacting the film production, post-production, and projection processes for independent filmmakers. This chapter now concludes with a detailed breakdown of the subsequent chapters.

Chapter Two begins with an overview of theoretical sources that inform my work's overall conceptual framework. It is followed by a literature survey of scholarly works on digital technology pertinent to my research. Chapter Three examines the role of SD and HD digital cameras as democratizing forces. This chapter is structured as a content analysis of excerpts from published interviews with emerging no-name independent filmmakers and their established name counterparts. The study specifically focuses on how their desire to use SD and HD digital cameras relates to the various interpretations of digital camera technology as a liberating force. Such interpretations

dispel the myth that feature film production is financially and technologically inaccessible for independent filmmakers on limited or low budgets. Classified under one of three roles, these interpretations regard digital camera technology as (a) a "diptych of goodness" (whereby "goodness" refers to cost-effectiveness and user-friendliness); (b) a conduit for aesthetic realism; and (c) a catalyst for the DIY (Do-It-Yourself) phenomenon. My analysis demonstrates that independent filmmakers perceive the financially and technologically liberating aspects of digital cameras by comparing them with their 35mm and 16mm counterparts.

In addition this content analysis shows that certain independent filmmakers' reluctance to regard digital camera technology as a democratic force relates to two main factors: (1) its internal limitations (e.g. its less "film-looking" aesthetic) and (2) external forces (e.g. most cinemas' lack of digital projection systems). However this study also shows that most of these same individuals' ultimate decision to use it is based on a compromise. This compromise is based on independent filmmakers' understanding that digital camera technology's affordability and easy operability outweigh its limitations and external forces. Their decision is also affected by the myth exalting the look of celluloid as cinema's ideal aesthetic standard.

There is little academic scholarship on visual post-production technology, much less on Final Cut Pro. In contrast, there is a plethora of print and online articles, essays, technical reviews, and online discussion boards by independent film practitioners knowledgeable about Apple software. For this reason, Chapter Four centers on a textual analysis of key passages from such practice-based literature. I examine how Final Cut Pro's role as a democratizing force in the visual post-production phase stems from its ability to shatter two myths. The first is that digital NLE, at the offline editing stage, is

unaffordable for emerging filmmakers with tight budgets. The second is that offline editing is too technologically complex for neophyte filmmakers with little or no experience in editing.

I also demonstrate that Final Cut Pro's ability to shatter the aforementioned myths is related to its roles as a (a) diptych of goodness" (whereby "goodness" again refers to cost-effectiveness and user-friendliness); (b) catalyst for the Do-It-Yourself (DIY) phenomenon; and (c) conduit for creative self-expression. My analysis of these three invariably requires a comparison between Final Cut Pro and its more expensive and technologically complicated market rivals Avid Media Composer and Avid Xpress. I also examine how Final Cut Pro's liberating potential can be challenged by internal forces (e.g. its technical limitations) or by external forces (e.g. the costliness and complexity of online editing). However I show that practitioners who ultimately decide to use Final Cut Pro recognize that its diptych of goodness outweighs its obstacles. Furthermore I explain how Final Cut Pro can undermine the myth of financial and technological accessibility but, at the same time, condone that of celluloid as cinema's idealized aesthetic referent.

Chapter Five concentrates on the Landmark Theatres chain's use of digital projection technology from 2002 to 2007. My case study delves into three factors: (1) motives; (2) democratizing functions; and (3) barriers. First I examine the economical, technological, and artistic reasons why the Landmark Theatres chain has been committed to screening independent films through the use of digital distribution and projection technology over the last five years. Digital distribution technology enables a feature film to be compressed into encrypted digital files; these are sent to a theatre through satellite or broadband transmission or on DVD. Digital projection technology consequently decompresses and decrypts the received film and screens the film by playing it from a

computer server attached to a projector. Second I explore how digital projection technology can serve as a more lucrative system than traditional 35mm film projection systems. In this way, it functions as a major incentive for the Landmark Theatres chain to "digitalize" all its branches. At the same time, I reveal how the technology can act as a financially viable distribution format for self-distributing independent filmmakers who cannot afford 35mm release prints for theatrical exhibition. I also show that it can be a more cost-effective alternative to 35mm release prints for self-distributing independent filmmakers and distributors who previously could afford to make only a modest amount of 35mm release prints.

Lastly I scrutinize barriers such as the technology's innate technical limitations (e.g. the costliness of the theatrical installation of digital projection systems) and external forces (e.g. the pre-2005 lack of technical standards for such system). These obstacles have prevented the technology from turning into the universal form of distribution and exhibition. I also investigate how such barriers have affected Mark Cuban and Todd Wagner, co-owners of the Landmark Theatres chain from 2003 to the present day. Specifically I study how the ever-changing digital projection systems at Landmark Theatres illustrate Cuban and Wagner's desire to reconcile three opposing desires: their desire to take advantage of the technology's potential profitability, their desire to overcome barriers to the technology's liberating function, and their desire to sustain celluloid's look as the standard of aesthetic excellence in cinema. To address these major issues, the case study draws on academic essays, press releases, promotional interviews, and reviews about the Landmark Theatres chain and its owners' initiatives to "go digital."

Finally Chapter Six explores the future of digital cinematic technology. This concluding chapter offers insight into how digital processes of production, post-

production, and theatrical distribution and exhibition will impact the independent film community over the coming decade.

# ENDNOTES FOR CHAPTER ONE

[1] See *BBC News*. "Titanic cost of making movies." Thursday December 18, 1997. January 18, 2005. <http://news.bbc.co.uk/1/hi/world.> and *The Numbers*. "Titanic." 1997. January 18, 2005. <http://The Numbers.com/1997.>

[2] Independent films are generally distributed by small independent distribution companies. Nonetheless one growing trend involves independent film producers entering into distribution deals with distribution companies affiliated with major Hollywood studios. For example the independent feature *Napoleon Dynamite* (2004) was distributed by Twentieth Century Fox.

[3] While I use the term *independent filmmaker* to refer primarily to directors who make their films outside the studio system, it also can refer to cinematographers, editors, producers, and anyone else involved in the film creation process.

[4] Within this dissertation, my study on digital distribution focuses primarily on theatrical distribution, rather than on straight-to-DVD and online dissemination processes. Similarly my research on digital exhibition centres on theatrical screenings, rather than on digital cable delivery, satellite TV broadcasts, and online streaming.

[5] I avoid using the term *video*. It is becoming increasingly irrelevant to distinguish between the notions of film and video at the production, post-production, distribution, and exhibition stages. I discuss this issue briefly in Chapter Six.

[6] As a live theatre theory, *epic theatre* advocates that a play should not inspire spectators to feel empathy or to identify with the story or characters. Instead it should distance them from the play and in this way allow them to adopt a critical attitude toward the onstage action. In so doing, epic theatre would free audiences from complacency and inspire them to think about how the onstage action reflects social issues and addresses the world beyond the theatre walls. See Bertolt Brecht. *Brecht on Theatre: The Development of an Aesthetic*. John Willett, ed. London: Methuen Drama, 1990.

[7] I base these assumptions on Paul Théberge's two concepts of technological democracy and elaborate on them in Chapter Two.

[8] 8 mm film cameras were introduced in the 1930s. Like 16mm film cameras, they were used for home movie-making.

[9] Although French Cinéma Vérité emerged in France at the same time that American Cinéma Vérité appeared in the U.S., a major difference exists between the two documentary film movements. French Cinéma Vérité filmmakers, such as Jean Rouch and Edgar Morin, deliberately put themselves in their films, while their American counterparts, such as Robert Drew and Albert and David Maysles, aspired to be invisible. According to Brian Winston (1995), the French documentarians' self-inclusion was their way of ensuring the objectivity of their observation "because we, the audience, could observe them apparently in the act of observing" (164).

Even though 16mm film cameras are more cost-effective and user-friendly than 35mm film cameras, they are still more expensive and less easy to operate than digital cameras.

[10] In North America, such propaganda films were screened as wartime newsreels that would precede screenings of Hollywood films. Many were produced by British documentarian John Grierson, founder of the National Film Board of Canada.

[11] From the late 1970s to the early 1990s, the non-digital Betacam SP camera served as an alternative to 16mm film for independent documentary filmmakers who were not aiming for a theatrical release. This subject is explored briefly on p.15.

[12] The Vows of Chastity are a set of filmmaking rules that must be upheld by filmmakers loyal to the Dogme 95 film movement. This list of rules determines whether one's film can be deemed a veritable Dogme film. The film must meet von Trier and Vinterberg's technical demands outlined in the Vows. By so doing, it then can attempt to recapture the purity of filmmaking, which von Trier interprets as "the need to return to the basics" (qtd in Hjort and Mackenzie 8).

[13] Lars von Trier and Thomas Vinterberg deem a film "officially Dogme" by honouring it with an alternate title. This title consists of the word Dogme and a number designating its place in the order of certified Dogme films. For instance, Vinterberg's film *Celebration* is known as Dogme #1 since it was the first official Dogme film released, while Hyun's is Dogme #6 since it was the sixth certified film.

[14] I limit my study on post-production to visual editing systems. Just as sound recording equipment is integral to the film production process, so is sound editing technology a vital and often neglected process in cinematic post-production. Additionally audio systems are as much an essential part of the theatrical exhibition process as is the film projection equipment. However audio systems possess broad histories and development patterns different from those of production cameras, picture editing systems, and film projection equipment. Thus sound recording, sound editing, and the theatrical sound dissemination processes deserve to be explored in a separate study, ideally one devoted to audio in cinema. For this reason, I wish to narrow the scope of my research to the visual aspects of production, post-production, and distribution and projection technologies.

[15] While continuity editing refers to a system of cutting to maintain continuous and clear narrative action, discontinuity editing refers to an alternative system. The latter system consists of editing shots together using techniques unacceptable with continuity editing principles. Present in Eisenstein's two films, these devices include the mismatching of temporal and spatial relations and graphic mismatching (which refers to the overt compositional dissimilarity of two successive shots) (Bordwell & Thompson 478). For more information on discontinuity editing, see David Bordwell. *The Cinema of Eisenstein*. Cambridge (Mass): Harvard University Press, 1993.

Jump cut editing refers to an abrupt cut that interrupts a single shot or that marks a sudden transition between two shots. It is disorienting in terms of the continuity of space and time (Giannetti 445).

[16] During the process of analog linear video editing, an editor must utilize two non-digital editing machines – a video player and a video recorder – simultaneously. He or she edits a film narrative by transferring video footage from the player to the recorder. This process is called "linear" because shots are laid down one after another linearly. Once the image and sound are electronically registered onto the recorder's tape, the editor cannot later insert extra footage into the body of the edited narrative.

[17] Unlike the process of non-digital linear video editing, digital non-linear editing (NLE) involves importing either audio-visual celluloid or video footage into a computer hard drive and editing it with digital NLE software. The editor usually lays down the files chronologically on a virtual timeline, but he or she can easily rearrange the order of two juxtaposed files. This ability to insert images or sound, in front, in between, or behind a pair of juxtaposed image files or sound files on the picture-editing timeline is what gives this editing format its *non-linear* designation.

It is useful to understand the difference between picture editing for digital footage and picture-editing for celluloid footage. Footage shot on a digital camera can be imported straightforwardly into the computer as digital files. In contrast, footage shot on a celluloid camera must first be transferred into a digital format through a telecine machine. The digital video footage of the celluloid footage is then edited using editing software. When a final cut is ready, the system generates an Edit Decision List (EDL) that explains, through time codes, how the movie should be cut. Specialists must then create the final edit of the actual celluloid footage and use the EDL as their guide. On the other hand, final cuts of footage originally shot on analog or digital cameras are usually outputted onto digital tape or DVD, or saved as digital files (if further modifications are needed).

Although one can use digital NLE software, such as Avid Media Composer, Avid Xpress DV, and Final Cut Pro, to do preliminary sound editing, professional quality sound editing or sound mixing is usually done in a professional sound lab, after the picture editing process is completed.

[18] Avid Xpress is Avid Media Composer's spin-off sister software. It is used exclusively for editing footage shot on SD or HD digital cameras.

[19] Chapter Four offers a longer discussion of the difference between the two picture editing stages.

[20] Two of the four utilized the Hughes/JVC digital projector. These were Pacific's Winnetka Theater located in the outskirts of Los Angeles and the Loews Theater in Paramas, New Jersey. The other two employed digital projectors manufactured by JVC's arch-rival Texas Instrument. These were the AMC's Burbank 14 Multiplex Theatre in Burbank, California and the Loews Meadow 6 in New Jersey. See Belton 108 and Cohen (2002).

[21] I elaborate on these two warranted concerns in Chapter Five, Section 5.3.

[22] These consisted of Disney, Fox, Metro-Goldwyn Mayer, Paramount Pictures, Sony Pictures Entertainment, Universal Studios, and Warner Brothers Studios.

[23] It is estimated that, in 2002, installing a digital server system (excluding the $100,000 + digital projector) ranged from $40,000 to $100,000 (USD). At that time, Microsoft boasted that the Windows Media 9 Series technology could reduce such costs. According to Microsoft, the software could be used on a consumer-level Windows-based PC equipped with a cheap audio card and attached to a digital projector. The setup would allow "smaller theatres" [i.e. repertory cinemas] to "achieve some of the benefits of digital cinema with off-the-shelf hardware and software" ("Windows Media 9 Series for Digital Cinema Applications" 2002).

# CHAPTER TWO: THEORY, LITERATURE, AND DIGITAL CINEMATIC TECHNOLOGY'S DEMOCRATIC ROLE

## 2. OVERVIEW OF THEORETICAL CONCEPTS AND LITERATURE SURVEY

As I outlined in the preceding chapter, my overall dissertation focuses on digital cinematic technology's function as a financially and technologically democratizing force for independent filmmaking. Specifically this research examines this liberating role in relation to the processes of production, post-production and theatrical distribution and exhibition. Therefore it is important to examine the four assumptions that inform my work. First I base my definition of democracy on two theories of liberal democracy, the market concept of democracy and the ethical notion of democracy. Second I regard that digital cinematic technology is an *inherently* democratizing technology. Its innate affordability and user-friendliness make it financially and technologically accessible for independent filmmakers. Third I posit that soft determinism, a moderate branch of technological determinism, offers the most pragmatic and balanced approach for conceptualizing digital cinematic technology's impact on the independent film community. Fourth I relate digital cinematic technology's function as a democratizing force to specific roles that it can carry out. My understanding of what makes it liberating involves my understanding of such roles.

For such reasons, it is necessary to devote this chapter to an overview of theoretical concepts and a literature survey. The overview explores key works that shape my definition of a democratizing technology. The overview also clarifies my concept of soft determinism by comparing it to hard determinism, hard (social) constructionism, and soft (social) constructionism. The literature survey reviews scholarly works that touch on

various incarnations of a *democratizing* digital technology. In so doing, it helps me to pinpoint digital cinematic technology's liberating value.

## 2.1. THEORIZING DEMOCRATIC TECHNOLOGY

Within this overview of theoretical concepts there are two sections. The first section encompasses theories on democratizing technology that directly inform my own concept of it. These center on the notions of an inherent force and myths. The second section consists of other insightful perspectives on the subject that contrast with my own interpretation. In his study on the evolution of digital sound technologies, Paul Théberge (1997) describes two aspects of liberal democracy essential to my research: the market concept of democracy and the ethical notion of democracy. Both models articulate my own theory that digital cinematic technology's democratizing function stems from its affordability and user-friendliness. According to Théberge, the market concept of democracy is historically tied to the 17$^{th}$ century emergence of the capitalist market society in the West. This concept relates technology to a consumer good and attributes democracy to the full access of this good to all consumers seeking it. One creates equitable distribution by making the technology more economical and functional for these potential customers. As Théberge says, "It [the market concept of democracy] assumes that the cheaper technology becomes and the more available [i.e. more easy-to-use] to the average consumer [it becomes], the more democracy has succeeded in the...equitable distribution of satisfactions [for consumers]" (149). In contrast, for Théberge, the ethical notion of liberal democracy is linked to mid-19$^{th}$ century intellectual demands for every citizen's right to maximize his or her full intellectual potential in the West. This notion, in relation to creativity, ties democracy to one's freedom to use and develop one's "artistic

potentials" (ibid). Consequently this notion, in relation to technology for creative production, assumes that a democratizing technology helps individuals maximize such potentials.

Théberge explains both concepts in relation to digital sound technologies and to its consumer market of musicians and sound engineers. I utilize them in relation to digital cinematic technology and its particular target demographic – the independent film community. Whereas Théberge treats the two concepts as separate philosophies existing independent of one another, I posit that the realization of the latter concept depends on that of the former. In other words, digital cinematic technology, in the market sense, can serve as a democratizing force by making itself financially and technologically accessible to independent filmmakers. From an ethical sense, the technology also can function as a liberating force for them because, through its affordability and user-friendliness, it enables them to shoot, edit, distribute and/or exhibit their works. In doing so, it unleashes their creative potential as artists.

My concept of digital cinematic technology as an *inherently* democratizing technology is greatly influenced by the separate works of Langdon Winner (1985) and Andrew Feenberg (2002). Both authors regard technology as an inherently political force imbued with the agency to impact society. Winner theorizes that the design of a particular technology can produce "a set of consequences logically and temporally prior to any of its professed uses" (30). Similarly Feenberg observes that "[t]he design of technology is…an ontological decision fraught with political consequences" (3).[1] They argue that a technology can be undemocratic if its design or structure privileges one group of individuals and at the same time deliberately excludes the other.

In similar manner, my research shows that digital cinematic technology through its innate cost-effectiveness and/or operational simplicity can be financially and/or technologically liberating for the independent film community. In the context of digital production, these two traits are manifested through the cheapness of digital tape stock (compared to celluloid film stock's priciness) and an SD digital camera's lightweight and portability (compared to heavy, tripod-dependent 35mm film cameras). In the realm of digital post-production, they are illustrated by Final Cut Pro's affordable retail costs (compared to Avid Media Composer's exorbitant costs) and its intuitive, easy-to-operate audio-visual interface (compared to the Avid Media Composer's relative complexity). In the domain of digital distribution and exhibition, cost-effectiveness is demonstrated by one's ability to save on the high costs of 35mm release prints by releasing the film as a compressed digital file to be received by the theatre on DVD or via satellite or broadband transmission.

The notion of access dealt with by Walter Benjamn in his well-known (and heavily referenced) essay "The Work of Art in the Age of Mechanical Reproduction" (1987) is integral to my definition of a democratizing technology. For Benjamin, *aura*, which he also calls "ritual" or "cult," is a false importance placed on an art object due to its supposed authenticity and to the exclusivity of its audience. This false importance affects one's access to the message or text of the exalted art object since it creates a space of exclusive spectatorship. In other words, only certain members of society (e.g. the elite class) are able to access this space (e.g. a theatre; a museum) due to such discriminatory barriers as wealth (e.g. the ability to afford the entrance fee), class (e.g. being of the "right" social background) and even race. He theorizes that "mechanical reproduction

carries the potential to emancipate the work of art from its parasitical dependence on ritual (i.e. aura)" (33).

In her essay "Digital Encounters: Mythical Pasts and Electronic Presence," Michelle Henning (1995) relates Benjamin's notion of aura to the use of computer technology in cinema. Henning posits that mechanical reproduction's successor, digital cinematic reproduction, detaches an artwork from its high cultural context by reproducing it through a mass medium. Like Benjamin, Henning defines aura as the false significance bestowed on an art object. From her viewpoint, the art object is also revered by a select audience for its status as special, substantial, and therefore "true" artwork. She regards the use of digital cinematic technology as the means to undermine such exclusivity in viewership by reproducing the *objet d'art* and making it widely available to the general public. Since the reproductions can be viewed for free or at a cheaper price by masses of people regardless of their cultural background or social standing, the technology in effect democratizes spectatorship through the creation of accessible spaces of spectatorship.

Henning and Benjamin show that one's sense of inaccessibility can be rooted in false ideology and that democracy can refer to one's sense of emancipation via access. My research addresses two specific forms of false ideology. First the myth of inaccessibility describes the myth of independent filmmakers' financial and technological inaccessibility to the dominant modes of cinematic creation. Within the independent film community, the costliness and/or technical complexity of 35mm film cameras, Avid NLE editing systems, 35mm film release print processes, and 35mm film projection screenings have perpetuated the following false reasoning: Shooting, editing, and theatrically releasing a feature-length film is invariably an expensive (or even unaffordable) and complicated process for emerging or low- to modest-budget cinéastes. However my work

asserts that digital cinematic technology can dispel this myth. Embodied in digital cameras, Final Cut Pro, and the digital projection bundle (of codecs, servers, and projectors), digital cinematic technology makes feature-filmmaking cost-effective and user-friendly for them. In this way, it "emancipates" them from this myth.

My research also examines the myth of the idealized aesthetic standard in cinema. Over the last decade, digital camera technology's meteoric rise in popularity has spawned the false notion that the "authentic" or "real" look of a feature-length film can only be that of a celluloid film – especially one shot on 35mm film. Therefore the aesthetic generated by digital technologies (during the stages of production, post-production, and distribution) is invariably measured against that of a celluloid release print. This myth greatly impacts the independent film community's relationship with digital cinematic technology. For this reason, I study how the myth's influence on the independent filmmakers affects their decision to employ such technology.

## 2.2. EXPLORING OTHER NOTIONS OF DEMOCRATIZING TECHNOLOGY

Before I proceed to the key works that shape my understanding of soft determinism, I must explore three other major sources on the concept of democratizing technology. Although I directly reference a few of them in my actual research, most mainly serve to broaden my general understanding of the term. These three sources can be classified under the following categories: identity politics, citizenship, and alternative arts.

The relationship between one's identity and the notion of a democratizing technology is central in the works of Judith Wacjman (1991), Sardar Ziauddin (1999) and Timothy L. Jenkins (1997). For Wacjman, democracy is about the social recognition of women's values and selfhood. Thus democratizing technology, for her, can take the form

of a physical object structurally inclusive of women (e.g. a women's public washroom with space designated for nursing mothers). For this reason, Wacjman would be concerned about the male-dominated field of traditional cinematography. Within both the independent milieu and the Hollywood studio system, men have traditionally dominated this field. One hypothesis is that the heaviness and bulkiness of 35mm film production cameras intimidate certain women since they feel that they could not physically handle mounting and dismounting 35mm film cameras. Another hypothesis is that such cameras' technological complexity may compel some women to succumb to the female technophobe stereotype.

In the subsequent chapters, I do not directly focus on the gender imbalance in the independent film production processes. However it is evident that digital cameras' user-friendliness, embodied by the SD format's lightweight, portability, and technical simplicity or by the HD format's functionality, could attract more women to work in the field of cinematography at least in the independent film milieu. In so doing, their increased presence could render the crew title *cameraperson* the norm, while making the commonly used *cameraman* obsolete.

From Wacjman's perspective, oppressive technologies structurally promote gender exclusivity and gender inequality. In contrast Sardar Ziauddin regards them as new communication technologies (e.g. satellite TV, satellite radio, the Internet) that unanimously promote a First World or Western-centric view of technology in non-Western cultures. According to him, Western telecommunication companies create ads that target non-Western cultures and encourage their social progression through the use of new media technology. His concern is that such ads, which have business ties to Western entertainment industries, aggressively promote the usage of such technology for the

consumption of First World or Western content (e.g. TV shows, music, websites). In the process, these consumers end up being enamored by First World or Western ideals but deprived of content about, for, or by their community. He therefore posits that addressing this issue requires studying how alternative futures could be shaped according to the desires and visions of non-Western societies.

Ziauddin's interpretation of an undemocratic technology as a racially- and socio-culturally-biased construct underrepresenting a particular group of people is shared by Timothy L. Jenkins. For Ziauddin, the marginalized consists of non-First World societies; for Jenkins, they are the underprivileged minority groups in the First World. These latter individuals lack the financial means to afford computer technology and the educational resources to operate them. Consequently they are underrepresented in media content disseminated by computer-mediated communication (CMC) technologies and ignored as a possible market by ad companies. To resolve this issue, Jenkins argues that a corrective first step involves intensive lobbying by influential leaders from excluded minority groups. They must campaign for public policies ensuring that their community members can have fair access to and training on computer software and hardware technology. One potentially positive outcome is that those who acquire CMC skills could create and disseminate online content reflecting their individual concerns and those of their community as a whole.

An investigation into the types of public policies needed to ensure minority groups' fair access to and training on CMC technology falls beyond the purview of my research. Nonetheless it is certain that an independent cinema offers an environment wherein one can have access to modes of cinematic production (for instance in film cooperatives) and consequently address concerns or issues of underrepresented groups in

the West and non-West. For Ziauddin and Jenkins, democracy in the context of media communication can refer to two factors: (1) the fair and accurate media representation of a previously excluded group of people and (2) that group's access to media tools for creating its own constructs of self-representation. For this reason, my research can be useful. It demonstrates that digital cinematic technology, via its cost-effectiveness and user-friendliness, mobilizes independent filmmakers from those excluded communities to give voice to such issues and concerns.

In their respective works, Richard Sclove (2003) and Emmanuel Mesthene (1969) define democratizing technology in relation to citizenry and society. For Sclove, democratizing technologies help citizens to participate fully in social and political life. For instance, close-captions embedded in a TV newscast enable hearing impaired citizens to be as informed as their non-hearing impaired counterparts about current news events. In short, such technologies try to ensure the political and social inclusion of all citizens in a society. For Mesthene, all technological forms perceived as liberating by a society's citizens affect them in two ways. Such forms benefit but at the same time generate new social problems for them.

Both authors approach democratizing technology from a sociological rather than cinematic perspective. Nonetheless their respective definitions are useful for my conceptualization of the term. Sclove's argument that democratizing technologies contribute to citizens' self-validation reinforces my own argument. I posit that what makes digital cinematic technology liberating is its function as an impetus for filmmakers' self-actualization as artists. It helps them to create and exhibit films reflective of their artistic expression more easily and cheaply. Likewise Mesthene's theory that every technology inherently has two faces, one positive and one negative,

supports my own view of digital cinematic technology's two facets. With regards to its positive side, the technology is democratizing because it can shatter the myth of independent filmmakers' financial and technological inaccessibility to the means of feature production, post-production, and theatrical projection. With regards to its negative side, the technology possesses internal limitations that make filmmakers reluctant to use it or that, in certain cases, reinforce the myth of celluloid's look as the idealized aesthetic referent.

In their separate works, Bob Stein (1999) and Andres Tapia-Urzua (2003-2005) explore the notion of a democratizing technology in relation to alternative art production. In his essay on new media production processes, new media expert Stein theorizes that new media technology is not democratic because professional design software and hardware for CD or DVD creation are costly. Citing the high price attached to the creation and distribution of educational CD-Roms by private firms, he argues that new media technology is more expensive than analog media (i.e. painting, sculpture) and thus fewer visual artists can afford to use it. In fact he even posits that this situation has begun having a negative impact on the visual arts community:

> If it cost U.S. $500,000 for companies to put out the average CD-ROM, then it's pretty clear that the new media industry is already modeling itself on the Hollywood cinema: lots of trained technicians working for others on large-scale, investment-driven productions rather than independent artists working with affordable materials on personal projects (200-1).

It is reasonable to assume that new media technology may be too expensive for independent visual artists who wish to employ new media technology to create artwork but whose limited budgets prevent them from doing so. Within the realm of cinema, I argue that digital cinematic technology, compared to traditional filmmaking technology, is more affordable and therefore financially liberating for independent filmmakers. In fact

it is vastly more cost-effective for independent filmmakers to shoot, edit, and distribute a film digitally than to shoot a film on 35mm celluloid film, edit it digitally, and distribute 35mm film release prints of it for theatrical exhibition.

For filmmaker and cinema scholar Andres Tapia-Urzua, a Chilean expatriate residing in the United States, democratizing technology primarily refers to a medium that ensures the ideological survival (i.e. the means to express one's thoughts freely) of artists living within a dictatorial regime. In his case, it refers to the videocamera that he used to shoot political videos under Augusto Pinochet's regime. However Tapia-Urzua is not offended by the North American independent film community's loose usage of the term *digital revolution*. He does not think that the use of the word *revolution* in *digital revolution* trivializes legitimate political oppression of artists who clandestinely use filmmaking technology to record impressions of life in a totalitarian state. Instead he accepts it as a symbolic term to describe the popularity of digital camera technology among North American independent filmmakers since it serves as a more affordable alternative to celluloid film to create films that present "less commercially successful, critical, or non-conformist views of reality" (2003-2005). Unlike Tapia-Urzua, I am reluctant to embrace the term since it implicitly connotes a paradigm shift severing technology from an analog precedent. Nonetheless I support his view that digital camera technology through its cost-effectiveness enables many independent filmmakers to create works driven by their individual artistic vision, one which may present a non-commercial, critical, or unconventional view of reality. As such, his work figures prominently in my exploration of digital camera technology in Chapter Three.

## 2.3. FORMULATING SOFT DETERMINISM

Soft determinism is the other major theoretical current underlying my research. It is the conceptual alternative to *hard determinism*, *hard (social) constructionism*, and *soft (social) constructionism*. A brief analysis of all four concepts reveals that soft determinism offers the most analytically pragmatic line of reasoning. According to Donald Mackenzie and Judith Wacjman (1985) and Leo Marx and Merritt Roe Smith (1994), a rigid – or "hard" – view of determinism defines technology as an autonomous force acting independently of human will and other social forces impacting society. Implicit in this view is the notion that technology has supreme agency because it is the main factor that determines how human will and other social forces will impact a society's people.

Within the community of hard determinists are two factions, the optimists and the pessimists. For hard optimists, *futurology* exists as their main branch of thought and is based on two fundamental principles.[2] According to James Carey (1989) and Merritt Roe Smith (1994), the first principle is that machines, not humans, possess the teleological insight for inciting social progress and change. Although humans are the "appointed guardians of new technology," they still are "viewed as [its] self-abnegating servants..." (Carey 191). This principle is problematic since it alleges that, in the realm of cinema, digital technology, like a self-creating organism, springs to life on its own. Unhindered by human will or other social factors, digital technology dictates how humans must function. It ignores the fact that even if digital cinematic technology is innately cost-effective and user-friendly, independent filmmakers' decision to use it or not is not only based on its virtues. Rather they are influenced by a number of other considerations. One is whether or not the technology's internal limitations will offset its affordability and easy operability.

Another is whether or not they are willing to compromise their view of celluloid's look as the ideal cinematic standard in order to take advantage of the technology's strengths.

According to Carey and Roe Smith, the second basic principle of futurology is that any "new" technology, such as digital cinematic technology, is revolutionary for two reasons. First it is regarded as technologically superior to analog systems because it is supposedly devoid of any links with these older, presumably inferior constructs. Second it promises a utopian society because as a new technology it possesses the cure-all power to eradicate all social problems and improve all facets of human life. This second principle is theoretically questionable since it reveals a misconception about any new technology's ties to the notion of "the new." Analyzing the *new* modifier in the term *new media*, which is synonymous with *digital media*, Jay D. Bolter and Richard Grusin (1999) contend that "new technologies" are non-existent. According to them, all technologies are not absolutely original creations; they are simply "remediations" – recycled or repurposed forms – of older ones. However the authors point out that, in the West, the general public mistakenly assumes that the novel in new media constitutes the latter's ability to sever ties with past forms represented by non-digital communication media.

I support Bolter and Grusin's argument that the new in any recent digital medium actually represents the creative way in which it rearranges and reconstitutes the technical, conceptual, or stylistic elements of a past technological form (270). This type of novelty emblematizes what Michelle Henning (1995) calls the "new old" (223). All in all, Bolter and Grusin's work is integral for my subsequent chapters. It theorizes how hard optimists from the independent film community may react to the novelty of digital cinematic technology. For instance, it illustrates that hard optimists may relate the technology's newness to notions of originality, superiority, and progression. Conversely they may

associate century-old 35mm film technology with those of obsolescence, inferiority, and regression.

Hard pessimists, such as Stanley Aronowitz (1994) and Jacques Ellul (1964), make up the second faction of the hard determinism community. They view all forms of technology as subversive forces out to destroy all aspects of society – including our humanity. Collectively they promote a *dystopian theory of technology* grounded in two principles. The first is that technological systems are socially destructive constructs and have total dominion over human life. The second is that technology is transforming society into a technocratic metropolis and dehumanizing its citizens in the process. To some degree, the conceptual gaps present in the dystopian rationale resemble those found in the philosophy of futurology. Similar to futurology's first principle, the first dystopian assumption promotes the idea that technology, springing to life on its own, wields unrestricted power over human subjects and other social forces. However this assumption is inaccurate – especially in the realm of cinema. For instance, digital production and post-production technologies are created by manufacturers of a particular educational level in a particular socio-economical climate. In an effort to broaden their consumer market, these individuals try to make these technologies more economical and easy-to-use for the consumers. This example, if anything, demonstrates that technological forms are not immune to human control or influence and are affected by such factors as its makers' educational background and a society's socio-economic climate.

Likening technology to an infectious disease spreading social ills (rather than a panacea banishing them), the second dystopian assumption overlooks the fact that certain technological forms, such as digital cinematic technology, can democratize the processes of film production, post-production, distribution, and projection by making them more

affordable and user-friendly for filmmakers. It also ignores the possibility that the technology's human handlers (e.g. independent filmmakers) could employ it to enrich society at large. For instance, independent filmmakers could utilize it to shoot, edit, and distribute challenging, controversial or diverse stories about significant social issues.

The branch of thought known as *social constructionism* believes that social forces shape the uses of technology. Just as there are hard and soft determinists, so are there hard and soft constructionists. A major distinction between soft constructionism and hard constructionism is that the former branch of thought interprets a social force to mean not only human influence but also non-human social factors such as economics, education, and politics. In contrast, the latter philosophy regards a social force only as human influence. However soft constructionists either reject technology as a social force with agency or do not treat it as a social force in the same esteemed league as, for instance, economics and politics. In fact film historian Patricia Zimmermann's work (1995) on amateur home videos presents an overt example of this soft constructionist stance. In her discussion on the home video medium, Zimmermann notes that "...technology [i.e. home video camera] itself does not impel political change [i.e. technological change]. Social relations [i.e. economics, politics, etc.] determine its uses, deploy its technology, and strategize its boundaries" (152). Other soft constructionists, such as Mackenzie and Wacjman (1985), posit that technology carries some limited agency to influence or impact one's use of technology. Through her quote, Zimmermann in contrast demonstrates that she regards technology as agent-free. Through it, she demonstrates that social relations or social forces (such as a nation's economic and political climate, as well as its educational level) possess agency and, for this reason, can impact a society's technological know-how.

In effect Mackenzie, Wacjman, and Zimmermann oppose the deterministic notion that technology itself is a vital determinant in how a society utilizes or deploys technology. All three soft constructionists treat human input and other social forces, such as economy, politics, and education, as more significant determinants of technological progression and attribute little or no agency to technology. One plausible reason for why they do not attribute greater or any agency to technology is that it evokes stereotypical notions of machinery, robots, and impersonal objects. These forms do not immediately appeal to their sense of "the social." In contrast such forces as economy, politics, and education are all concepts whose impact on society is easier to comprehend. This logic belies the fact that, in this digital age, technology greatly affects one's daily life in modern society and, for this reason, deserves to be recognized as a veritable social factor. Such recognition is found in the logic of soft determinism. This is the theoretical branch of thought that I endorse and that conceptually informs my overall work.

Soft determinists Langdon Winner (1985), Andrew Feenberg (2002), and M. Isabel Valdés (1987) sidestep the conceptual gaps within hard determinism and hard constructionism.[3] Like them, I oppose the hard determinist notion that technology "develops as the sole result of an internal dynamic" and then "unmediated by any other influence, molds society to fit its patterns" (Winner 26). This notion overlooks the fact that technological development is shaped by human decision-makers and influenced by other social factors. It also ignores the fact that these other forces can interact with technology to impact a society's technological progress at large. Like them, I support the hard constructionist emphasis on the importance of various social forces (e.g. economics, politics, education, etc.) to the development and deployment of technology.

However, like them, I am also critical of soft constructionists' refusal to acknowledge that technology is a legitimate social factor that can shape a society's use of it (ibid). This refusal is diametrically opposed to my argument that digital cinematic technology helps independent filmmakers create and exhibit their works. I draw from soft determinism, especially Winner's work, to explain how 35mm film production technology, AVID digital NLE systems, and 35mm film distribution and exhibition formats have been making processes of production, post-production, distribution and exhibition unaffordable and/or complex for independent filmmakers. I also demonstrate that digital cinematic technology is enabling them to undergo these processes more cheaply and easily. For these various reasons, I validate soft determinism as a stronger, more reasonable alternative to either "hard" position and infuse the subsequent chapters with this theoretical perspective.

One significant point is that soft determinism is distinct from soft constructionism because this middle-ground stance is based on a theoretical principle by soft determinist Robert L. Heilbroner (1994). According to Helbroner, technology does not function independently. It serves as one strong social factor amid a myriad of other social elements and human interaction that collectively influence technological progress – as well as social progress (53). In sum, the interactions, negotiations, tensions, and/or compromises caused by these forces dialectically bouncing off each other in a given time instigate such phenomena. Within the cinematic context of my research, I regard technological progress as the transition from non-digital to digital processes of production, post-production, distribution and exhibition, within the independent film society. At the same time, I view social progress as the ability of such processes to enable this filmmaking community to express its artistic vision in a more affordable and technically simpler way. In order to

track such changes within this community, my subsequent chapters analyze how its members reconcile two or more of the following factors: (1) their desire to take advantage of digital cinematic technology's affordability and user-friendliness; (2) their desire to take heed of the technology's internal limitations (e.g. SD cameras' inability to replicate the look of celluloid film); and (3) external social forces that may dissuade them from using the technology (e.g. certain exhibitors' reluctance to embrace pre-2005 digital projection technology because of the lack of formal technical standards).

## 2.4. DIGITAL CINEMATIC TECHNOLOGY = DIGITAL CINEMA

Before I survey key academic sources that reveal how digital cinematic technology can serve as a democratizing force, I must explain why I define digital cinematic technology as digital cinema. To do so, I need to precede my literature survey with a brief overview of two leading interpretations of digital cinema that contrast with my own. One interpretation is that digital cinema is akin to special effects in mainstream film. Published between the late 1990s to the early 2000s, several works on spectatorship relate digital cinema to a Hollywood film narrative employing overt or covert digital special effects (SFX). For instance, Angela Ndalianis ("Frenzy" 2001; "Special Effects" 2001), Roger Beebes (2001), and Paul Young (1999) regard the digital as digital SFX (such as morphing and 2D/3D animation) in big-budget studio-driven fare that can be classified under science-fiction, fantasy, and/or futuristic. Expanding on this theme, Crogan (2000) defines the digital as digital SFX in cinematic narratives and the analog as non-computerized SFX present in the sci-fi horror film *The Thing* (1982). Collectively these authors' filmic examples include *Terminator 2: Judgement Day (T2)* (1991), *Jurassic*

*Park* (1993), *The Matrix* (1999), *Strange Days* (1995), and *The Lawnmower Man* (1992). All of these films manifest obvious visual signs of digital special effects manipulation.

Evidently the aforementioned writers implicitly define *digital cinema* to mean narratives whose digital SFX are overtly visible to spectators. In contrast, Wheeler Winston Dixon (1995-6), Michele Pierson (1999), Lev Manovich (1999), and Timothy Murray (1999) center on the idea of a covert representation of digital SFX in their separate works. For them, digital cinema refers to films whose narratives present overtly visible digital SFX *and* visually undetectable ones. For instance, *Gladiator* (2000) represents a covertly digital film. The presentation of actor Russell Crowe's gladiator character Maximus in a Roman Coliseum jam-packed with thousands of visually realistic spectators illustrates the film's covert use of visual SFX since, unless otherwise told, viewers would not assume that most of these spectators are computer-generated imagery. The other common interpretation of digital cinema is audience-to-screen interactivity or virtual reality. In their respective works, David I. Tafler (1999), Timothy Murray (1999), and John Belton (2002) argue that digital cinema refers to technological innovation that invites interactivity between the screen and the spectator. As Belton points out, "For it [the film] to be truly digital, it must be digital for the audience as well. There would have to be a computer mouse or a virtual reality glove at every seat in the theatre" (105).

A major limitation with the two preceding definitions of digital cinema is that they are irrelevant to a theoretical understanding of digital technology used in the production, post-production, distribution and/or exhibition of low-budget independent features or documentaries. In fact the first definition's emphasis on the use of overt or covert SFX would be of little practical concern for most emerging independent filmmakers. For the most part, they could not even afford expensive CGI SFX in their works. The second

definition would also be uninteresting for them. They would be more concerned with making and releasing their works than with advancing or manipulating cinematic spectatorship through VR gear rigged to a movie theatre seat.

Anna Herold (2003) offers a more pertinent interpretation of digital cinema. In her study on the potential legal ramifications of digital technology in European cinema, *digitalization* is defined as the shift from 35mm film technology to digital technology for producing, distributing, and exhibiting films. Herold's definition parallels my own: We both agree that digital cinema relates to the transition from the use of 35mm film technology to that of digital technology in the realm of production, distribution, and exhibition. However her definition omits considering the post-production process whereas I view it as a major component of digital cinema. Additionally her work concentrates on the impact of digital technology in European cinema, while my research focuses on its impact on the independent film community. Although my work revolves around independent film societies in North America and Western Europe, the issues and themes raised can transcend geographical boundaries. Nonetheless Herold's work supports my own interpretation of digital cinema as digital cinematic technology used to produce, post-produce, distribute, and project independent films. Equally significant my research functions as an alternative to academic literature that limits digital cinema to computerized graphics or virtual reality and interactivity.

## 2.5. SURVEYING LITERATURE ON DEMOCRACY IN DIGITAL CINEMATIC TECHNOLOGY

Nick James ("Digital Deluge" 2001; "To DV or not DV" 2001), Alissa Quart (2000), Richard Kelly (2000), John Belton (2002), and Brian McKernan (2005) collectively

demonstrate that cost-effectiveness and user-friendliness are the two fundamental factors of digital cinematic technology compelling independent filmmakers to regard it as democratizing. In fact these two characteristics are seen as catalysts for (1) aesthetic realism; (2) the DIY spirit; (3) the notion of a digital revolution; and (4) the collapse of a high and low technological divide. It is therefore essential to investigate these two traits in relation to these themes.

### 2.5.1. DIGITAL CINEMATIC TECHNOLOGY AND AESTHETIC REALISM

Within the independent film community there exist two contrasting interpretations of a realistic cinematic aesthetic. Media theorist Nick Rombes in his essay "Self-Theorizing Media," alludes to them. The first, which I call the *anti-classical Hollywood realistic aesthetic*, espouses the notion that the grainy, sometimes shaky (when handheld), stark "home movie" look produced by an affordable, easy-to-use SD digital camera represents a more "genuine" or "authentic" cinematic aesthetic. It opposes the well-lit, polished, and therefore more "artificial-looking" aesthetic of films carrying classical Hollywood realist narratives. It promotes the idea that SD digital cameras provide a more genuine look for cinema and challenges the notion that a legitimate look for cinema can only be conveyed by celluloid. In so doing, it undermines the myth of celluloid as cinema's aesthetic standard. In other words, it "frees" independent filmmakers from this myth by providing them with an alternative look for cinematic realism. Such a look is cheaper and easier to create than that of celluloid.

The second interpretation, which I call the *pro-regular movie realistic aesthetic*, contrasts greatly with the ideology of the first interpretation. This latter aesthetic views the well-lit and polished look of conventional Hollywood film as the legitimate look of a

film. It regards SD and HD digital cameras as more cost-effective and easier-to-use media for trying to replicate the look of celluloid. It consequently reaffirms the aforementioned myth. A more in-depth exploration of these two interpretations in relation to digital camera technology's democratizing role requires a brief analysis of three factors: (1) being hand-held and resembling an American Cinéma Vérité documentary style; (2) appearing pared-down; and (3) looking like a conventional film. The first two factors support the anti-classical Hollywood realistic aesthetic, while the third promotes the pro-regular movie realistic aesthetic.

#### 2.5.1.1. BEING HAND-HELD AND RESEMBLING AMERICAN CINÉMA VÉRITÉ

In his essay on *D-Dag* [*D-Day*], a Danish tele-series produced by four Dogme directors, Martin Roberts (2003) refers to the anti-classical Hollywood realistic aesthetic as *fake vérité* (163). To Roberts, the use of handheld cameras, which satisfies the third criterion of the Dogme movement's Vows of Chastity, bestows upon *D-Day* the "characteristically authentic look of a home movie" (164). He attributes the series' fake designation to its fictional rather than real-life content. Although Roberts does not elaborate further on the correlation between home movies and the look of cinéma vérité, Zimmermann (1995) expands on the connection. For Zimmermann, American Cinéma Vérité was perceived as a documentary style resembling a home movie in the late 1950s and 1960s. One major reason was that this style's endorsement of a handheld camera that "moved" along with its documentary subject, rather than being fastened to a stationery tripod, projected the notion of "unscripted real life" (Zimmermann 125). This documentary technique quickly became associated with the cinematographic means to produce a greater sense of intimacy and immediacy – elements representative of cinematic authenticity or realism.

Roberts's and Zimmermann's separate studies are informative. Their respective works show that digital camera technology's democratizing function can stem from its inherent ability to generate fake vérité. The technology provides independent filmmakers with a legitimate look which is an alternative to cinematic realism. In other words, this look frees filmmakers from the idea that only the polished visual sophistication of the classical Hollywood realistic aesthetic constitutes a valid visual texture for cinematic realism. Although their works do not delve into SD digital camera technology's cost-effectiveness, they do attribute the technology's democratizing value to its innate user-friendliness. Such qualities as handheld portability, lightweight, and instant recording ability offer greater physical freedom than celluloid camera technology. For independent filmmakers, the aesthetic thus signifies an audio-visual representation of physical freedom prompted by the aforementioned qualities. It also represents the digital apparatus's stylistic independence from the polished visual sophistication typical in mainstream Hollywood fare.

#### 2.5.1.2. APPEARING PARED-DOWN

Richard Neupert's work (2002) on the French New Wave film movement (1958-1964) examines the financial, technological, and artistic motives behind the *nouvelle vague* filmmakers' decision to create narratives through 16mm handheld film cameras, natural lighting, and on-location shoots. Collectively such attributes comprise a "pared-down aesthetic" which Alissa Quart (2000) associates with the rough, grainy (and sometimes shaky) visual style of SD DV-shot Dogme films. With regards to finance and artistry, French New Wave filmmakers employed this aesthetic in their narratives in order to minimize production costs and rebel against the slick, refined aesthetic of commercial

French films. With regards to technology and artistry, they also wished to experiment with the handheld mobility of 16mm film cameras. In many instances, they rejected the use of tripods and dollies. For them, the shakiness of handheld shooting translated into a "more realistic" and "authentic" aesthetic "to convey veracity" (Neupert 40). In his comparative study between Dogme 95 filmmakers and their French New Wave counterparts, Jean-Pierre Geuens (2001) expands on Neupert's notion of realism or authenticity. According to Geuens, Lars von Trier and Thomas Vinterberg, like Truffaut, feel that conventional production equipment and moviemaking techniques obstruct an audience's access to reality (i.e. the essence of the story). The use of such equipment and techniques engenders a slick, glossy, sophisticated texture distracting us from it. The two filmmakers believe that a pared-down aesthetic provides spectators with a more visually truthful depiction of the world in fiction films.

Neupert's and Geuen's respective works are useful for my research on the link between digital camera technology's democratizing role and the pared-down aesthetic. Independent fictional or documentary filmmakers would be drawn to SD DV cameras not only because DV tape is more affordable than film stock or because digital cameras are more user-friendly than celluloid cameras. They also would employ SD digital cameras because the pared-down aesthetic, which such cameras can generate cheaply and easily, enables them to cut down on numerous production costs (e.g. artificial lighting, camera dollies, studio rentals, etc.) and still protect their status as "serious" filmmakers. In Chapter Three, I investigate the positive or negative implications of independent filmmakers' deliberate reliance on this technology as a cost-cutting measure.

### 2.5.1.3. LOOKING CONVENTIONAL

From the mid-1990s to the early 2000s, SD digital cameras allowed the pared-down aesthetic – which serves as one incarnation of the anti-classical Hollywood realistic aesthetic – to flourish. In this same time frame, the pro-regular movie realistic aesthetic co-existed alongside the former aesthetic and, like it, had a following within the independent film community. This latter aesthetic describes a narrative that resembles a "regular movie" whereby a regular movie constitutes a film shot on 35mm film. However, since the emergence of HD digital cameras on the market in the early 2000s, the pro-regular movie realistic aesthetic has been eclipsing the anti-Hollywood one in popularity.[4] One reason is that HD digital camera technology, which has a higher resolution and can film at 24 frames per second (fps), can create an aesthetic visually indistinguishable from 35mm film for the average moviegoer.

Consequently Brian McKernan's comprehensive account of digital cinema (2005) and Peter Weibel's essay on digital aesthetics (1999) are pertinent to my study on the pro-regular movie realistic aesthetic. McKernan's technical overview of SD and HD digital cameras shapes my understanding of the structural variations between the two formats. Additionally Weibel's argument that, in the digital arts, an artist's desire for greater visual resolution is tied to his or her desire for greater visual realism or authenticity is also significant. It informs my own view that HD digital camera technology comes closer than its SD counterpart to emulating the look of celluloid. From a pro-regular film advocate's perspective, this look would be the ideal aesthetic for cinematic realism.

## 2.5.2. DIGITAL CINEMATIC TECHNOLOGY AND DIYISM

David E. James (2005) and Patricia R. Zimmermann (1995) trace the Do-It-Yourself (DIY) phenomenon in independent American cinema to the 1950s. During the postwar period, American avant-garde filmmakers experimented with 16mm film technology independent of the Hollywood film industry. Thus DIYism in this regard can be interpreted as making films without the resources (e.g. equipment) or influence of the Hollywood film industry. Relating the modifier *amateur* to *avant-garde*, James, Zimmerman, and Annette Michelson (2001) single out Maya Deren, an avant-garde filmmaker who did most of her films in the 1940s, as these individuals' role model in the 1950s. Zimmermann notes:

> She was the epitome of what an amateur [i.e. avant-garde] filmmaker should be...Her films were not made with the resources of a professional studio but with simple equipment and at a cost comparable to many amateur productions. They were not made by a highly trained staff of technical experts but by Maya Deren herself as a writer, director, cameraman, and editor. This was their strength, for they were very personal expressions of an artist who had very definite ideas to express (131-2).

The DIY ethos espoused by postwar avant-garde filmmakers and influenced by Deren's filmmaking legacy resembles the DIY philosophy expounded by today's independent filmmakers. In fact digital camera technology serves as a catalyst for contemporary DIYism since its relative affordability and ease of operation "free" today's independent filmmakers from the costliness and complexity of celluloid camera technology. Both aspects inspire them to uphold the ethos's proactive motto "just do it." Therefore James's and Zimmermann's studies are useful references for my own examination of digital camera technology as an impetus for DIYism.

Digital camera technology serves as one catalyst for DIYism within independent film production. Final Cut Pro, a professional digital non-linear editing (NLE) software

system, serves as its other instigator within visual post-production. Compared to its more expensive and technologically complex market rival Avid Media Composer, Final Cut Pro is off-the-shelf affordable and easy to use. The Apple software saves independent filmmakers the costs of hiring a professional offline editor. It also allows them direct creative control over their visual post-production process on a simple, home-based editing system rather than in an expensive editing lab. Damien Cave's online news article (2001) and independent cinematographer Jason Berry's online essay (2003-2005) are relevant to my study of Final Cut Pro's inherent cost-effectiveness. Cave's work offers a solid, practical comparative analysis of Avid Media Composer and Final Cut Pro. It, along with Berry's piece, provides a brief albeit essential visual exposé on Avid Technology's hegemonic control over the current realm of digital post-production.

Michele Pierson's essay (1999) is integral to my exploration of Final Cut Pro's innate user-friendliness. Pierson compares traditional film editing systems (e.g. flatbed film editing machines such as Steenbecks and KEMs) with digital non-linear editing (NLE) systems. In her work, she proposes an interesting yet debatable argument. She posits that the technological sophistication of digital NLE software systems (e.g. FCP, Avid Media Composer, Media 100) makes them more conducive to creative expression than traditional film editing (i.e. flatbed editing systems). Consequently editors on a digital platform can engage in more artistic, self-gratifying tasks than those on an analog system. Her theory would clash with the Luddite perspective on digital technology since anti-digital technology critics may argue that digital NLE editing achieves speed, precision, and flexibility at the expense of creativity. In contrast Pierson suggests that these are the very traits that endow an editor with creativity. Her work is useful for my

own analysis on how Final Cut Pro's user-friendliness, which can be represented by speed and precision, impacts its users.

### 2.5.3. DIGITAL CINEMATIC TECHNOLOGY AND THE DIGITAL REVOLUTION

Most independent filmmakers regard the DIY ethos (affecting them) as the embodiment of a "digital revolution." In the context of film production, they view digital cameras, the catalysts of DIYism, as the cause of a digital revolution because such apparatuses offer a cheap and easy way to create films. Interestingly these cineastes' enthusiasm over digital cameras' ability to spark the DIY spirit may be rooted in hard optimism. This is the utopian mode of technological determinism. Earlier in this chapter, Carey (1989) and Roe Smith (1994) describe hard optimism as an ideology grounded in the belief that technology can engender the new. The logic of hard optimism vis-à-vis digital camera technology is problematic. It espouses the ideology that a digital revolution necessitates a complete break from analog filmmaking technologies. Lev Manovich's historical study (1999), which traces the origins of digital effects and animation in cinema to the pre-cinematic period of magic lanterns shows, argues against this "paradigm shift" discourse. He states:

> Manual construction and animation of images [i.e. of magic lanterns] gave birth to cinema and slipped into the margins...only to reappear as the foundation of digital cinema [i.e. digital effect- and animation-laden film narratives]. The history of the moving image thus makes a full circle. Born from animation, cinema pushed animation to its boundary, only to become one particular case of animation in the end (180).

For Manovich, cinematic digital effects and animation do not sever links with their analog precedent. They are in fact "refashioned" or "repurposed" forms of a non-digital technology, namely the magic lantern. Jay Bolter and Richard Grusin (1999) would view

these constructs as products of remediation. Heeding to Manovich's reasoning, I distance my research from the hard optimist notion that digital cameras are revolutionary forces devoid of an analog precedent.

Just as digital camera technology can represent the embodiment of a digital revolution in cinematic production, so can Final Cut Pro signify the incarnation of a digital revolution in visual post-production.[5] It is therefore useful to examine Pierson's hard optimist interpretation of digital NLE as digital revolution incarnate. Her line of thinking assumes that digital NLE technology is technologically revolutionary since it is comparatively more efficient and easy to operate. From her viewpoint, it represents a paradigmatic break from older forms of editing. Such a belief is at odds with my own position that Final Cut Pro, or any other digital NLE software, is not devoid of an analog precedent and does not represent an original invention. In reality the technology is conceptually tied to older editing technologies such as traditional film editing machines. In her essay on new media technologies, Yvonne Spielmann (1999) succinctly explains the limitation in the paradigm shift perspective. Spielmann's argument resembles Bolter and Grusin's remediation theory and Henning's new old concept:

> Digital discourse promises novelty, describing these changes as a break, identifying novelty with the loss of any previous point of reference. In contrast, critics of computer-based arts have constantly asserted that the use of digital tools on the whole results in the imitation of previous art forms, so that the 'new' of new media is mainly achieved through reentering, reworking, and assimilating elements and aesthetic elements originally developed in previous media arts, notably painting, photography, and film...Consequently, where digital techniques are regarded in relation to their specific use in repeating, reduplicating, or "reproducing" previously conceived aesthetic strategies, the old is simulated as the new through the basic categories of digitization, especially manipulation (32).

Informed by Spielmann's thesis, as well as by the works of Bolter, Grusin, and Henning, I argue that Final Cut Pro does reproduce, repeat, or revamp analog forms of editing practices.

John Belton's essay on digital cinema (2002) is vital to my analysis of digital projection technology in relation to a digital revolution. Belton theorizes that digital projection is not technologically revolutionary for audiences since it does not endow them with a new viewing experience (104-5). He simply notes that the technology could be cost-effective for big Hollywood film distribution companies by saving them the costs of making 35mm release prints and shipping them to various large cineplexes in the U.S. Like Belton, I refrain from tying digital projection technology to a new or innovative form of spectatorship.

However Belton likens "the new" or "the innovative" in viewership to a deeper sense of virtual viewer-narrative interactivity, whereas I posit that it simply consists of a shift from the use of 35mm film projection technology to that of digital projection technology. In other words, the technology's originality does not arise from its severing ties with its analog predecessors. It comes from emulating it so that viewers cannot distinguish between the two. In this context, my research implies that the innovation of digital projection screenings is its ability to achieve the look of a traditional 35mm film projection screening. Belton's work also differs from mine in relation to the theme of cost-effectiveness. It concentrates on how a switch to digital distribution and digital projection could spell savings for film distributors who spend millions of dollars a year for distribution costs. In Chapter Five, my study on digital projection technology focuses on its role as a cost-saving measure for self-distributing independent filmmakers and as a lucrative investment for the Landmark Theatres chain.

My research explores the DIY phenomenon in relation to the use of Final Cut Pro as a home-based digital NLE system. Therefore it seems logical to refer to Patricia R. Zimmerman's book chapter (1995) on early forms of home-based picture editing. In this period, only a few households owned a traditional film editing machine for cutting and splicing home movies. Writing in the mid-1990s, Zimmermann concludes that editing home movies is as challenging a task in the 1990s as it was 50 years ago. Even with the advent of video technology, she argues that home movie editing is problematic due to most consumers' lack of an editing system (156). Her reasoning is outdated since, in the last decade, two categories of domestic digital NLE systems have emerged targeting two different niches: hobbyists and professionals. For instance, Apple began to market iMovie in February 1999. This "kindergarten" NLE software, which is included with the purchase of any Mac computer, enables hobbyists to edit their home movies themselves. Since that time period, Apple also has been promoting Final Cut Pro as an affordable and easy to use software for professional use. In so doing, it has been attracting members of the independent film community. These include those who yearn to cut down on post-production costs by editing their own work or who wish for greater artistic control over the picture editing process.

Unlike Zimmermann's work on home video editing, Don Slater's essay (1995) is a more relevant reference for my study on DIYism and home-based editing technology. Exploring the interplay between consumer photography and home entertainment technology, Slater relates the DIY spirit among consumers to the increasing popularity of Do-It-Yourself software. This is software used for organizing consumer-created artifacts such as family photographs and home movies. Slater's analysis about consumers' desire for home-based, self-created entertainment offers insight into independent filmmakers'

desire for a home-based digital NLE system. His work reveals the similarities between the two groups' respective DIY ethos. Ordinary consumers' DIY spirit arises from the realization that home-based digital technology can enable them to create their own entertainment. Similarly independent filmmakers' DIY spirit derives from the realization that they can use Final Cut Pro to offline-edit their feature films on their home Apple computers.

Slater's work is also significant for my study on Final Cut Pro as a conduit for independent filmmakers' creative self-expression. Slater specifically links entertainment creation technology to digital photo-imaging software and argues that the software, which can organize, embellish, or manipulate the appearance of one's digital photos, limits one's creativity. For him, one negative implication of such software is that consumers end up limiting their artistic expression by fitting their unique experiences, lives, and memories into prefabricated aesthetic templates and themes designed for mass consumption. As Slater points out, "[s]elf-presentation through consumerist structures and structured leisure events *increasingly* takes over the role which critical thought would assign to self-*re*representation" (144). In Chapter Five, I theorize that Final Cut Pro, as an entertainment creation technology, can function as a conduit for independent filmmakers' artistry. Thus Slater's work helps me to demonstrate how Final Cut Pro's inherent limitations can impact its users' self-expression to a certain extent.

### 2.5.4. DIGITAL CINEMATIC TECHNOLOGY AND THE BLURRING OF THE HIGH TECH / LOW TECH DIVIDE

According to John Hess and Patricia Zimmermann (1999), transnational digital imaginaries are realms where "there are...no high tech/low tech divides" (15). The authors conclude that such a realm remains, as its name suggests, imaginary since digital

art remains inaccessible to the technologically underprivileged classes of the world. The authors' perception of a high tech/low tech digital divide centers on the notion that only economically wealthy countries can afford to sustain digital art exhibitions or new media art organizations. In short their reasoning is that distribution channels and public venues for digital art are scarce in the developing world and that most of the world's digital infrastructures are located in the richer countries of the North.

Hess and Zimmermann's work is an excellent resource for my examination of a specific technological hierarchy in the First World. This hierarchy relates to theatrical exhibition opportunities for independent filmmakers. Among such filmmakers, emerging or low budget artists traditionally have been unable to afford to screen their works theatrically; they usually have ended up with straight-to-DVD or online releases due to the immense costs of distributing their digitally-shot films in the standard screening format, 35mm film. Within Chapter Five, I demonstrate that digital projection technology, through its cost-effectiveness, can collapse the high tech/low tech divide within a First World context. In so doing it can serve as the means to make Hess and Zimmermann's imagined digital realm a reality. For this reason, Nigel Culkin and Keith Randle's essay (2003) on the worldwide economic implications of digital distribution and projection systems is also essential for my study on the impact of digital projection technology on independent filmmakers and repertory cinemas, like the Landmark Theatres. Culkin and Randle's work examines the processes of digital distribution and exhibition of movies shot on 35mm film. In contrast my work concentrates on the same processes for digitally-shot works.

# ENDNOTES FOR CHAPTER TWO

[1] To reinforce his argument, Winner (1995) refers to the example of Robert Moses's low-hanging overpasses on a Long Island highway. Through their very structure, he argues, they discourage the ability of large city buses, ridden mainly by lower income people and racial minorities, to journey into Long Island's Jones Beach. They were built long ago by Moses whose purpose was to curb the use of public transport on his highways and possibly to deny the aforementioned groups access to Long Island via public transport. Nonetheless, in the present day, they can enact on their own such restrictions without being controlled by Moses, now long deceased.

An important factor to consider is that Winner's argument is not limited to the design of technological products (e.g. highways) but can include that of technological processes or systems. For instance, David Noble (1977) reveals that the location of machinery in certain assembly-line plants deliberately maintains a Taylorist factory style management, since it isolates "do-as-you-are-told" workers from managers. This organizational structure discourages the former group from interacting or socializing with the latter. In the process, it maintains an in-factory social hierarchy in relation to technology (i.e. machinery).

Through both examples, Winner and Noble convincingly justify technology's possession of agency. They consequently validate soft determinism as a stronger, more reasonable alternative to either hard determinism or hard or soft constructionism.

[2] Critics of futurology derisively label it *the rhetoric of technological sublime.*

[3] These authors do not directly call themselves "soft determinists." However their moderate brand of determinism, which distinguishes them from "extreme" or "hard determinist," the most notable being Marshall McLuhan, earns them this distinction.

[4] For a definition of the *pro-regular movie realistic aesthetic,* see Chapter Three.

[5] Numerous practices comprise the post-production stage, ranging from picture-editing to sound mixing. For most independent filmmakers, picture editing symbolically epitomizes the post-production process. After all it is commonly the first post-production process that most filmmakers tackle after a shoot. Offline picture-editing process is also a task that they can learn to execute themselves.

# CHAPTER THREE: DIGITAL PRODUCTION

**"Digital video frees filmmakers."**
*BBC News* (2004)

## 3. DIGITAL CAMERA TECHNOLOGY: DEMOCRATIZING VISUAL PRODUCTION

The heading of the aforementioned *BBC News* article aptly broaches digital camera technology's role as an inherently democratizing force for independent filmmakers. By focusing on the apparatus's ability to enable independent filmmakers to shoot their feature films, it implicitly alludes to its innate affordability and user-friendliness. These are the two factors that independent filmmakers commonly interpret as the technology's liberating aspects. For them, these two factors represent access to cinematic production since they enable them to shoot feature-length fictional or documentary films.

Just as the *BBC News* report centers on these two factors' ties to democracy, this chapter explores such links through a textual analysis synthesizing excerpts of published interviews with independent filmmakers; these range from famous to no-name directors, cinematographers, and producers. It also crosses the experience spectrum from neophytes to veterans in the independent film community. This cross-section of individuals (whose national affiliation is set off in parentheses) include: emerging filmmakers Eric Eason (U.S.), Jacob Kornbluth (U.S.), actor-turned-director Jean-Marc Barr (U.S./France) and Greg Harrison (U.S.); experienced cinematographers Anthony Dot Mantle (U.K.), Ellen Kuras (U.K.), Michael Balhaus (U.S./Germany), and Michael Caporale (U.S.); seasoned directors Chris Cooke (U.K.), Kate Davis (U.K.), Robert Greenwald (U.S.), Kristian Levring (Denmark), Spike Lee (U.S.), Lone Scherfig (Denmark), Bruno Sinofsky (U.S.), Steven Soderbergh (U.S.), Saul Metzstein (U.K.), Wim Wenders (Germany), and producers John Manulis (U.S.), Paul Trijbits (U.K.) and Jan Olsen (Denmark); video

artist Andres Tapia-Urzua (U.S./Chile); and director-producer-screenwriter-editor George Lucas (who considers himself an independent filmmaker, despite being a professional in Hollywood).

I have chosen this particular sample of individuals for two particular reasons. First they serve as a sufficiently diverse microcosm of filmmaking practitioners at various stages in their careers. They have all used digital camera technology in various independent film projects and are equally aware of the financial and technological differences between digital and celluloid cameras. Therefore their diverse perspectives reflect those offered by numerous other filmmaking practitioners worldwide. Second this cross-section of directors, cinematographers, and producers offer perspectives emblematic of digital camera technology's decade-long legacy in the independent film community. Such perspectives shed light on the major issues surrounding standard definition (SD) or high definition (HD) digital camera technology. Through their individual remarks, they reveal that digital camera technology's function as a financially and technologically liberating force allows them to realize their artistic vision.

Therefore the textual analysis in this chapter explores the various interpretations of digital camera technology as this very force. These are classified under any of three roles that all dispel the myth of feature filmmaking as unaffordable and technologically complex for filmmakers with low or modest budgets. These relate digital camera technology to (1) a "diptych of goodness" (cost-effectiveness and user-friendliness); (2) a conduit for aesthetic realism; and (3) a catalyst for the Do-It-Yourself (DIY) phenomenon which, in the realm of cinematic production, is synonymous with the notion of a digital revolution. Since each of these three factors is directly or indirectly tied to a comparison with 35mm film cameras or 16mm film cameras, my analysis will demonstrate that these

independent directors, cinematographers, or producers perceive digital camera technology as liberating in comparison to these two analog forms. However this textual analysis also reveals that some of these practitioners' uncertainty about digital camera technology as a democratizing force relates to its technical limitations (e.g. its natural creation of a non-celluloid film aesthetic), to external forces (e.g. most mainstream theatres' current lack of digital projection systems), and to their endorsement of the myth tying celluloid's look to the idealized aesthetic standard in cinema. Ultimately the textual analysis shows that these particular individuals' decision to employ it or not is shaped by these aforementioned factors.

## 3.1. DIPTYCH OF GOODNESS

The classical notion of a diptych is an artwork consisting of two different panels. Within the context of cinematic production, digital camera technology's diptych of goodness represents the cost-effectiveness and user-friendliness of professional or prosumer SD or HD digital cameras. For this reason, excerpts of interviews with the aforementioned independent film practitioners are instrumental in illustrating the technology's diptych of goodness. Such excerpts demonstrate how three specific traits make SD or HD digital cameras financially and technologically accessible: (1) the cheap costs of SD and HD digital tape compared to that of 35mm film stock; (2) SD digital cameras' user-friendliness conveyed by lightweight, portability and maneuverability; and (3) SD or HD digital cameras' user-friendliness as a catalyst for a personal filmic experience. A common thread that binds these viewpoints is their unwavering conviction that digital camera technology (by virtue of its affordability and functionality) fundamentally empowers filmmakers to achieve their creative goals. After all it enables them to dispel

the myth that they could never afford to make a feature-length film or have the technical ease to make the film of their choice.

### 3.1.1. CHEAPER COSTS OF SD AND HD DIGITAL TAPE

With regards to the cheaper costs of digital tape (compared to celluloid stock), emerging American filmmaker Eric Eason reveals that, prior to his foray into SD digital filmmaking, he never believed that he could make a feature-length film. The main obstacle was the exorbitant costs of celluloid stock. Reflecting on his experience of shooting short films in the late 1990s, Eason remarks, "I was really sort of made impotent by the outrageous cost of film...It was a complete nightmare for me because I was working a full time job to pay for film stock. It would cost me $3000 (USD) to shoot a couple of pages" (qtd in Eaton 2003). In fact Eason's 10 minute 16mm short *Alone Together* (1998) cost $16,000 in total. A large portion of this sum was spent on stock, stock development, and editing.

Although the high production costs of 16mm filmmaking (and by extension 35mm filmmaking) made it impossible for Eason to shoot his first feature film, he professes that digital camera technology in contrast allowed him to make his first feature *Manito* (2001): "Not to get prosaic but it [i.e. digital camera technology] unleashed the chains [i.e. the high costs of 16mm film preventing him from shooting his feature film] that bound me..." (ibid). Shot on a prosumer SD digital camera and edited in Final Cut Pro on a home computer, *Manito* cost Eason $24,000 (USD). It won the Special Jury Prize at the 2002 Sundance Film Festival and nabbed him the Best Emerging Filmmaker Award at the 2002 Tribeca Film Festival.

Like Eason, experienced documentarians Kate Davis and Bruno Sinofsky assert that digital camera technology was the only viable means through which they could afford to shoot their respective documentaries *Southern Comfort* (2001) and *Metallica: Some Kind of Monster* (2004). As Davis notes: "With no funding and very little time, grabbing a [digital] camera and shooting was the only way for me to go (qtd in Nick James "Digital Deluge" 22). Similarly Sinofsky says that had he not used digital video his film "would not have been possible" (qtd in Aronson 3). Through their statements, Eason, Davis, and Sinofsky demonstrate their deterministic stance since they regard celluloid camera technology as a financial obstacle and digital camera technology as their means around it. By doing so, they insinuate that digital cameras freed them from the costliness of celluloid feature filmmaking. However they do differ in their deterministic stance.

Throughout their interviews, Eason and Sinofsky remain oblivious to any external force that might have helped them realize their respective goal of making a feature-length film. For instance Eason omits considering that his own ability to secure $26,000 (USD) contributed to his ability to make his film. In similar manner Sinofsky does not realize that his experience and talent as a documentarian was a significant factor enabling his cinematic vision to come to fruition. As such both filmmakers maintain a hard optimistic stance focused on technology as the sole enabler of their dreams. Although Davis does not draw on other social forces (including her own agency) that could have helped her bring her documentary to life, she maintains a soft determinist position. She is aware that other factors (including her own desire) challenged her decision to use digital camera technology. For instance she is aware that the absence of digital projection technology in many movie theatres was one factor that made her hesitant to shoot digitally. Digital projection technology, the subject of Chapter Five, has not replaced celluloid 35mm film

projectors as the dominant format for theatrical exhibition. Therefore filmmakers who shoot cheaply on a SD or HD digital camera must incur the additional costs of converting their film to a 35mm film format for theatrical release.[1]

In this context, Eason and Sinofsky do not divulge whether they privilege the look of celluloid over that produced by a SD digital camera. In contrast Davis exalts celluloid's texture as the ideal cinematic aesthetic and undermines the visual quality of a prosumer SD digital camera un-enhanced by artificial lighting: "...I'm frustrated by the way it [i.e. an SD digital camera's aesthetic] looks. There's nothing more beautiful than celluloid on the screen – I'm that kind of snob" (qtd in Nick James "Digital Deluge" 20). This comment reveals that her own aesthetic bias weighed hard on her decision to use digital camera technology. The fact that she ultimately decided to employ the technology reveals her internalized compromise: In the long run, the pro (the affordability of shooting the film on digital tape) far outweighed the cons (the generated "video look" and the costs of a digital tape-to-35mm film master transfer). Through Davis's example, one can see that the high costs of converting a digitally-shot film into a 35mm film format would not exceed the savings incurred by filming on digital tape rather than on celluloid. For this reason such costs would not cause most independent filmmakers to question the virtue of filming on digital tape.

However what does concern certain members of the independent film community is that the cheaper costs of digital tape may be breeding lazy filmmaking among its users. For example, director of photography Ellen Kuras, who shot Rebecca Miller's independent feature *Personal Velocity: Three Portraits* (2002), concedes that a digital camera's ability to record on a 40-minute or 60-minute digital tapes is less disruptive for actors than a celluloid camera, which can only take 10-minute reels. However she

theorizes that a digital tape's cost-effectiveness may encourage filmmakers to feel less pressured to conserve stock. This lackadaisical mentality would encourage them to arrive less prepared on set and shoot more footage than they actually need: "With mini-DV cameras, you can roll forever through long takes so it really [gives] the actors the freedom to be in their mind space more continually. But it's important for directors to know what they want so they aren't rolling forever" (qtd in Torneo 2002). The underlying assumption here is that the relative costliness of celluloid film stock may compel filmmakers to be thoroughly immersed in their scripts so that, during the actual shoot, they would not have to waste film needlessly. In contrast, a digital tape's comparative cheapness may encourage filmmakers to be less prepared and, as a result, waste tape shooting indiscriminately. Davis echoes Kuras's concern in her explanation of how a filmmaker's lack of precision instigated by the cheaper cost of digital tape could adversely affect the shooting process:

> Statistically it would seem that there ought to be more strong films if more people had access to the technology, but I'm not sure. I was on a jury recently at which we were asked to talk about how great DV is, but all the panel members, including myself, acknowledged that this easy technology can cloud your vision. You think more carefully before you press the button on a film camera than you do on a DV camera and that's no bad thing (qtd in Nick James, "Digital Deluge" 24).

Paul Trijbits, director of the United Kingdom's Film Council's New Cinema Fund, agrees with Davis. He fears that digital video camera technology potentially can lead to poor quality films:

> That attitude of 'never mind about the script or the process, we'll just shoot it on DVD' is that kind of attitude that doesn't reflect what it's all about...I think that it [i.e. digital filmmaking] might lead to a huge surge of not particularly well-made films which have ditched the entire process of development right through to post (qtd in *Netribution Film Network* 2001).

Through their statements, Kuras, Davis, and Trijbits express their fear that the rise of lazy filmmaking attributed to the cheap costs of digital tape ultimately may lead to a new generation of sloppy, undisciplined filmmakers. While this is a sound hypothesis, they overlook the fact that the ability to keep the camera on the RECORD mode could be financially, technologically, and artistically liberating, for other filmmakers. Financial democracy, for others, could be interpreted as financial freedom from the pressure to be overly stingy or excessively prepared for the sake of conserving film stock. For instance independent filmmaker Miranda July, who shot her Sundance-acclaimed feature *Me, You, and Everyone We Know* (2005) on a professional High Definition (HD) digital camera, Sony's 24p HD Cine Alta F900, claims that a major financial advantage of shooting digitally was that the cheaper costs of HDCAM digital tape accorded her the luxury to let the camera roll between takes (Boyer 2005).

For other filmmakers, the financial freedom to overshoot, in combination with a digital camera's capacity to generate longer recordings, can be conducive to enhanced artistic expression. For instance Jacob Kornbluth, who shot his second independent feature, *The Best Thief in the World* (2004), with a professional SD digital camera, the Sony MSW-900P, credits the cheaper costs and longer recording time of digital cameras with such enhanced artistic expression. Such aspects rewarded Kornbluth with the financial and technological freedom to be more interactive with his actors during a shoot. These aspects also ensured that the actors were less disrupted by the mechanics of the filmmaking process (e.g. the need to pause every 10 minutes for film reloads) and were able to concentrate solely on their performances:

> **[W]ithin that scene, you don't have to roll and cut in the same way that traditional** filmmaking requires. You don't have to say 'Cut!' because you don't have to save every inch of film. The fact that tapes last an hour really has a fundamental effect

> on the way actors can act in front of the camera. You can keep rolling and talk to them for two or three minutes and say 'Why don't you try that?' right in the middle of a sentence. And then suddenly they're off and acting again (qtd in McKernan 149).

During production on *Outfoxed: Rupert Murdoch's War on Journalism* (2004) – a scathing exposé on the media bias of *Fox News* – documentary filmmaker Robert Greenwald found that the cheaper costs of digital tape, coupled with a digital camera's inherent ability to generate longer recordings, heightened his creativity. According to Greenwald, this combination allowed him to create a narrative based on a wide array of clips from numerous hours of interviews shot on digital video and *Fox News* segments captured on digital recorders. He intimates he would not have been able to achieve this feat on celluloid: "Digital technology [provides] this kind of freedom to do more...And just the pure amount of footage..." (qtd in Pikul 2004). As *Outfoxed* demonstrates through its impressive montages woven from interview footage and *Fox News* snippets, overshooting does not necessarily signify imprecision and sloppiness in script and direction – signs of lazy filmmaking. Instead Greenwald's accumulation of copious amounts of footage (resulting from overshooting) enabled him to have a wide variety of shots available at the post-production stage. His ability to weave together visually rich montages would have been compromised had he been limited to a narrowed shot selection (resulting from undershooting).

By endorsing overshooting, Greenwald and Kornbluth challenge the notion that quality filmmaking only represents sparseness in shot footage. Greenwald proves that quality films can arise from the artistic assemblage of shots derived from a massive amount of footage. Kornbluth insinuates that quality films are the result of quality acting. He explains that not having to yell "cut" every 10 minutes or to hit the PAUSE button

between takes enriches his actors' performances. Although they do not reveal if they endorse a hard optimist or soft determinist stance, Kornbluth and Greenwald at the very least expose their technologically deterministic streak. In both cases, the filmmakers imply that if it were not for the cheap costs of digital tape and a digital camera's longer recording times, they could not have afforded the means to overshoot.

### 3.1.2. SD DIGITAL CAMERA'S USER-FRIENDLINESS VIA PORTABILITY AND MANEUVERABILITY

Renowned cinematographer Anthony Dod Mantle sees the portability of digital cameras as their user-friendly aspect. Recalling his time spent shooting Thomas Vinterberg's *Celebration* (1998), Dod Mantle remarks that his handheld use of a prosumer SD digital camera, the single chip Sony PC7-E, allowed for a freedom of movement which he could not have achieved by handholding a heavy 35mm film camera.

> What I gained was agility, mobility, accessibility – what I call the 'emotional movement of these small cameras, as opposed to the more premeditated movement you have to do when you have a heavy camera on the shoulder. Coming from documentary, I've learned that if you're involved in the situation you're shooting – as a Director of Photography should be – then very often you have to move before your brain really registers what you're doing. I realized I could make those moves with this camera (qtd in Kelly 100-1).

Critically acclaimed German director Wim Wenders used a combination of professional and prosumer SD digital cameras to shoot his documentary *Buena Vista Social Club* (1999). On his official website, Wenders admits that, without DV camera technology's lightweight and maneuverability, he would not have been able to generate the type of footage he acquired for the film: "I could sometimes shoot in places [e.g. tight spaces] and situations [e.g. low-lit environments] where you'd never get with a film camera, even

a 16mm. This film could have never been made such as it is on film. This is truly a product of the new possibilities we have as filmmakers with the digital tools (2000).

In both contexts, Dod Mantle and Wenders illustrate their hard optimist attitude toward digital camera technology. For them, SD digital camera technology's function as a light, portable, and maneuverable medium helped them to attain mobility that they could not have generated via celluloid cameras. Nonetheless they ignore the fact that such outcomes could not have been possible without a combination of the technology's user-friendliness and their own input [i.e. their respective skill, talent, and experience as cinematographers].

In any case, one redeeming factor of their hard optimist stance is its role in undermining the myth of financial and technological inaccessibility. SD digital camera technology's cost-effectiveness shatters Eason's and Davis's belief that they could never afford to make feature films since digital tapes are a cheaper alternative to film stock. Similarly the technology's portability and maneuverability undermine Dod Mantle's and Wender's belief that they could not generate much spontaneous physical mobility or flexibility in feature-filmmaking. Such traits reveal that handheld SD digital cameras are lightweight, easy-to-operate alternatives to 16mm film cameras and 35mm film cameras.

### 3.1.3. SD AND HD DIGITAL CAMERAS' USER-FRIENDLINESS AS A CATALYST FOR A PERSONALIZED FILM EXPERIENCE

Actor-turned-director Jean-Marc Barr and veteran filmmaker Kristian Levring trace a digital camera's user-friendliness to its function as a cost-effective and quick-to-set-up catalyst for personalized filmmaking. During production on his feature film debut, *Lovers* (1998), Barr realized that shooting on celluloid would reduce the workload to one month

and could be done for one million (USD) (Kelly 38-9). At the same time, he realized that the technology's ease of functionality consisted of its capacity for one-hour recordings (which would maximize shooting time over a shorter shooting period), its instant playback function for reviewing shot footage on spot (rather than having to wait for dailies), and its ability to film in low light conditions. Such user-friendliness inspired him to assume the role of camera operator. Comparing 35mm film sets (on which he has worked as an actor) to his own SD digital film set, Barr remarks how his ease with operating a digital camera directly enabled him to develop a more personal bond with the narrative: "The digital camera just like the Éclair camera in the New Wave period provides new freedom in filmmaking...In this way, we filmed *Lovers* in Paris without permission, with a team of 7 people, There was an intimacy and a concentration on the set that only this method can provide" (qtd in Gallien 2001). What is thus implied is that this bond allowed him to be a better filmmaker which would result in a better film. Through the phrase "there was an intimacy and a concentration on the set that only this method can provide," Barr implies that the user-friendliness of digital cameras led him to forge a bond between those involved which would have been impossible with the use of celluloid cameras.

Through the statement above, Barr clearly illustrates his technologically deterministic stance. However he concedes that the look of celluloid is still superior to that of digital video: "I don't think digital videos will replace the beautiful image you can get with a lit 35mm film. It just creates the possibility of more production and communication" (qtd in Kelly 42). In effect Barr manifests his soft determinist position: He believes that he could not have developed an intimate relationship with his narrative without digital camera technology and that he would have lacked the financial and

technological access to produce a work expressive of his artistic vision. Nonetheless he is aware that his tendency to privilege the myth of celluloid as the idealized aesthetic standard made him reluctant to use it. The fact that he ultimately decided to use it for his directorial debut shows that he willingly made a compromise. In short he was willing to accept a less "beautiful" aesthetic since the technology's diptych of goodness compensated for this shortcoming.

Like Barr, experienced Danish filmmaker Kristian Levring, who shot his feature *The King is Alive* (1999) with SD digital camera technology, attributes a digital camera's democratic value to its function as an economical, quick-to-set-up mechanism. The fact that Levring employed three SD digital cameras rolling at once demonstrates the cost-effectiveness of digital tape. After all the three-camera-rolling technique would be an extremely costly feat on celluloid. Additionally Levring links the technology's user-friendliness to its allowing for rapid set-up times between scenes. Such a feat is hard to accomplish with 35mm film cameras which need to be adjusted carefully for each change in lighting conditions.

Like Barr, Levring also ties digital camera technology's affordability and user-friendliness to the medium's ability to instigate a personalized filmic experience. The ability to "waste tape" shooting on multiple cameras and recording in one-hour intervals enabled him, through his three-camera-rolling technique, to encourage his actors to develop a personal bond with the storyline. Through this technique, his actors were unable to know which camera was shooting their close-ups. In this way, they were forced to focus on being "on" at all times. For him, their constant concentration on their performances allowed them to develop a deeper and more intimate relationship with the narrative:

> [W]hen you use the tiny video cameras, the actors don't really think about them – it gives them their space, and as an instructor it presents you with so many gifts that I had never dreamt of. They don't have to think about where they are standing – they just have to try and be their characters and if they feel like turning around, they do it. For me that was a great plus (qtd in Rundle 1999).

Expanding on the topic in a different interview, Levring adds: "So they could always see each other, it became more like on stage, and I honestly think that it adds to the performances..." (qtd in Kelly 53).

Levring adopts a hard optimist stance toward digital camera technology. He regards it as a cost-effective and quick-to-set-up mechanism that allows for a personalized filmmaking experience that he could not achieve on celluloid. The costliness of film stock would make shooting on three celluloid cameras running simultaneously an unaffordable endeavor. Moreover the constant interruptions for film reloads, in 10-minute intervals, would have distracted his actors from concentrating on their performances and connecting more intimately with the story. In essence Levring is giving sole credit to the technology for heightening his actors' performances. In so doing, Levring ignores other factors, such as his own talent as a director or even his actors' dedication to the acting craft, that could have motivated them to engage more profoundly with the story.

It is important to consider that Barr and Levring aim to make films in the Dogme tradition. In this case, they actively abide by all of the Vows of Chastity – including the no-artificial lighting rule – and condone a grainy, occasionally out-of-focus or under-lit texture. This lack of artificial lighting explains the rapidity of their set-up time in between scenes and their lack of effort to create an aesthetic that "looks like celluloid." Therefore non-Dogme practitioners, such as DOP Ellen Kuras, would disagree with their view that digital camera technology's functionality is related to its rapid set-up time between scenes. In fact Kuras, who shot *Personal Velocity* on a prosumer SD digital

camera, the Sony PD-150, notes: "Most people have the misconception that you don't have to light mini-DV, but to make it look anything interesting, you need to light the film" (qtd in Torneo 2002). Siding with Kuras, filmmaker Jacob Kornbluth echoes a similar sentiment:

> The first thing I'd heard about video from other directors was that it makes you work faster, that there's less time between set-ups and you can make a film more quickly...I actually didn't find that to be the case for me. If you still want something to look good, you still have to light it. And the lights don't get set up any faster (qtd in McKernan 149).

Kuras's and Kornbluth's respective comments that one needs artificial lighting to make a film "look anything interesting" or "look good" is significant. Their remarks reveal that whatever comes closest to emulating the look of a celluloid-shot film is considered aesthetically interesting. Although Kuras and Kornbluth privilege the look of celluloid as the ideal aesthetic for cinema, the fact that they ended up using digital cameras to shoot their respective films demonstrates that the cheapness of digital tape in the end outweighed their personal preference for the look of celluloid.[2] Therefore their respective use of artificial lights to approximate the look of 35mm film illustrates the following: Although they view SD digital camera technology's cost-effectiveness as a democratic force, they regard the technology's limitation as its inability to resemble a celluloid texture without artificial enhancements (e.g. artificial lighting). Ultimately they succumb to the myth that privileges the look of celluloid as the idealized aesthetic referent. However they resigned themselves to shooting on a digital format to save money. For both, the compromise was to use artificial lighting to make a narrative shot on SD digital look more like one shot on 35mm film.

## 3.2. DIGITAL CAMERAS: CONDUITS TO AESTHETIC REALISM

As noted in Chapter Two, Nick Rombes introduces two distinct interpretations of an authentic cinematic look. I classify them as the *anti-classical Hollywood realistic aesthetic* and the *pro-regular movie realistic aesthetic*. In his prediction about the possible future uses of digital filmmaking, Rombes even alludes to each strand's objective: "This is perhaps one path that DV will take: a relative seamless reproduction of the medium it replaces, as opposed to a further deconstruction of that medium (2003-2005).

Rombes uses the term *medium* to refer to the look generated by celluloid camera technology. His statement succinctly broaches the two different ways in which the independent film community views the role of digital camera technology in relation to the notion of a "real" look – or aesthetic for cinema. His view of digital video (a general reference to digital camera technology) as a technology that can provide a seamless reproduction for the medium [i.e. the look generated by celluloid cameras] draws attention to the philosophy of the pro-regular movie realistic aesthetic. This ideology is based on the notion that the look of a film shot on 35mm celluloid is akin to that of a "true" film. It sees SD and HD digital camera technologies as more cost-effective and technologically efficient means to attaining the regular look of a movie shot on 35mm or even 16mm film. In addition his position on digital video (qua digital camera technology) as a technology that questions – or as he puts it "deconstructs" – the look of films shot on celluloid references the ethos of the anti-classical Hollywood realistic aesthetic. This line of thought assumes that the grainy, handheld, shaky home video look produced by SD digital cameras connotes a more "genuine" look of film since it challenges the well-lit,

polished, and therefore "unrealistic" or "artificial" aesthetic of an average, conventional film (i.e. regular movie) shot on 35mm film.

Rombes's prediction that the pro-regular movie realistic aesthetic may be eclipsing the anti-classical Hollywood realistic aesthetic is taken up again in Chapter Six, the concluding chapter on the future of digital cameras. However it is necessary to examine these two interpretations of a realistic aesthetic within the current chapter. They have co-existed within the independent film community over the last decade and are tied to a digital camera's role as a democratizing technology. Therefore this chapter subsection studies their three defining traits: (1) being handheld and resembling American Cinéma Vérité; (2) appearing pared-down à la Dogme; and (3) looking conventional. While the first two traits centre on the anti-classical Hollywood realistic aesthetic, the latter focuses on the pro-regular movie realistic aesthetic.

### 3.2.1. BEING HANDHELD AND RESEMBLING AMERICAN CINÉMA VÉRITÉ

American Cinéma Vérité, the documentary film movement associated with on-the-fly filmmaking, was at its peak in the Sixties. It popularized the use of portable 16mm film cameras and faster 16mm film stock that could record in low light conditions and was cheaper than 35mm film stock. Since that time, there has existed a tendency in North America to equate "cheap, lightweight equipment with much-vaunted realism" (Quart 2000). This is certainly the attitude held by Eric Eason, Anthony Dod Mantle, Kate Davis, and Chris Cooke. They collectively agree that the economical aspect of a standard definition (SD) digital camera is the cheaper costs of renting or buying an SD digital camera and recording on digital tape. They all agree that SD digital camera technology's financially liberating aspect is that it enables independent filmmakers to afford the means

of production. In this way, it shatters any preconceived notion that they could not engage in feature filmmaking due to the costliness of celluloid film stock and film camera rentals. They also support the notion that the technologically liberating aspects of an SD digital camera include the camera's small frame, lightweight, handheld portability, and low-light threshold. For them, such aspects are aesthetically democratizing since they facilitate the creation of an anti-classical Hollywood realistic aesthetic paying homage to American Cinéma Vérité.

For instance Eason admits that he acquired a raw documentary/home movie look for *Manito* through the use of a handheld digital camera. He explains why his allegiance was to an anti-classical Hollywood realistic aesthetic during production: [E]verything had to be raw and intuitive, as opposed to these Hollywood movies that are art-directed and composed and perfectly lit and blocked...You just know that these actors are on a stage; that's the last thing we wanted" (qtd in Torneo 2003).[3] Through this statement, he admits that he wanted *Manito* to look unstaged and therefore like what Martin Roberts terms *fake vérité* (163). By doing so, Eason indirectly reveals that the technologically democratizing aspects of SD digital camera technology allowed him to shoot spontaneously and rapidly and to convey documentary rawness. These aspects include its lightweight, portability, and its natural ability to produce footage whose texture looks clearly "video." The technology allowed him to create a look of cinematic realism antithetical to that conveyed by most mainstream films shot on 35mm film. Through his deliberate use of an unconventional, anti-classical Hollywood realistic aesthetic, Eason opposes the idea that the conventionally well-lit look of a celluloid-shot film (used to convey realism in a classical Hollywood sense) is what fictional realism should look like. Such opposition

therefore manifests Eason's desire to challenge the myth that the look of a celluloid-shot film is the authentic, ideal look of a fictional movie.

For Eason, the anti-classical Hollywood realistic aesthetic, which references American Cinéma Vérité, is akin to the rawness of the film movement's look – stark, shaky, and occasionally blurry footage shot on-the-fly. For experienced British filmmaker Chris Cooke, who is a digital cinema proponent, such authenticity conveys the look and speed of real life. As Cooke notes: "There's a fluidity to the DV process...It's more instantaneous, more familiar aesthetically" (qtd in Nick James, "Digital Deluge" 20). According to him, the quick movement of video footage (synonymous with his notion of immediacy and instantaneity) generated through the camera's lightweight and handheld portability visually offers a fictional or documentary presentation of "real life." This presentation is different from that of a classical Hollywood realistic aesthetic. The look of rapidly shot imagery captured on an SD digital camera resembles, for an audience, that of a home movie. This in turn exemplifies the look of an American Cinéma Vérité documentary.[4]

For Cooke, a SD digital camera also serves as a technologically democratizing force for fictional or documentary feature filmmakers. It provides them with the means to create a look of cinematic realism that visually challenges the classical Hollywood realistic aesthetic. Such an aesthetic presents realism as well-lit, steadily-shot, smooth footage generated by 35mm film. It is commonly found in big budget studio-driven 35mm narratives that may or may not originate from Hollywood. Consequently digital camera technology provides audiences with an alternative to this mainstream look of cinematic realism.[5] It gives them options in terms of the way a film can look realistic.

Eason and Cooke do not explicitly reveal a hard optimist or soft determinist stance through their aforementioned comments. In contrast Kate Davis reaffirms her soft determinist stance. She explains why she used SD digital camera technology to film *Southern Comfort*:

> [T]he DV camera proved to be very important in many respects. It was portable, light, and easy to shoot for hours at a time, unlike 16mm cameras. And because it was small, it was less intimidating and so did contribute to the sense of intimacy. So many people comment that the camera in *Southern Comfort* seems to be transparent. Additionally the hour loads mean that that scenes could play out more naturally and fully (qtd in Torneo 2001).

In a separate interview about *Southern Comfort*, she adds: "I love the look of 16mm but I think I might have missed a lot if I'd used it on this project. I'm a bit of a convert. When I look back at some of the great vérité films, I'm amazed at what they captured" (qtd in Nick James "Digital Deluge" 22).

Through both statements, Davis indicates that SD digital camera technology granted her access to a level of realism superior to the kind that 16mm celluloid film cameras could give her. She notes that smaller, lighter SD digital cameras allowed for greater movement in tight, small spaces (i.e. a car) than 16mm film cameras. In this way, they offer a more convincing or realistic visualization of an event occurring.[6] She also notes that SD digital cameras encouraged far greater director-interview subject intimacy than 16mm film. One reason is that the ease of filming with a small handheld DV camera allows for a small crew. Having one or a few members on the set enabled her documentary subjects to be less distracted or intimidated by the filmmaking process. Having few people put them at ease and enabled them to act more naturally or speak more freely before the camera. At the same time, Davis implies that the use of a film camera is more disruptive than the use of SD digital cameras. Recording on 40-minute or 60-minute

digital tapes (rather than on 10 minute film stock) would be less disruptive for her documentary interview subjects since she would not have to force them to pause frequently for film reloads.

Nevertheless Davis's admission that she "loves the look of 16mm" and her earlier confession of her frustration with the look produced by digital cameras demonstrate that she still upholds the myth of celluloid as the idealized aesthetic referent. Consequently her decision to use a SD digital camera to shoot *Southern Comfort* demonstrates her compromise. As noted earlier in this chapter, she decided against shooting on celluloid technology in order to be able to afford to shoot a feature-length documentary. However, in the previous page, she also notes that it also was to achieve a deeper sense of aesthetic realism, which, for her, is tied to SD digital camera technology. While she extols the look of celluloid as the ideal aesthetic for cinema, her "I would have missed a lot" statement infers that she does not go to the extent of regarding it as the ideal look of realism in documentaries. In contrast her decision to utilize a SD digital camera for her shoot shows that she views it as a better way to generate an aesthetic whose unpolished, rough, home-movie look conveys a greater sense of cinematic realism. This anti-classical Hollywood realistic aesthetic would be appropriate for her study of real living individuals since it would be reminiscent of the look of American Cinéma Vérité. Indeed the irony (of which she is aware) is that American Cinéma Vérité films, whose aesthetic she deems unaffordable and too complex to attain on 16mm film, were actually shot on 16mm film.

### 3.2.2. APPEARING PARED-DOWN À LA DOGME

The independent film community also positions digital camera technology as the conduit to an anti-classical Hollywood realistic aesthetic since it credits it with the ability to

generate what Quart calls a "pared-down aesthetic" (2000). This look of realism retaliates against the evenly-lit and soft look of conventional films shot on 35mm film cameras mounted on tripods. It challenges the notion linking the classical Hollywood narrative to the ideal look of cinematic realism. Akin to a no-frills, low-budget, rugged appearance, this aesthetic has been championed by such renowned independent filmmakers as Steven Soderbergh, Mike Figgis, Harmony Korine, Gus Van Sant and even actor-turned-director Ethan Hawke. They have regarded this look as a "more realistic" depiction of real life in both fictional and documentary films. What has made this aesthetic popular among such filmmakers is the fact that it was employed in Thomas Vinterberg's *Celebration.* As the first film born of the Dogme 95 filmmaking movement, *Celebration* garnered critical acclaim at the 1998 Cannes Film Festival and won the Grand Jury Prize. Since that time, the aesthetic has become the signature look of a Dogme film, which is conceived to rebel against the conventional ways films are made – and made to look. In this same time span, the independent film community has come to regard SD digital cameras as responsible for producing the pared-down aesthetic emblematic of Dogme films.[7]

Due to its association with the pared-down aesthetic in *Celebration*, SD digital camera technology has been responsible for shattering the myth of financial and technological inaccessibility previously held by emerging independent filmmakers. Eric Eason describes how Vinterberg's family drama, shot on a prosumer SD digital camera, inspired him to use SD digital camera technology to make his first feature film *Manito.* In doing so, he alludes to the technology's role as a myth-buster: "It [*Celebration*] was shot on DV…with a one-chip Sony consumer camera and it actually went on to the Cannes Film Festival…At the time, people knew you could shoot and edit on DV but when 'The Celebration' got released in America and it did so well, it was sort of the film that

launched a thousand ships" (qtd in Eaton 2003). Through this quote, Eason reveals that the use of a digital camera on *Celebration* undermines the notion that feature filmmaking is an unaffordable venture for fledgling filmmakers like him. In his view, the film's critical success proves that a "real" film can be shot on an affordable-to-own or affordable-to-rent, one-chip consumer digital camera. Through his expression "it was sort of the film that launched a thousand ships," Eason indirectly demonstrates that the pared-down aesthetic in *Celebration* destroyed the myth of feature filmmaking as a technologically inaccessible venture for neophyte filmmakers. In that case, the visual style undermined the notion that only a well-lit, polished velvety texture generated by high-end celluloid technology could earn a filmmaker the right to be regarded as a professional or real filmmaker. It shows that filmmakers could utilize inexpensive digital camera technology to generate a low-lit, rough, home-video-looking narrative and still be deemed serious artists – worthy of accolades at prestigious film festivals. In fact, Jean-Marc Barr eloquently sums up this point, when he comments about Lars von Trier's *Idiots* and Vinterberg's *Celebration*: "They proved that something artistically original and credible could be made with digital" (qtd in Gallien 2001).

Eason's theory that emerging filmmakers have ridden the wave of the Dogme-affiliated aesthetic and, through its popularity, have been inspired to embark on feature filmmaking is shared by Michael Olsen. Olsen, the spokesperson for the Danish Film Institute, whose alumni include von Trier and Vinterberg, notes: "[M]any directors and writers still want to do these films [digitally-shot films with a pared-down aesthetic]. Now it's just a question of giving people the opportunities to make a low budget film. And if the films are any good, they will be known as 'Dogme films' and if they are not good, they'll just slip into oblivion" (qtd in Kelly 96). Olsen reveals that emerging or low-

budget filmmakers could identify with the Dogme movement in an effort to safeguard their reputations. To explain, these cashed-strapped individuals, who cannot afford 35mm film camera technology, could try to get away with making features sporting this pared-down aesthetic. They could avoid criticism for presenting a digitally-shot narrative whose look may have been deemed technically unprofessional prior to the popularity of the Dogme movement. Now they could rationalize that they are employing a Dogme aesthetic to rebel against the visually perfect look of fictional films molded in the classical Hollywood tradition. As Olsen points out, the obvious success of their films would depend on the strength of more than just their films' aesthetic. Even if their films are critical or audience misses, rather than hits, their reputation as professional, serious filmmakers still could remain intact. Their excuse could be that the pared-down aesthetic à la Dogme is meant to be viewed as a deliberate artistic choice, and is not a result of low production values. In this context, their true perspective on the look of celluloid would remain a mystery. One would not know if they sincerely reject the myth of celluloid's look as the idealized aesthetic standard and truly favour the notion – which one may view as another myth – that the pared-down aesthetic is a superior way to depict realism. Additionally one would not know if they secretly extol the look of celluloid but can only afford to shoot digitally.

Among independent filmmakers who support the pared-down aesthetic as the new ideal face of cinematic realism, there are those harboring a hard optimist position. For them, digital camera technology's greatness stems from its function as a technologically revolutionary form. In other words, the technology is viewed as a completely new form devoid of an analog predecessor, while the pared-down aesthetic is also regarded as a new cinematic experience. Kristian Levring admits to the existence of filmmakers who believe

that digital camera technology and the pared-down aesthetic are devoid of an analog past. They do not consider digital camera technology used in Dogme films as a successor to 16mm camera technology popularized by the French New Wave; they also reject the Dogme aesthetic as a reworking of the *nouvelle vague*'s own anti-classical Hollywood realistic aesthetic. Levring says, "[Dogme] is not a revolution. I don't think any of us [i.e. von Trier, Vinterberg, and he] think Dogme is a revolution...the New Wave had a huge impact in England and France...I think Dogme is just a little reminder of that" (qtd in Stephenson 2001). In a separate interview, Levring elaborates on his previous point: "[L]ook at *À bout de souffle* [*Breathless*]...And then look at *Festen* [*Celebration*] and *The Idiots* made forty years later...Because it's all in there – the handheld camera, the jumpcuts, the direct sound. It's not exactly similar of course. But it's amazing to hear people now discussing handheld cameras as some sort of novelty, forty years after Godard" (qtd in Kelly 47-8).

Earlier in this chapter, Levring demonstrates his hard optimist approach in relation to the cost-effectiveness and user-friendliness of SD digital camera technology. However it is evident, from his comments above, that he distances himself from the hard optimist stance that specifically relates the technology to a new technological form that is devoid of a past and is able to generate a completely new aesthetic. According to Lev Manovich, contemporary digital effects and computer-generated animation, like all other supposedly "new" cinematic forms, are not completely new. In fact they are adaptations of older or obsolete analog forms, such as the magic lantern (180). Bolton and Grusin view such adaptations as remediated forms that Henning would call the "new old" (Bolter and Grusin 270; Henning 223). Essentially Levring explores the similarities between the French New Wave look generated through 16mm film cameras and the pared-down

Dogme aesthetic created through SD digital cameras. In the process, he positions digital camera technology as the remediated digital incarnation of analog 16mm film technology – and the Dogme aesthetic as the remediated look of the French New Wave. In this way, he is relating digital camera technology and the Dogme aesthetic to the new old rather than to the *new new*.

Within the independent film community, not everyone who uses SD digital camera technology supports the idea that the pared-down aesthetic à la Dogme conveys cinema's ideal look of authenticity. For instance Spike Lee, who used several prosumer SD digital cameras to shoot the comedy *Bamboozled* (2000), is critical of the aesthetic:

> That kind of filmmaking is like a painter saying that he's only going to work with one colour, that it is the one true colour and the only one that can catch the humanity and dignity and truthfulness of life. A painting can have 10 million colours. I want to use all of the filmmaking tools. That's why I use the score, the lighting, the costumes and the makeup in a digital film. That doesn't degrade anything (qtd in Quart 2000).

In his analogy relating film to painting, Lee disapproves of the idea that the Dogme aesthetic serves as the only true colour of realism in cinema. He is opposed to the idea that a digitally-shot film carrying this aesthetic automatically conveys more realism than one embellished by such "unnatural" cinematic tools as make-up, artificial lighting, and extra-diegetic music. Consequently he reveals his soft determinist side. A hard determinist only would see the digital camera medium as the sole factor determining a film's sense of fictional realism. In contrast Lee believes that the technology, in combination with other factors, such as the aforementioned embellishments and his own talent as an artist, acting together, determines the type of realism portrayed onscreen.

Through this film-painting comparison, Lee also reveals that the Dogme look could be creatively oppressive rather than liberating for a SD digitally-shot film. For him,

it deprives the narrative of such "banned" elements as extra-diegetic music, artificial lighting, costumes, and makeup. For him, these elements could enhance the look and sound of the realism conveyed in the overall story. Even Danish writer-director Lone Scherfig, a Dogme supporter, reinforces Lee's statement. She admits that the aesthetic could hurt the film if the storyline is not appropriate for it: "The criticism of the Dogme ...is true. But you just have to make sure that what you do is properly primitivist, that you use those brushes well, and not find yourself longing for the ones you threw away as part of your procedure" (qtd in Kelly 129).

One can interpret Lee's statement "a painting can have 10 million colours" to mean that a film can be realistic in numerous ways. One also can argue that there does not exist any one ideal aesthetic for cinematic realism since a film can convey realism in numerous ways. For instance, British filmmaker Saul Metzstein admits that shooting his feature film *Late Night Shopping* (2001) on a SD digital camera would have been cheaper. However he realized that the technology would not have created the appropriate aesthetic for his film:

> It was suggested that in a fashionable way that we make *Late Night Shopping* on DV, but it wouldn't work for that particular film. For instance, when you choose your lighting set-up, it's not just for DV or 35mm but because you want a certain aesthetic, which for us was as important as the story. So the choice was between spending £200,000 on shooting on 35mm or dealing with an unacceptable level of graininess (qtd in Nick James "Digital Deluge" 22).

Through this statement, Metzstein corroborates Lee's theory that there is not any one ideal aesthetic for all films because a film's aesthetic depends on the type of story conveyed. Like Lee, Metzstein respects digital camera technology's worth as a valid movie-making medium but rejects the notion that the Dogme aesthetic is the one true look of cinematic realism. Like Lee, Metzstein also manifests a soft determinist stance. He is

aware that the type of cinematic medium employed can impact a film's visual style but realizes that other factors, such as lighting and his own artistic preference, in combination with the employed technology, affects the type of onscreen aesthetic.

Emmanuel Mesthene states that every technological form carries a positive and a negative outcome (49). It is apparent that there are positive and negative implications attached to the pared-down Dogme aesthetic. On the upside, emerging or inexperienced filmmakers with limited production budgets can use affordable, portable SD digital cameras to produce films bearing this look. By using this template, they could be regarded as earnest Dogme-inspired artists after a bare-bone depiction of realism. They could conceal possible ulterior motives for using it – their lack of money and technical skill to create a more visually polished feature. On the downside, this template may prevent inexperienced filmmakers – especially those without any formal film school training – from maturing into better artists, directors, and cinematographers. By embracing this visual style, they may be preventing themselves from mastering fundamental film production skills; these include keying actors through artificial lighting and applying filters to camera lenses to alter the coloring and, by extension, the mood of a certain shot. Due to the emergence of HD digital camera technology, whose 24p HD format can mirror the look of celluloid, the Dogme 95 filmmaking movement has started to decline in popularity. As a result its pared-down aesthetic is becoming out of style. One outcome could be that experienced filmmakers, such as Vinterberg and von Trier, who resorted to this aesthetic to cut down on costs or experiment with it, could more easily revert to a classical Hollywood realistic aesthetic. In contrast, untrained neophytes would have a difficult time following suit.

### 3.2.3. LOOKING CONVENTIONAL

Reflecting on the use of the Panasonic DVX-100, a prosumer SD digital camera, to shoot his $150,000 (USD) psycho thriller *November* (2004), filmmaker Greg Harrison notes: "You can't tell that we shot it on a consumer camera, it looks just like a regular movie" (qtd in Boyer 2004). In his quote, Harrison indirectly describes the basic tenet on which the pro-regular movie realistic aesthetic is based: Cinema's authentic look equals that of any movie shot on 35mm film. From Harrison's standpoint, the look generated by a film shot on celluloid and used in conventional features represents that of a "regular movie." Therefore he is insinuating that the role of digital camera technology is to serve as a cost-effective and easy-to-use medium to emulate this look.

For Harrison, as well as for other proponents of the pro-regular movie realistic aesthetic within the independent filmmaking community, digital camera technology's dipytych of goodness is a major factor for using it to mimic the look of 35mm celluloid.[8] Harrison spent only $150,000 (USD) rather than the standard $1 to $3 million (USD) budget allocated to low budget independent films shot on 35mm film. The cost-effectiveness of shooting digitally is reflected in the fact that a one-hour SD digital tape costs $20-$30 (USD), while a 50-minute HDCAM tape costs approximately $65 (USD). In contrast the costs of buying film stock, developing shot footage, and creating dailies for one 10-minute roll are close to $1000 (USD). In addition the user-friendliness of SD digital camera technology also relates to its malleability. It is a medium that can be manipulated to produce a look approximating that of 35mm film. In his discussion of his digitally-shot independent feature *Falling Like This*, producer John Manulis reveals that the manipulation process involves the use of production techniques of a 35mm film shoot (e.g. artificial lighting styles) in combination with SD digital camera technology: "You

can, in fact, shoot digitally on dollies...you can shoot in a more formal manner, you can light carefully. We just won the Best Film and Cinematography Awards at the Hamptons International Film Festival with ...*Falling Like This* – which was shot in straight DV" (qtd in McKernan 134). It is significant that Manulis relates the use of digital video and cinematic tools (common on 35mm film shoots) to the film's receipt of accolades. If a SD digital camera is utilized and embellished (by the aforementioned cinematic tools) like a regular 35mm film camera, it can produce a film whose aesthetic does such a good job of emulating that of 35mm film that it even can win Best Film and Best Cinematography at a Festival where its main competitors are films shot on 35mm.

Within the independent film community, proponents of the pro-regular movie realistic aesthetic view SD digital camera technology as a cheaper and more easy-to-use alternative for creating a film whose aesthetic tries to emulate that of celluloid. Therefore it is not surprising that there has been a surge in the use of high definition (HD) digital cameras among these proponents since the early 2000s.[9] Peter Weibel theorizes that efforts to obtain a greater resolution are born of the wish to achieve greater visual realism within the digital arts (52). The correlation between digital cinematic technology's higher visual resolution and the perceived higher levels of visual authenticity offers a plausible explanation for HD camera technology's escalating popularity among independent filmmakers over the last six years. These pro-regular movie proponents have become increasingly drawn to professional HD digital cameras, especially the 24p HD Cine Alta F900 digital camera. The reason is that HD digital camera technology's 24 frame-per-second (fps) rate feature can generate a look visually indistinguishable from that of a film shot on 35mm film, to the general public.

George Lucas, arguably the wealthiest self-proclaimed American independent filmmaker, has been the most vocal champion of the technology. This has been the case ever since Sony released the first professional HD camera in the market in 2000. For Lucas, the production of *Star Wars Episode II: Attack of the Clones* manifested the financially and technologically democratic aspects of HD digital camera technology. His use of the technology saved him 1.8 million dollars (out of a total budget of $115 million (USD) on the costs of buying and processing celluloid stock for *Star Wars: Episode II.* Fewer tape reloads (due to digital tape's longer recording duration), the consequent irrelevance of traditional film dailies, and instantaneous playback illustrate the technology's easy operability during his shoot. Lucas reinforces the notion that the look of HD digital camera technology mirrors that of 35mm film. He comments about critics who speculate that *Star Wars Episode II* was not really shot digitally because it looks too similar to 35mm film:

> You can have rumours forever. But it doesn't make any difference because we did shoot the whole thing on digital...but I guarantee that 99% of the people that see the film will simply not know it was shot digitally [on the 24p HD Cine Alta F-900 camera]. Then there's the 1% who are the technophiles or who are the die-hard film people, as opposed to cinema people and they'll say it's not real film. And you know, it's *not* real film; what we're talking about is *cinema*, which is the art of the moving image (qtd in McKernan 32).

Lucas implies that his critics err in thinking that a film can only be considered a legitimate movie if it possesses imagery shot on 35mm celluloid. He reasons that a movie, which is created through the art of moving imagery, should not be restricted to this narrow definition. He considers this gauge of legitimacy impractical since it implies that any movie that employs CGI, animation, or any other non-celluloid technological system for generating moving imagery is an inauthentic film. Interestingly the aforementioned

quote does not explicitly reveal Lucas's overtly hard optimist stance toward HD digital camera technology.[10] However it does reveal that he is not immune to the myth of celluloid as cinema's ideal aesthetic referent. After all he is proud that the cinematic look generated by his 24p HD Cine Alta F900 digital camera is identical to that produced by 35mm celluloid cameras.

## 3.3. DIGITAL CAMERAS: THE DIGITAL REVOLUTION AND DIYISM

**"I can tell you with certainty, I'd still be farting around making short films if it wasn't for the DV revolution"**

Filmmaker Eric Eason (qtd in Eaton 2003).

**"With digital, it's really been giving a democracy to filmmaking...It's not to say we're going to have better films, but more people will be able to make films. And so to say you don't have enough money to make a film is no longer an excuse. If you have an idea, you can make a film"**

Filmmaker Spike Lee (qtd in McKernan xi).

From the mid-1990s to the present day, the Do-It-Yourself (DIY) phenomenon, commonly known as DIYism, has come to be associated with digital camera technology, within the independent film community. In this period, the technology has become one of two basic catalysts (the other being non-linear digital video editing software) encouraging independent filmmakers to uphold the ethos's proactive motto *just do it*. As a result, DIYism has become synonymous with the notion of *just go ahead and use digital camera technology to shoot your film* at the production stage. In their aforementioned quotes, Eason and Lee reveal that independent filmmakers, ranging from emerging to well-known ones, do not simply regard digital revolution as a change in the use or preference of one type of technology (i.e. celluloid camera technology) for another (i.e. digital camera technology). It also is not the notion that digital camera technology represents a completely new and revolutionary form without an analog precedent. For them, a digital

revolution in fact refers to the DIY spirit inspired by digital camera technology's affordability and functionality.

Based on the diptych of goodness, the DIY spirit focuses on four main artistic objectives that the late avant-garde filmmaker Maya Deren managed to realize on 16mm film technology fifty years ago. These centre on (1) the desire to create personally meaningful work outside of a studio environment in which one may be pressured to satisfy a certain demographic; (2) the aim to exercise authorial control over all or a large degree of the filmmaking process; (3) the need for ample time accorded to technical and artistic experimentation; and (4) the desire to express one's artistic sensibility by making the film of one's choice (Zimmermann 132).

Chilean-American video artist Andres Tapia-Urzua, who has observed the independent film community's use of digital camera technology, remarks that the four objectives above are as relevant for today's independent filmmakers as they were for Deren: "[Independent filmmakers] who champion digital cameras are doing it as a practical alternative to more expensive and mainstream ways of film production [i.e. celluloid film production] that are practiced by the culture industry [i.e. major motion picture film studio industries, such as Hollywood and Bollywood]" (2003-2005). Jean-Marc Barr's own artistic objective for using digital camera technology to shoot his debut feature film *The Lovers* reflects Tapia-Urzua's reasoning. Barr explains that the digital camera technology used in von Trier's *The Idiots* and Vinterberg's *Celebration* inspired him and his filmmaking partner Pascal Arnold to do their first feature on digital video. In this explanation, he admits to their desire to achieving the four aforementioned objectives:

> Pascal [Arnold co-screenwriter] and I were just inspired by what happened at Cannes in 1998. Suddenly you had two films in competition that were shot on digital video, and *Festen* [*Celebration*] won the Jury Prize, and all of a sudden it gave the format credibility. It felt like the *nouvelle vague* [the French New Wave], when the shoulder-mounted 16mm cameras came along and put production into the hands of the director themselves. I think that Lars, by using this digital technology, put himself into that same position. And with *Lovers*, we wanted to try the same; to do what we want, and not just follow the same rules and marketing systems that have defined the cinema for the last 20 or 30 years (qtd in Kelly 37).

Through this quote, Barr shows that financial and technological access to digital camera technology motivated Arnold and him to realize their dream of shooting a feature film outside of a studio system and of assuming full creative ownership over their production. First the fact that *Celebration* was shot cheaply on digital tape with an affordable prosumer camera demonstrated that digital camera technology could be a cost-effective way for them to shoot their first feature. Second the fact that digital camera technology is more user-friendly than celluloid camera technology (due, for instance, to its handheld portability, lightweight, low-light sensitivity threshold, and easy-to-maneuver control features), revealed that it was an easier technology for Barr to use as a first-time camera operator.[11] Since Barr wanted to shoot the film himself, the technology enabled him to do so and feel as if "the production was in his hands" as a director. Interestingly Barr draws an ideological parallel between the DIY ethos of the French New Wave and that of the Dogme 95 film movement. Both European filmmaking movements, like American avant-garde filmmaker Maya Deren, espouse the importance of retaining full artistic control and rebelling against the perceived conventionalism of studio-made films which generally promote the pro-classical Hollywood realistic aesthetic. All three filmmaking movements therefore support the creation of films that defy the conventions of any country's studio system. Tapia-Urzua relates this studio system to a culture industry that traditionally

relegates "less commercially successful, critical, or non-conformist views of reality to the margins of the filmic experience" (2003-2005).

In the same statement, Barr also explains why Vinterberg's use of a pared-down aesthetic was a major inspiration for him and Arnold. Vinterberg's depiction of fictional cinematic realism challenges "the same rules" (i.e. the conventional, refined look of fictional realism conveyed by mainstream Hollywood fare). It made Barr and Arnold realize that this aesthetic could be a legitimate look for film. Additionally Vinterberg's employment of a digital camera to create this look proved three other things for them. First Vinterberg showed that a digital camera could be a credible medium for feature film production. Second he revealed that they still could be considered legitimate filmmakers, if they used it to generate this particular visual style. Lastly he revealed that a film does not need to be shot on celluloid to be regarded a "real film." Barr adds: "[T]hey [i.e. aspiring independent filmmakers] look at Dogme [films] and think, 'If that's a film, then we can make films too.' Instead of just thinking, 'Oh if it doesn't look like *Star Wars*, then we can't make a film' (qtd in Kelly 146). Earlier in this chapter, Barr does admit that he idealizes the look of a film shot on 35mm film. In so doing, he sustains the myth privileging celluloid's look as the ideal visual reference of cinematic beauty. However he reveals that his decision to shoot his digitally and endow his first film feature with a pared-down aesthetic is not only based on the diptych of goodness. It is also predicated on his artistic desire to challenge the public's conventional notions of what a "legitimate feature film" should look like and what a valid feature filmmaking medium should be.

In her study of information media, Carolyn Marvin (1987) focuses on the digital view of information. This perspective deems digitally produced and/or mediated information more significant than its non-digitally produced and/or mediated counterpart

since the former is structurally easier and faster to multiply into large amounts (59). One major problem with this view is that it regards quantity, rather than content, as the index of informational worth. Marvin's concern over this line of thinking is similar to that of independent filmmakers including well-known cinéastes Steven Soderbergh and Spike Lee, producer John Manulis, and director of photography Mike Caporale. They champion the fact that digital camera technology's affordability and functionality can inspire aspiring filmmakers to go out and shoot their first feature film. However they are concerned that the DIY ethos may mislead such neophytes into assuming that their mere access to digital camera technology, which renders filmmaking easier and more widespread, will turn them into great filmmakers overnight or enable them to make great films. In short Marvin is critical about the digital view that quantity equals quality. On the other hand, these film practitioners are worried that the DIY ethos may make the newcomers think that access necessarily generates quality.

For instance, Spike Lee, at the start of this subsection, champions the fact that emerging filmmakers can make films due to digital camera technology's cost-effectiveness. However he warns them that their use of such technology will not in and of itself enable them to make better films. Similarly Steven Soderbergh, who shot his independent feature *Bubble* (2005) on a high definition digital format, echoes a supportive but cautionary tune:

> [S]omeone who has an idea with not a lot of money can go and make a really good-looking movie. Now when young filmmakers come up to me and ask if they should go to film school I say 'No, you should go buy some equipment and make a film...Just because you *can* make a movie doesn't mean you should. But I like the egalitarian aspect of it (qtd in Johnson 2005).

Soderbergh's support for the DIY ethos stems from the belief that the affordability and functionality of SD and HD digital camera technology can allow aspiring filmmakers to shoot a professional-looking film cheaply and easily. Like Lee, he however remarks that one's access to such technology does not automatically enable one to churn out high quality work; therefore one should consider this fact prior to embarking on a digital film project.

Lee's and Soderbergh's support for and concern about the DIY ethos in relation to digital camera technology reflects the soft determinist stance of experienced members of the independent film community. For such filmmakers, digital camera technology is a financially and technologically democratizing force for neophytes due to its cost-effectiveness and easy operability; its power for them is limited to these benefits. From their perspective, there does not exist any one formula for generating a "good film." There are numerous external factors working in combination with digital camera technology to create quality work. In an interview with Mike Caporale, Brian McKernan learns from the seasoned cinematographer that one such external force is a filmmaker's innate talent to weave a good yarn: "I am thrilled at the democratization that digital filmmaking brings. But just being a independent [digital filmmaker] doesn't mean you'll have a watchable, exciting, engaging film any more than if you have lots of money and stars. There has to be good storytelling" (144). In a separate interview with John Manulis, an independent producer at Visionbox Media in California, McKernan also finds out that another external factor is experience:

> The marketing pitch by equipment manufacturers that says: 'Pick up a camera, anyone can make a movie' just isn't reality...The fact is that 'just anyone' *can't* just make a movie. You need expertise and experience or you have to do an awful lot of testing and workshopping on your own to acquire such experience. This

> doesn't diminish my enthusiasm for what digital formats offer, it's just that there's...more to filmmaking than getting a digital camera (131).

Through the statements above, Caporale and Manulis propose that external factors such as skill, talent, and experience, can in combination with the use of digital camera technology produce a good film. Nevertheless they admit that aspiring filmmakers must become aware of other external factors that could prevent them from theatrical exhibition. One challenge is the fact that cinemas are still transitioning to a digital projection platform. Therefore many theatres are not yet equipped with digital projectors. Consequently independent filmmakers or their production companies (if they are fortunate to be associated with one) must raise funding to pay for the conversion of a SD or HD digitally-shot film to 35mm film master.

Another major obstacle is investors or distributors who are reluctant to fund or distribute digitally-shot films because they assume that all digitally-shot films – including those in HD format – sport the pared-down Dogme aesthetic. For instance, Manulis admits that he has had to convince skeptics that HD digital cameras can in fact mirror the look of 35mm film (McKernan 134). This situation illustrates two possible hurdles for digital filmmakers. Those who imbue their film with a pared-down aesthetic may be hard-pressed to obtain finishing funds or distribution deals from financiers or distributors who only support projects that look indistinguishable from 35mm films. In contrast individuals who shoot on a HD digital format must convince these same skeptics that digitally-shot films in fact can replicate the look of 35mm films.

Lee, Manulis, Caporale, and Soderbergh are concerned that aspiring filmmakers' sense of DIYism, inspired by their financial and technological access to digital camera technology, might lead to the creation of poorly crafted films. Nonetheless these

experienced independent film practitioners all support this pro-active philosophy of self-empowerment among neophytes. Lee and Manulis summarize their collective sentiment. Lee notes that "[w]ith this digital stuff, you can just go out and make a film. Not everyone can make a good one – but you can make a film. And you can use that to get better" (October 2005). In similar manner Manulis says "I think we'll still see the same rate of good product to bad...But if new technology [i.e. digital camera technology] helps creative ideas to be viable either because of lower economic thresholds or because of self-improvement...I think that's better and it can only lead to exciting work" (qtd in McKernan 138). All in all, Lee and Manulis reveal experienced independent filmmakers' compromise: They are willing to accept the proliferation of mediocre digitally-shot films since emerging filmmakers' financial and technological access to digital camera technology will engender an equal number of great digitally-shot films. In sum these experienced filmmakers, who once were aspiring independent directors, directors of photography, or producers themselves, realize the following: To ensure the continued survival of risky, innovative, and controversial narratives within the independent film community, they must accept the fact that the DIY ethos, which is tied to digital camera technology, will inspire both the creation of good – and bad independent films. This chapter has demonstrated that digital camera technology can inspire DIYism among independent filmmakers at the production stage. The subsequent chapter shows that Apple's digital non-linear editing (NLE) software Final Cut Pro inspires it at the post-production phase.

# ENDNOTES FOR CHAPTER THREE

[1] Davis directly alludes to this fact in Chapter Five.

[2] In fact InDigEnt, the production company behind *Personal Velocity*, demanded that filmmaker Rebecca Miller shoot her film on the digital video (DV) format as a cost-saving measure. Additionally Jacob Kornbluth admits that he relied on digital filmmaking in order to be able to shoot *The Best Thief in the World* (McKernan 146).

[3] Ironically Levring, who sought a pared-down aesthetic in the Dogme tradition, wanted his actors to feel as if they were on a stage. His intention was to make them forge a deeper connection with their characters and make them forget that cameras were filming them.

[4] It is assumed that American Cinéma Vérité is the genre to which Cooke refers since this documentary style is renowned for its use of hand-held cameras and rapid, improvisational filmmaking.

[5] My concept of the classical Hollywood realistic aesthetic focuses on the fictional realism depicted in narratives based on the classical Hollywood paradigm. The classical Hollywood paradigm is considered the most dominant and widely used narrative form in cinema worldwide. Traditionally a film based on this model contains a conflict, a climactic build-up, and a formal closure or resolution. Its visual style is functional and rarely distracts from the characters who must drive the narrative forward linearly.

Since it was shaped in the Hollywood studio system from the mid-1900s to the late 1920s, the classical Hollywood visual style is marked by strong production values that exude a high level of technical sophistication. This style's prominent features include well-lit set-ups (created through three-point lighting), compositionally well-balanced mise-en-scènes, steady and controlled camerawork, and continuity editing (which maintains continuous and clear narrative progression). Thus the realism depicted through the classical Hollywood realistic aesthetic found in contemporary fiction films is marked by this aesthetic. For more information on classical Hollywood cinema, see David Bordwell and Kristen Thompson. *Film Art: An Introduction. 5th Edition.* New York: McGraw Hill Companies, 199. 108-23; Louis Giannetti. *Understanding Movies. 5th Edition.* Englewood Cliffs, New Jersey: Prentice Hall, 1990. 46,47,304-9, 442.

[6] For instance, Davis could carry a SD digital camera due to its small physical size and follow her characters into a car. If she were shooting on 16mm film, she would have to shoot people getting into the car or in the car. She would not be able to follow them in due to the heavier, bulkier frame of the technology. This would result in a less immediate and less visually realistic interpretation of an action since the ability to follow them into the car would give the impression of following the trajectory of a home video.

Davis's view of digital camera as a medium whose visualized mobility inspires greater cinematic realism is similar to that of Iranian filmmaker Abbas Kiarostami. Recalling his use of a digital camera in *Ten is World,* a drama about six women's emotional lives, Kiarostami makes the following observation: "It's a film that takes place in a closed space – a car…It's possible [due to the use of digital camera technology] to forget the camera, to be just a witness" (qtd in Doland D10).

[7] The interesting factor to consider is that the use of digital cameras is not directly mentioned in the Vows of Chastity. However most Dogme filmmakers utilize digital cameras since it makes following rule #7 – to have all filming done handheld – more technically easy and affordable.

[8] Two other proponents of the pro-regular movie realistic aesthetic are cinematographer Ellen Kuras and filmmaker Jacob Kornbluth. Earlier in this chapter, they mention that they use artificial lighting to make their respective digitally-shot films look "special" or "good." Looking "special" or "good" implies looking like a film shot on celluloid.

[9] This topic is covered briefly in Chapter One.

[10] Discussing the benefits of digital production and post-production technologies, Lucas reveals his hard optimist stance:

> [Digital production technology] gives the artists a whole range of possibilities that they really never had before...The [digital production equipment] is easier to use and at the same time, it allow you to...do more things than you'd normally be able to do. And then once you've captured the image, the digital [post-production] technology allows you to do an unlimited amount of changes and work within a lot of different parameters that just were not available with the photochemical process (qtd in McKernan 31).

Through this statement, Lucas wants to make two points. The first is that digital production and post-production technologies enable filmmakers to accomplish feats impossible to do through celluloid camera and analog editing technologies. The second is that such technologies allow them to accomplish tasks impossible to do outside of a digital realm. His insinuation that digital production and post-production technologies endow filmmakers with the power to do the previously unimaginable or undoable implies that one's agency is secondary to the technology. A soft determinist, on the contrary, would argue that the technology, human will, and other social factors collectively enable filmmakers to achieve the previously unimaginable or undoable.

[11] Barr does admit that he served as the film's camera operator, apart from being its co-scriptwriter and co-director: "At first we [he and film partner Pascal Arnold] hired a camera operator but two weeks before we actually started shooting, we realized we would be trying to explain to the operator what we could maybe do ourselves. So Pascal told me to hold the camera myself and I did...And the camera really becomes your eye. It brings a new dynamic, and, I think, a kind of humanity to what you're doing. I mean, this is a great tool for intimacy" (qtd in Kelly 41).

# CHAPTER FOUR: DIGITAL POST-PRODUCTION

**New digital postproduction technologies have significantly impacted moviemaking...Why has this happened? Because these new digital cinema postproduction technologies improve the tools of creative expression, provide better control over the moviemaking process, and – in some cases – even save money.**
**Digital cinema scholar Brian McKernan (84)**

## 4. FINAL CUT PRO: DEMOCRATIZING VISUAL POST-PRODUCTION

At first glance, McKernan's statement seems like a succinct way to describe all forms of professional digital non-linear editing (NLE) technologies, such as Final Cut Pro, Avid Media Composer, Avid Xpress, and the increasingly scarce Lightworks and Media 100. It can be argued that the phrases "improving the tools of creative expression" and "provide better control over the movie-making process" refer to improved technological efficiency. This trait sets digital NLE technology apart from traditional analog film editing technologies. These include the Moviola, which was popular from the 1950s to the 1970s, and flatbed editing machines (such as Steenbecks and KEMs), which usurped the Moviola's popularity in the 1970s and was used frequently until the mid-1990s.

However a deeper reading of the two phrases reveals that they also refer to the trait of user-friendliness. If one pairs this characteristic with that of cost-effectiveness, to which the phrase "save money" alludes, it becomes evident that at present there is only one professional digital NLE software that is inherently affordable and functional and that is becoming increasingly popular within the independent filmmaking community – Apple's Final Cut Pro. For independent filmmakers, this particular digital visual post-production software represents financial and technological access to cinematic visual post-production. It enables them to engage in visual post-production on feature-length films, fictional or documentary. After all it can be used to edit footage shot on SD and HD digital cameras and, at the same time, create a detailed Edit Decision List [a

computerized list of instructions to be used as a guide, when cutting the actual negative of footage shot on celluloid] for celluloid-shot footage.

Using the same methodological structure as Chapter Two, this chapter examines Final Cut Pro through an in-depth textual analysis of excerpts of published online or print interviews and discussions with film practitioners. They range from unknown and emerging to well-known and experienced fiction feature filmmakers, documentarians, and editors. All belong to the independent film community in the U.S. except for Walter Murch, a picture and sound editing icon who is based in the Hollywood studio industry. However his comments are as pertinent for his studio cohorts as for independent filmmakers. Those categorized under the *emerging* rubric include graduate film student Charles Wachter, director/editor Jacob Kornbluth, TV commercial director-turned-documentarian Mark Foster, and actor-turned-director/picture editor Jonathan Caouette. Those who fall under the *experienced* category include documentarians Michael Tucker and Eric Peltier, post-production supervisor/picture editor Michael Cioni, picture editor/compositor Patrick Inhofer, director/picture editor Mike Curtis, picture editor Harry Marks, and producers John Manulis and Howard Gertier. There is also a group of relatively unknown independent picture editors who participate on the dv.creators.network forum, an online discussion board for independent filmmakers. With the exception of one participant who identifies himself by his real name Jerry Hofmann, the rest of these individuals go by the pseudonyms "Newbie," "Scotty," and "Patrick Mac."

Although these practitioners all come from North America, their perspectives are insightful for the international community of independent filmmakers for two reasons. First they represent a varied microcosm of independent filmmakers at various stages in

their career. Second the majority has used – or is knowledgeable about – the two most popular forms of digital NLE technologies, Avid Media Composer and Final Cut Pro. Additionally Kornbluth and Murch have used both digital and non-digital picture editing technology. Such experience demonstrates that these individuals' perspectives collectively can provide nuanced comparisons of the financial and technological differences among Final Cut Pro, Avid Media Composer, Avid Xpress, and even traditional (i.e. non-digital) picture editing systems.

Such perspectives are therefore integral to my study on Final Cut Pro's function as a financially and technologically liberating force in the realm of visual post-production. I intend to scrutinize their views as well as those offered by digital media scholars Don Slater and Michele Pierson and media analysts Brian D. Johnson and Damien Cave. Informed by their perspectives, I demonstrate that Final Cut Pro is democratizing because it assumes three roles that overtly challenge the myth of digital visual post-production as an unaffordable, complex endeavor for independent filmmakers with limited post-production budgets and editing experience. Representing these three personas, Final Cut Pro serves as (1) a diptych of goodness (whereby goodness constitutes cost-effectiveness and user-friendliness); (2) a catalyst for the Do-It-Yourself (DIY) phenomenon synonymous with "a digital revolution" in the realm of post-production; and (3) a conduit for creative self-expression. Embodying any of these three incarnations, Final Cut Pro is invariably compared to its market rivals Avid Media Composer and Avid Xpress. All in all, my textual analysis shows that Final Cut makes the visual post-production process more economical and functional for the independent film community than its competitors.

In this same analysis, I also explore how Final Cut Pro's role as an affordable, easy-to-use technology can be challenged by internal factors (e.g. its inherent technical

limitations) and external forces (e.g. the overall priciness and complexity of an uncompressed high resolution online edit). I also observe how Final Cut Pro users respond to the myth of celluloid as the idealized aesthetic referent. Ultimately this study illustrates that independent film practitioners' use of Final Cut Pro to edit their films is marked by a self-internalized acceptance that the software's diptych of goodness outweighs internal or external obstacles. It also shows that Final Cut Pro challenges the myth of financial and technological inaccessibility but nonetheless sustains the myth of celluloid's look as cinema's standard of aesthetic excellence. It accomplishes this feat via its on-screen visual interface and its function as a reliable software for digitally-shot *and* celluloid footage.

## 4.1. FINAL CUT PRO'S DIPTYCH OF GOODNESS

Avid Technology's digital NLE software/hardware system, Avid Media Composer, rose in prominence in the mid-1990s. Since then it has gained recognition as the de facto industry standard for visual post-production among high-end feature film and commercial TV editors. However Final Cut Pro has been building a steady and loyal following within the independent film community ever since Apple released the 1.0 version of software in the consumer market in 1999. One major reason is the fact that Apple has been successful in infiltrating sectors in North America which have been housing or fostering members of the independent film society over the last seven years. These include Canadian and American academic institutions with filmmaking programs, such as New York University (New York City), Concordia University (Montreal), and York University (Toronto), and independent filmmaking cooperatives, such as Main Film (Montreal), Trinity Square Video (Toronto), and Film/Video Arts (FVA) (New York City).[1] Two other significant

factors are Final Cut Pro's overt cheapness and user-friendliness compared to Avid Technology's two incarnations, Avid Media Composer and Avid Xpress.[2] Both factors deserve to be called a diptych of goodness since they enable independent filmmakers to post-produce their films more cheaply and easily. The following two subsections concentrate on these two virtues.

### 4.1.1. FINAL CUT PRO'S INHERENT COST-EFFECTIVENESS

An immense disparity exists in the respective retail price of Final Cut Pro, Avid Media Composer, and Avid Xpress. In 2001, the Final Cut Pro software retailed for $500 (USD) and students could obtain it at half-price with educational discounts. In contrast Avid Media Composer, which combines hardware and software in a single unit, cost $80,000 (USD). In this same period, Avid Xpress emerged to compete cost-wise with Final Cut Pro but still retailed at $1250 (USD). This cost disparity has continued to exist to this day.[3]

Three independent cinema practitioners, at varying stages in their filmmaking career, demonstrate that Final Cut Pro's affordability enabled them to do visual post-production on their films. In 2000, Charles Wachter was a graduate student in New York University's film program. At the time, the cheap cost of Final Cut Pro, in combination with its reputation as being second in popularity only to Avid Media Composer, compelled him to use the software to offline-edit his 10-minute 16mm film *Broken Ocean*. Reminiscing over Final Cut Pro's ability to mesh borrowed film footage with his own 16mm film footage, he comments on the software's cost-effectiveness:

> Cheap editing is key to young filmmakers...if it weren't for [my friend-picture editor] Savvas's G4 [Apple computer] and Final Cut, there is no way I could have pulled off [editing] a movie set in the North Atlantic but shot on the

> Hudson...Final Cut is the last component needed to fully democratize film (qtd in Cave 2001).

Like Wachter, Mark Foster, a TV commercial director-turned-documentarian relishes his ability to afford to own Final Cut Pro. He used it on his home computer to offline-edit his documentary *69 Minutes of Fame*, an exposé on punk rock bands. He says:

> Whenever people try to do an independent project, any kind of independent project, they have to quit and work on other things that will make them use an Avid [Media Composer], it's going to take longer and cost you an arm and a leg just to rent one. But with Final Cut, you can do it cheaper and faster on your own computer (ibid).

Foster's relief that Final Cut Pro frees him from the financial burden of purchasing Avid Media Composer or even Avid Xpress, is shared by director/cinematographer Eric Peltier. Peltier and co-director Catherine Margerin shot *Hope* (2004), an 8-minute documentary short about a Cherokee artist-activist on the 24p HD digital camera format. They then relied on Final Cut Pro and Motion (a Final Cut Pro-compatible visual effects software) to weave together the 24p HD footage, animation, and archival footage. Peltier remarks: "Without Apple technology, this project would not have been possible...A few years ago, it would have cost millions to produce anything like this" (qtd in Kliegel 2005).

Through their respective statements, Wachter, Foster, and Peltier demonstrate that Final Cut Pro's relative affordability makes it financially democratizing. Their conviction that Final Cut Pro's cheap costs allowed them to purchase it and picture-edit their projects on their own computers illustrates one significant point. Final Cut Pro can shatter the following shared reservation: Visual post-production, at the offline edit stage, is an unaffordable and therefore financially inaccessible venture for independent cinema practitioners, including film students, emerging documentarians, directors, and producers

affiliated with non-profit organizations. Through their respective statements, they also reveal their hard optimist position on Final Cut Pro. They imply that it would be financially unviable for them to do visual post-production work on their respective films without Final Cut Pro. They regard the software as the sole means through which they can piece together their respective films. They do not consider other forces (e.g. one's skill as an editor) that, in combination with the technology's cost-effectiveness, could have led to the actualization of the visual post-production process.

In addition all three overlook one obvious factor preventing digital visual post-production from being a completely economical endeavor – online picture editing. At the first stage of the visual post-production process, doing the offline edit on a home Apple computer equipped with Final Cut Pro is an obvious cost-saving measure. However the online edit (which consists of colour correcting and picture editing a project in a digitally uncompressed format) is invariably expensive. For instance, an online edit of a 40 minute film could cost $5000-$6000 (CDN) for an online editor's service and online suite rental. Additionally the cost of a fully equipped online editing suite is in the $100,000 (CDN) range, making it unaffordable for any independent filmmaker on a modest budget to own. Nonetheless Final Cut Pro still serves as a more economical alternative to Avid Media Composer or Avid Xpress. The bulk of time and work in visual post-production is spent on the offline edit. As such the total cost of doing offline and online edits on an Avid Media Composer or Avid Xpress platform at a rented studio would be considerably more expensive than doing a Final Cut Pro offline edit on a home computer and an online Final Cut Pro edit in a professional studio. This fact gives credence to the notion that Final Cut Pro makes visual post-production a more – if not completely – cost-effective endeavor than Avid's two editing solutions.

In their respective online articles, independent picture editors Patrick Inhofer (2006) and Mike Curtis (2004) conclude that Final Cut Pro's quality as a digital NLE technology is on par with the professional standards demonstrated by Avid Media Composer and Avid Xpress. Their conclusion begs the following inevitable questions: Why is it that Avid Media Composer, as a software/hardware system, is costlier than a combination of Final Cut Pro and the most expensive Apple computer on the market, the PowerMac G5? One reason relates to their respective target clientele. Aiming to maximize its profits, Apple seeks a broad consumer market ranging from professional picture editors to hobbyists, through Final Cut Pro. In contrast Avid Technology caters exclusively to film and TV industries and therefore needs to keep its costs high to remain afloat. Curtis alludes to this difference: "Apple DOESN'T CARE about how much Final Cut Pro costs, they just want to sell boxes. That's their market. Avid ONLY sells editing stuff, and depends on that for their future and profit" (" Some Non-Definitive Thoughts" 2004).

Independent filmmaker Jerry Hofmann offers another logical reason for Avid Technology's exorbitant costs: "Take a look at their product line. Avid [Technology] tends to market to, and create products for broadcasters...where money is no object...To get parity between say a Final Cut Pro HD system [the software's fifth and most current version] and an Avid [Media Composer] which will edit HD, you have to spend about 3-5 times as much money on the Avid" (2005).

Interestingly Avid Media Composer and Avid Xpress continue to exercise their dominion over the cinema and TV entertainment industry even if Final Cut Pro continues year by year to infringe on their market share (McKernan 89). Avid Technology boasts that 90% of all U.S. primetime TV shows, 80% of all TV commercials and 85% of all

feature films (in North America) use Avid editing systems (Avid Xpress 3.5 Press Release). This stronghold is based on the industry mindset that ties the costliness of Avid's NLE systems to professionalism. In short, Final Cut Pro's role as a financially democratizing force shatters the myth that digital visual post-production is financially inaccessible to independent filmmakers on limited budgets. By the same token, Avid's continued dominance rests on the myth that only an expensive digital post-production software/system can be considered a legitimate technology for industry use since its costliness validates its professionalism. Michael Cioni, a post-production supervisor and picture editor at PlasterCITY Digital Post, a post-production house specializing in independent features for film and television, reveals the conceptual gap in this myth:

> [I]t has been my experience that many industry professionals consider non-industry standard technologies [i.e. Final Cut Pro] unfit for professional projects. In business, many new software-based tools cost much less than traditional hardware-based tools and are therefore rendered (merely based on list price) as 'non-industry standard'. Most of the time cheaper tools influence people not to use them with the assumption that they don't 'measure up.' But when did COST become a factor in determining what is or isn't an 'industry standard'? (2005).

Cioni's theory of a *cost bias* linking expensive digital visual post-production technology to professionalism explains the difference in opinion between staunchly anti-Final Cut Pro Avid users, and pro-Final Cut Pro users. The former group (consisting predominantly of editors of feature films and commercial TV programs) opposes the use of Final Cut Pro quite simply because they relate the software's cheap costs to its lack of professionalism. The latter group (consisting of the independent filmmaking crowd) is aware that Final Cut Pro is financially democratizing because it can be used to edit material shot on video or celluloid film and still generate professional results.

Pro-Avid proponents who scoff at Final Cut Pro claim that Avid Media Composer more effectively generates Edit Decision Lists (EDLs) for celluloid footage (Cave 2001).

The fact that their prime concern about Final Cut Pro centers on the ease of EDL creation, rather than on the quality of EDL outputs, reveals that they are hard-pressed to find much fault with the overall quality of work and must resort to critiquing one minute aspect of the process. For Jerry Hofmann, this critique over EDLs does not justify spending three to five more times on renting an Avid system than on working on a Final Cut Pro platform. From Hofmann's soft determinist standpoint, "No NLE made a better edit decision than the next, and there's very little you can't do with the new [Final Cut Pro HD] studio suite" (2005). Hofmann shows that good editing (represented by the creation of Edit Decision Lists) cannot be created without an editor and that Final Cut Pro HD has all that an editor needs to perform well. For him, a combination of human agency (e.g. an editor's talent) and Final Cut Pro's technological benefits (discussed in the next subsection) determines a well-edited product, or whether one EDL is better than the next. However the fact that an editing system [i.e. an Avid NLE system] is three to five times more expensive than another [i.e. a Final Cut Pro system] is an insufficient way to determine whether a well-crafted edit can emerge. It should be pointed out that Final Cut Pro critics' concern over EDLs reinforces the use of celluloid to make feature films. Consequently they sustain the myth that associates the look of a celluloid-shot film with the standard aesthetic of cinema.

Like Hofmann, Final Cut Pro user Patrick Mac, debunks the myth relating the costliness of Avid's digital editing systems to professional quality:

> Purchasing a professional Avid system...is very expensive. What's worse is the price of upgrades. Avid owners are abandoning their systems for Final Cut Pro by the droves. Don't fall for the 'Avid is what the professionals use' line...it's bunk. Remember, 99% of your edits are either going to be a cut or a dissolve. You don't need to spend 40 or 50,000 dollars [USD] [i.e. on an Avid editing suite] to do that (2005).

Mac shows that Avid loyalists espouse the rhetoric endorsing Avid as the sole choice of professionals. For instance, Doug Wellman, a former director of the TV show *Facts of Life* and a professor at the University of Southern California (USC) School of Cinema, pledges allegiance to the Avid editing system. According to him, it is "what the pros use" (qtd in Cave 2001). Mac's and Hofmann's shared frustration with the expensive price tag on Avid systems and Avid system upgrades reflects the increasing discontent among picture editors who have been veering toward Final Cut Pro in the last seven years. At FilmCore, a San Francisco post-production firm specializing in high-end commercials, executive producer John Ettinger elaborates on this discontent: "They [Avid] have pissed a lot of people off...They announce upgrades to their system, then don't make it compatible with older versions, so what you just bought often becomes quickly obsolete. Then you have to go back and buy everything through Avid. It's quite a racket" (ibid). Although Ettinger made this statement five years ago, it, like Patrick Mac's, still remains relevant.

In the last three years, three high-profile cases have dispelled the myth that professionals only use Avid editing technology for cinema or TV picture editing.

In 2002, Oscar-winning American picture editor Walter Murch stunned the post-production community with his decision to use Final Cut Pro to edit Anthony Minghella's $60 million (USD) epic *Cold Mountain* (2003). Like that of many other converts, his reason for switching from Avid Media Composer to Final Cut Pro was economic. For what it would have cost him to rent a single Avid Media Composer platform, he was able to obtain four PowerMac G4 computers loaded with Final Cut Pro (Crabtree 2002). In 2003, the Coen Brothers followed suit when they edited their feature film *Intolerable Cruelty* on two PowerMacs loaded with Final Cut Pro. Like *Cold Mountain*, it was also

shot on 35mm film. In 2004, the NBC sitcom *Scrubs* became the first TV network series to be edited on Final Cut Pro.

These three separate instances corroborate Patrick Inhofer's conclusion that Final Cut Pro, like Avid Media Composer, can deliver professional quality results and that independent filmmakers on limited budgets can employ it to obtain such results. Although the aforementioned conclusion is reasonable, Inhofer's overall hard constructionist stance is problematic: "The only reason to choose one platform over the other is personal preference...because good talent will overcome software and workflow issues" (2006). From Inhofer's perspective, an editor's talent is the sole factor to consider at the visual post-production stage since it would enable anyone to weave a well-edited film on any digital NLE platform. He overlooks the fact that costliness, an inherent limitation of Avid Media Composer and Avid Xpress, encourages independent filmmakers to rely on Final Cut Pro at the post-production stage. Inhofer disregards the fact that when independent producers or filmmakers enter this stage, they cannot only consider human input, represented by an editor's skill and expertise. They also must take into account the affordability (or lack thereof) of digital NLE systems capable of professional output.

### 4.1.2. FINAL CUT PRO'S INHERENT USER-FRIENDLINESS

Within the realm of cinematic visual post-production, one interprets user-friendliness, the second virtue in Final Cut Pro's diptych of goodness, in two ways. The first centers on how Final Cut Pro is more user-friendly than Avid Media Composer and Avid Xpress. The second focuses on how digital NLE in general offers greater functionality than analog picture editing technology (encompassing non-digital film editing machines on which editors cut and splice physical, not virtual, film). Both deserve to be explored.

### 4.1.2.1. FINAL CUT PRO V. AVID NLE TECHNOLOGY

> Anyone can get [i.e. understand] Final Cut...It's accessible and stable. Avid's probably a little afraid because they've made [editing] such a black art.
>
> Freelance picture editor Harry Marks (qtd in Caves 2001).

Through his quote above, Marks succinctly reveals that Final Cut Pro's service as a technologically democratizing force relates to its ease in operability. According to him, it makes digital NLE technologically accessible for independent filmmakers who want to edit their own films (due to tight budgets or a desire for greater editorial control) but are intimidated by the relative complexity and costliness of Avid's digital editing systems. It breaks the illusion that visual post-production (at the offline editing stage) is a black art reserved exclusively for highly experienced and trained craftspeople.

Final Cut Pro's functionality is manifested one of two ways. The first relates to the software's compatibility with popular third-party imaging software Adobe Photoshop and 2D/3D visual effects program Adobe After Effects. According to independent TV producer and picture editor Peter May, importing or exporting Photoshop and After Effects files to and from an Avid system requires a complicated multi-step conversion process with image quality degradation. In contrast, After Effects files, which use the same QuickTime source files as Final Cut Pro, can be brought in or brought out of Final Cut Pro without any generation loss. Similarly Photoshop files can be imported easily into Final Cut Pro as jpeg files. On the dv.creator.network online discussion board, a participant nicknamed "Scotty" admits that his preference for Final Cut Pro over an Avid editing system is due to the former's relative affordability and compatibility with third party software programs: "To build a solid Avid system, it's a huge investment, and for me I would not be willing to spend that much money on a system...Other than that, I like

the seamless integration between Final Cut Pro and Photoshop, After Effects, and [Apple's 2D/3D visual effects software] Motion" (2005).[4]

The second way in which Final Cut Pro reveals its user-friendliness is through its intuitiveness. The intuitive nature of Final Cut Pro's onscreen controls refers to the logical way onscreen tools respond to an editor's commands made through mouse clicks or keyboard strokes. This ultimately makes the editing process an easier learning process for beginner or inexperienced independent picture editors. In all likelihood, these are filmmakers who are obliged to edit their own works due to financial constraints. On the same discussion board, an anonymous participant who goes by the pseudonym "Newbie" explains that such intuitiveness is what makes him prefer Final Cut Pro over Avid Xpress:

> Avid controls are not 'intuitive' like most editing systems. For example, if you want to trim back a clip in the timeline in Final Cut Pro you can place your pointer at the end of the clip and the pointer will change its function [i.e. to the icon for a stretch or shrink command]. In Avid, for EVERY function you must select a trim tool...This goes for the attributes of the clips as well, if you want to shrink the clip to 50% you must put a PIP [Picture in Picture] effect on it, if you want to reduce its transparency, you must use the transparency effect on it. In FCP [Final Cut Pro] most of these options can be found on the attributes tab already associated with the clip.[5] I could go on and on, but let's just say you get way more bang for the buck with FCP. To be completely fair, I will say that I am glad I have Avid, because after all it is an industry standard and most editing facilities around here (Atlanta) use it. Also when you purchase Avid you receive both the Mac and Windows versions which is a good offer...But overall, I honestly think I wasted my money [on an Avid system] (2005).

Through this very detailed statement, Newbie reveals his soft determinist perspective regarding Final Cut Pro's function as a technologically democratizing force. For him, Final Cut Pro's overall functionality makes editing a less rigid and more enjoyable experience. In fact the lack of intuitive controls makes digital editing a needlessly repetitive, rigid, and cumbersome experience. At the same time, Newbie shows that his decision not to invest in a Final Cut Pro system is motivated by several factors. These

include his regard for an Avid system as the de facto industry standard in editing, the post-production industry's preference for Avid systems in his city, and his evident desire to find work as a freelance editor in this city. As such, Newbie's regret – conveyed through the phrase "overall I honestly think I wasted my money" – expresses his realization that Final Cut Pro's user-friendliness and cost-effectiveness make it a more technologically and financially democratizing technology than an Avid system. Such a sentiment also shows his preference for Final Cut Pro, despite his decision not to invest in it.

#### 4.1.2.2. DIGITAL NLE TECHNOLOGY V. TRADITIONAL FILM EDITING TECHNOLOGIES

According to film theorist Michele Pierson, "Editors are more likely to claim that digital technologies have freed them from the drudgery of mechanical reproduction than they are to express reservations about the disappearance of traditional editing skills" (32). For the most part, her theory holds true within the independent film community and studio-driven film industries. Within both environments, user-friendliness is not interpreted as the notion that one type of digital NLE is more flexible or rapid than the other. Rather, emerging independent filmmakers (weaned on non-digital film editing systems in film schools) or established big motion picture editors (who had to edit celluloid film on analog editing machines prior to the mid-1990s) generally perceive digital NLE technology as more user-friendly than traditional systems (e.g. a Steenbeck flatbed). They are aware that it provides them with speed and flexibility, two facets lacking in analog systems.

With regards to speed, producer Howard Gertier explains that the use of digital NLE technology to edit his independent feature *The Best Thief in the World* enabled an editing process faster than the kind possible on an analog film editing machine:

> Honestly this is the fastest I've ever had a film go between the picture lock and finishing for its premiere exhibition. And I don't think you can do that in film, where you're cutting negative and everything just takes longer in making your prints with digital, the facilities you're working with are flexible and go much more quickly (qtd in McKernan 51).

With regards to flexibility, *The Best Thief in the World* director Jacob Kornbluth notes that the direct manipulation of his digitally shot footage on a digital NLE platform would be technically unfeasible on an analog editing system:

> [T]hings that are opticals in the film world – like simple attempts at dissolves and different transitions, or slowing things down by overcranking [i.e. doubling the normal film speed rate on a celluloid film camera during filming] in production – you can do easily in digital post. These things are very liberating; they allow you to make a connection between all of the possibilities you can think of and what you can do (ibid).

For self-proclaimed independent filmmaker George Lucas, flexibility resides in digital NLE technology's non-destructive nature. The technology can allow for constant modifications (such as reordering a sequence of shots) on an edit without damaging the actual footage. In contrast picture editing on an analog film editing machine is a destructive process. Since analog picture editing involves the physical cutting, gluing or taping of film, alterations to an edited sequence are technically difficult or impractical. He highlights this point in his discourse about the benefits of digital production and post-production:

> [Digital production technology] gives the artists a whole range of possibilities that they really never had before...The [digital production equipment] is easier to use and at the same time, it allows you to...do more things than you'd normally be able to do. And then once you've captured the image, the digital [post-production] technology allows you to do an unlimited amount of changes and work within a

> lot of different parameters that just were not available with the photochemical process (qtd in McKernan 31).

Through their respective quotes, Lucas, Gertier, and Kornbluth demonstrate their hard optimist stance. Lucas reasons that digital production and post-production technology enables filmmakers to accomplish tasks difficult to do with celluloid camera and traditional editing technology. Similarly Kornbluth's enthusiasm over the ability to execute tasks previously reserved for the optical machine on a digital NLE system reveals his conviction that it would be impossible to accomplish them on an analog film editing machine. Likewise Gertier expresses his belief that the speed of the editing process attained on a digital NLE platform would be unmatched by that of the analog editing process. In all three cases, these independent filmmakers are convinced that digital NLE technology's user-friendliness determines one's ability to do the previously unimaginable. This shared belief implies that other external factors, such as human agency, are secondary to the technology. In their assessment, they however overlook external forces that, in combination with the technology's speed and flexibility, enable them to achieve the previously impractical or unfeasible. These forces include their ability to work efficiently and their familiarity and skill with the technology.

Like Lucas, Gertier, and Kornbluth, Pierson promotes a hard optimist stance in relation to digital NLE technology. Nevertheless her perspective on its significance as a democratizing technology is different from theirs. For them, the technology's role as a democratizing force is tied to its ability to generate a level of flexibility and speed unattainable on analog film editing machines. In contrast Pierson concentrates on how digital NLE technology, via such traits, frees them from the creatively stifling procedures of analog film editing and thus inspires their creativity. With respect to speed, Pierson

explains that the automation of traditional celluloid film editors' mundane tasks, such as splicing and cutting actual film, makes the visual post-production process more rapid and precise since a digital NLE software is faster and more accurate than an editor's hand in, for instance, pinpointing splice or edit lines. At the same time, Pierson posits that such automation enhances editors' creativity. By performing repetitive work for them, it gives them more time to work as artists than as technicians. Since they now have more time to immerse themselves in the film's storyline, they have greater opportunity to exercise their creative vision through, for instance, visual storytelling.

With respect to flexibility, Pierson maintains that digital NLE technology's ability to double as a special visual effects software, allows editors to execute tasks technically impractical on a non-digital editing platform. Consequently the technology is increasingly blurring the tasks of a film editor and a visual effects artist. For example, the fact that an editor also can double as a preliminary special effects coordinator and image and colour manipulator demonstrates, for her, that digital editing technology can inspire them to exercise a more heterogeneous and artistically diverse role. In fact American picture editor Edward Salier who works within the studio-driven industry reinforces Pierson's theory since he admits that digital NLE technology has enhanced his sense of creativity through its speed and flexibility:

> The power that it [i.e. digital NLE technology] provides is incredible – you have access to all the film and if a director comes in and wants to see a specific take you are not fishing for trims – it's practically instantaneous and that opens up the creative process...I can now do the types of previsualization for special effects that have never been available. This has opened up a tremendous creative potential and this has been the most exciting facet for me – to be able to sit down and composite shots and to be able to manipulate images using programs like Photoshop (qtd in Ohanian and Philip 167).

Salier corroborates Pierson's theory that the technology leads to an editor's heightened sense of artistic output and contribution to the visual post-production process.

Pierson's argument overlooks the fact that a picture editor's creativity does not simply relate to digital NLE technology's demonstration of speed and flexibility. It comes from the interplay between user-friendly attributes and one's dexterity and talent as an artist and visual storyteller. Older, more experienced editors, who have worked on non-digital platforms in the studio system or independent film community, may find Pierson's view on speed and flexibility problematic. Walter Murch, for instance, would be one of them. In fact his perspective on aspects of the traditional film editing process lacking in that of digital NLE challenges Pierson's position:

> I think there are only two areas where something is missing. When you actually had to make the cut physically on film you naturally tended to think more about what you were about to do which – in the right proportion – is a good thing to do. The cut is a kind of sacramental movement. When I was in grade school they made us write our own essays in ink for the same reason. Pencil was too easy to erase...The other 'missing' advantage to linear editing was the natural integration of repeatedly searching through rolls of film to get to a shot you wanted. Inevitably before you go there, you found something that was better than what you had in mind. With random access, you immediately get what you want, which may not be what you need (qtd in Cellini "Adapting to Digital" 2004).

Through this passage, Murch theorizes that the traditional film editing process forces conceptual precision since it involves the physical destruction of film. He also insinuates that the process's slower pace demonstrated by the seemingly laborious ritual of sifting through film reels requires the same mental accuracy.

A major tenet of hard optimism is that a current technology, such as that of digital cinema, creates a new phenomenon devoid of an analog past. If one defines *revolution* as a paradigmatic break from an analog precedent, it is clear that Pierson relates digital NLE technology to a force capable of revolutionizing the realm of picture editing: "[D]igital

editing not only involves the automation of many activities that were formerly accomplished mechanically...it also involves interpreting and responding to images in an entirely new way" (33). Pierson assumes that digital NLE technology is technologically revolutionary because it promises an absolutely original way for picture editors to conceptualize various facets of editing (such as continuity, chronology, and temporality). This argument is theoretically questionable for two reasons.

First Pierson implies that digital NLE technology enables picture editors to envision previously inconceivable concepts. This notion is shared by cinema scholar Gene Youngblood: "[I]t actually provides a context for conceptualizing strategies of temporal manipulation that do not arise if one is not using this tool. It suggests completely new approaches to the syntax of cinematic image-events" (46). If one relates digital NLE picture editors' ability to manipulate imagery (through functions that cannot be done on a non-digital platform) to Pierson's and Youngblood's shared hypothesis, the implication is the following: Non-digital picture editors never could have fathomed about instant colour change prior to the emergence of digital NLE. Pierson and Youngblood can reasonably argue that analog picture editors were technologically unable to perform instant colour change prior to the development of digital NLE technology. However they cannot prove that these individuals had never conceived of the notion of rapid color correction before the mid-1990s.

Second Pierson overlooks the fact that digital NLE technology (e.g. Final Cut Pro and Avid Media Composer) aesthetically privileges the analog film editing tradition. According to Yvonne Spielmann, the "newness" of digital media constitutes the act of repurposing or reworking media forms in a digital context (132). It is apparent that the novelty of digital NLE technology stems from the way in which its digital structure and

tools pay aesthetic tribute to the analog film editing process. For instance, the use of a chronological timeline in the onscreen audio-visual interface is one obvious way in which Final Cut Pro or Avid Media Composer visually remediates the narrative linearity of the analog film editing process. Another way is by adapting traditional film editing tools, such as a blade (for cutting negative) or a bin (for storing negatives) into the digital realm. As examples of the "new old," the virtual timeline, blade, and bin demonstrate that digital NLE technology is not encouraging today's digital picture editors to conceptualize digital NLE in a way devoid of an analog past. Rather, the technology is reminding them of its aesthetic roots in traditional film editing. In so doing, it is reinforcing the myth of celluloid as cinema's ideal aesthetic standard. By appropriating the structure and tools of the analog film editing tradition (which is itself inextricably tied to celluloid), digital NLE technology is visually relating the concept of picture editing to traditional film editing and, by extension, the concept of cinema to celluloid film.

## 4.2. FINAL CUT PRO: A CATALYST FOR DIYISM AND THE DIGITAL REVOLUTION

Since the mid-1990s, digital camera technology has been serving as one catalyst encouraging a specific DIY ethos among filmmakers: Just go ahead and use a digital camera to shoot your films. Since 1999, Final Cut Pro has been functioning as the other catalyst inspiring another DIY ethos among them: Just go ahead and offline edit your films on your home Mac computer. Although such filmmakers primarily associate the former's DIY spirit with a digital revolution, the latter's DIY spirit is, for them, the second most popular embodiment of a digital revolution.

Over the last seven years, Apple's burgeoning success in inspiring independent filmmakers to embrace the DIY ethos associated with Final Cut Pro can be traced to the booming popularity of digital media technology associated with *content creation* (Johnson 2005). Coined by the multimedia industry, the term refers to the phenomenon whereby consumers create their own media products – and not just absorb them. For digital theorist Don Slater, this phenomenon, which spans the last decade, is related to ordinary consumers' changing perception of home. Rather than treat home as a mere residence, they have been transforming it into a leisure centre to the extent that they no longer need to leave it for amusements in public places. This perception, coupled with the increased availability of affordable and user-friendly digital imaging and audio consumer products, has been spawning another significant notion: They do not rely solely on public institutions or on professionally made domestic media products (such as TV shows or music CDs) to entertain them at home. They can entertain themselves by creating their own entertainment through home-movie editing and music creation software. Apple has been aware of this market of consumers wishing to sate their desire for self-creativity. Over this time it therefore has been manufacturing economical, easy-to-use content creation software designed specifically for home-based digital content creation, including Garage Band (for sound creation), iMovie (for video editing), and iDVD (for DVD authoring). At the same time, in an effort to tap into the professional market of filmmakers and musicians while satisfying the demographic of consumers wanting to delve into the professional realm, Apple also has been manufacturing prosumer content creation software, including Soundtrack Pro, Final Cut Pro, and DVD Studio Pro.

As a result the independent film community has become enamored with Final Cut Pro. Despite being a professional grade software, it exudes, via its user-friendliness and

cost-effectiveness, the same DIY message as its "i" counterparts, one which exclaims: "I am affordable, user-friendly, and compatible with all consumer Mac computers. I can therefore be used to satisfy your professional visual post-production needs in the comfort of your home." Although it can be argued that Final Cut Pro's diptych of goodness implicitly evokes this message, Apple has used it as an overt promotional gimmick.[6]

In all likelihood, this DIY message inspired filmmaker Michael Tucker and his wife Petra Epperlein to use Final Cut Pro to edit their digitally-shot independent feature *Gunner Palace* (2004) in their apartment. Reminiscing over their experience of offline editing *and* online editing on two laptops and two desktop computers, Tucker notes: "[I]t was done, literally, from the desktop. Only a few people have done that. That's one of the exciting things about all of this in relation to the whole Apple philosophy – we achieved so much with so little" (Tucker 2005).[7] He adds, "There's so much enthusiasm about independent films now. These are not anomalies and yet you're taken seriously – that's something that's changed in the last ten years. You can be sitting at home doing what anyone else can do. And for me, that's changed our life – not having to depend on other people so much. There's truly a kind of democracy there" (ibid).

Through his first remark, Tucker reveals that Final Cut Pro's DIY ethos in relation to the software's cost-effectiveness dispelled the myth that offline visual post-production has to be an expensive process done exclusively at a professional editing lab. His phrase "we achieved so much with so little" is telling. "So little" could be interpreted as his modest post-production budget and not just his no-frills editing system (comprising off-the-shelf software, laptops, and desktop computers). In its entirety, his first statement thus demonstrates that his following Final Cut Pro's DIY philosophy – just to go ahead and edit his film at home – made him realize that offline digital NLE could be an affordable

endeavor, thanks to Final Cut Pro. Ultimately the first statement proves that Final Cut Pro's affordability served as a financially democratizing force emancipating him from the shackles of financial inaccessibility.

In the latter statement, Tucker asserts that Final Cut Pro's DIY ethos, in relation to the software's user-friendliness, redressed the other misconception that visual post-production has to be a technologically complex process for all except highly trained professionals. His statement reinforces media analyst Michael Gartenberg's theory that DIYism generally cures people of their technophobia. As Gartenberg says, "There's no longer this tremendous technology standing in the way of creative people" (qtd in Johnson 2005). By giving into Final Cut Pro's DIY-at-home philosophy, Tucker became aware of two things. First he learned that digital NLE could be a technically easy endeavor. Second he realized that offline editing at home could free him from his dependence on professional editors. Thus Final Cut Pro serves as a democratizing force that liberated him from the myth of technological inaccessibility by empowering him with technological self-sufficiency. Tucker's liberation from the burden of financial and technological inaccessibility, which is made possible by his ability to purchase and utilize Final Cut Pro at home, vividly reflects Johnson's argument that the "home studio is fostering a democratic renaissance in the arts" (2005). In the context of cinema, this renaissance relates to the proliferation of independent films due to home-based editing systems equipped with Final Cut Pro.

Although Tucker is enthusiastic about Final Cut Pro's affordability and functionality, he does reveal one major external force preventing the post-production process from being a completely cost-effective and simple practice – his decision to transfer his digital master to celluloid film for theatrical release. He is aware that the

expenses incurred for a digital tape-to-celluloid transfer do cut into some of the savings earned through the use of Final Cut Pro at home. He is also conscious of the fact that the technical complexity of the two processes offsets Final Cut Pro's user-friendliness. Nonetheless he reveals his soft determinist stance through his overall positive reaction to Final Cut Pro's diptych of goodness and acceptance of these external forces' costliness and complexity. He embraces Final Cut Pro due to the savings, ease-of-use, and feeling of self-empowerment gained from using it. He is still resigned to the fact that he must incur the costs of making his film compatible with standard 35mm film projection technology in order to gain theatrical distribution. In essence such resignation sustains the myth that celluloid is the ideal look for cinema. His act of converting his digitally-shot film to 35mm film reinforces the false ideology that only films shot on celluloid deserve to be screened in cinemas. By extension this ideology suggests that the look of a film shot on 35mm is visually superior to all other styles generated by non-celluloid shooting technologies.

Thomas Vinterberg's dependence on SD digital camera technology to shoot *Celebration* and George Lucas's reliance on HD digital camera technology on the set of *Star Wars Episode II: Attack of the Clones* helped to popularize SD and HD camera technology among independent filmmakers. In similar manner, Jonathan Caouette's use of digital NLE software to edit his low-budget documentary *Tarnation*, which premiered at the 2004 Sundance Film Festival, helped to draw attention to the prevalent use of home-based offline editing technology amongst independent filmmakers. It can be argued that the publicity generated by Caouette's use of it to piece together his $218.32 (USD) film entry promoted the legitimacy of off-the-shelf Apple computers and the Final Cut Pro software. The irony is that Caouette used iMovie, the kindergarten editing program

sold with every Mac computer, to edit his narrative about his dysfunctional childhood. Despite having zero editing experience, Caouette reveals that iMovie's DIY ethos propelled by the software's user-friendliness inspired him to edit his own film. In the process, this ethos helped to undermine the myth that digital NLE is a complex practice done only by experienced craftspeople in editing suites: "Making a movie is not as difficult as it is made out to be. Hopefully this [i.e. the use of a home-based digital NLE system] will be a catalyst for people who didn't have a voice before to go out and make a movie" (qtd in Higgins 2004).

2004 Sundance Film Festival programmer Shari Frilot was as impressed by *Tarnation*'s narrative as by its initial $213.82 (USD) post-production budget. According to Frilot, the film can inspire aspiring, cash-strapped filmmakers to tell their stories since it breaks the myth that digital NLE technology is reserved only for individuals with large filmmaking budgets: "*Tarnation* is a very strong statement for low-budget. It's a testament to what someone can accomplish with simple desktop tools and exciting and encouraging to see how much can be done with so little" (qtd in Silverman 2004). Her phrase "how much can be done with so little" parallels Michael Tucker's own "we achieved so much with so little." She implies that Caouette's decision to follow iMovie's DIY motto and edit his film at home made him realize that digital NLE (at the offline editing stage) does not have to be an unaffordable process for budget-minded independent filmmakers.

While digital NLE technology can be financially and technologically accessible – and therefore democratizing – for independent filmmakers, Caouette, like Tucker, realizes that external forces can offset such democracy: "In theory, new editing technology [i.e. iMovie] brings filmmaking to the people, so it's like writing novels or playing in garage

bands. But the film business is so cutthroat and crazy, with so many political factors, getting in the way of who gets to screen what and where" (qtd in Johnson 2005). For Caouette, one of these political factors is the difficulty in finding theatrical distribution. Had he not used *Tarnation* as an audition tape for a role in John Cameron Mitchell's film, and had Mitchell and fellow director Gus Van Sant not become the film's executive producers, Caouette is aware that it may not have been accepted at Sundance. Another factor for him is the costs of creating a distribution-ready film. Using *Tarnation* as an example, he admits: It's no longer a $213 film...it's probably going to be just under $400,000 (USD). That'll include music rights and video rights [to music and video footage from commercial sources]" (qtd in Sherwin 9).

Caouette demonstrates his soft determinist stance. He acknowledges that home-based NLE technology, such as iMovie or Final Cut Pro, can be technologically and financially liberating for independent filmmakers in relation to their quest to edit their films cheaply and easily. However he is aware that the two aforementioned political factors can be obstacles on their quest for theatrical projection. Such factors reveal that his decision to edit his films on iMovie was based on a compromise he made with himself. At the onset of visual post-production, he was aware that, without connections, he might not have been able to afford a distribution-ready film or obtain theatrical distribution for it. Nonetheless he was willing to accept that risk. He needed to make this sacrifice to satisfy his artistic craving to make a film and use it as a conduit for self-expression.

## 4.3. FINAL CUT PRO: CATALYST FOR CREATIVE SELF-EXPRESSION

Certain independent filmmakers embrace Final Cut Pro's DIY spirit because they regard the software as a catalyst for their self-creativity as filmmakers. In fact independent producer John Manulis reflects on this motivating factor:

> You can do a vast part of your post-production and take stuff a long way through the process on Apple Final Cut Pro and intense Mac G4 [computer] set-ups...This enables something really valuable, which is 'time away'; often these machines...are *owned* outright by filmmakers and set up in their living rooms. On *Falling Like This* [a film which he produced], writer/director Dani Minnick, producer Lulu Zezza and editor/DP Alessandro Zezza were able to take six months more in post-production because they worked at home and weren't burning money every week running systems and paying editors in a facility. As a result, the discovery process was much better. They had the ability to not feel pressured, to step away, come back two weeks later, and judge their work with fresh eyes (qtd in McKernan 137).

If one related the phrase "discovery process" to the concept of self-creativity, it becomes evident that Final Cut Pro's cost-effectiveness and user-friendliness were forces encouraging the *Falling Like This* post-production team to cultivate their artistic expression and imbue their film with it. The software's functionality enabled team members to rely on themselves to edit their film rather than on the services of a professional editor. Such self-reliance helped them to develop their respective artistic skills in visual post-production. All in all, Final Cut Pro's easy operability made them realize that digital NLE can be a technologically accessible practice, not a daunting one. Additionally their ability to afford Final Cut Pro and install it on a home editing suite enabled them to exercise their self-creativity. Their editing their projects at home saved them the costs of renting a professional editing studio or hiring an offline editor. This gave them ample time to work on their narrative at their own pace. It also proved that professional digital visual post-production could be a financially plausible endeavor for independent filmmakers with tight or modest budgets.

New media scholar Don Slater, who has studied DIYism instigated by home-based digital technologies, would be unconvinced of Final Cut Pro's role as a conduit for genuine self-creativity. He argues that digital photo-imaging software, a home-based technology enabling amateur photographers to organize or enhance their photographs, restricts their creative expression. It limits their artistic vision through its pre-fabricated aesthetic structures (e.g. designs, templates, themes) or its inherent limitations (e.g. the inability to accomplish certain tasks, the limit to the number of effects offered). With regards to Final Cut Pro's function as a catalyst for independent filmmakers' self-creativity, Slater likely would argue that Final Cut Pro also limits their creative potential through its technical limitations. These include the cap on the number of visual or audio tracks allowed and the narrow selection of audiovisual manipulation options offered (e.g. the pre-fabricated colour schemes, filters, or transitional effects).

Slater ignores the fact that every technological apparatus carries inherent technological limitations impacting its users' artistic options. Additionally self-creativity can arise from the innovative ways in which users work within the confines of such limitations to express their artistry. For instance, if users are offered only a limited number of visual effects, they could combine them to create a captivating image. From a hard pessimist perspective, Slater likely would regard Final Cut Pro as a force curbing independent filmmakers' creative expression. From a soft determinist standpoint, I argue that when an artist employs technology, digital or not, as a means of creative expression, artwork is born of the symbiotic relationship between artist and technology. Within the context of home-based digital visual post-production, I posit that an independent filmmaker's creative expression is reflected in the edited narrative. This narrative arises out of the interplay between Final Cut Pro, which offers a certain number of options to

the filmmaker, and the filmmaker who finds a way, within the confines of these options, to suture together a film.

Unquestionably Final Cut Pro's DIY ethos, which is rooted in the software's diptych of goodness, has led to the proliferation of home-based digital NLE systems amongst independent filmmakers. As a consequence, over the last decade, they have gained access not only to affordable, functional SD and HD digital cameras but also to the equally cost-effective and user-friendly Final Cut Pro digital NLE system. Access to such production and post-production technologies has allowed film creation outside a studio system to be a cheaper and technically simpler process. Over this time span, the challenge has been how to exhibit digitally-shot films in a way that is as cost-effective for independent filmmakers as it is profitable for theatre exhibitors. The subsequent chapter focuses on a case study of the Landmark Theatres and points out that one plausible solution is the use of digital distribution and projection technology.

# ENDNOTES FOR CHAPTER FOUR

[1] New York University, Concordia University, and Film/Video Arts also employ the Avid Media Composer system or make it available for use.

[2] Avid Media Composer is used to edit celluloid film and digital video, while Avid Xpress is used exclusively to edit digital video.

[3] At the time of this writing, the retail price of upgrades for the Final Cut Pro HD Suite (Version 5) is $699 (USD). A full version is $1299 (USD), while the student version is half the price of the full version. In contrast, the retail price of the Avid Xpress Studio HD Essentials package is $3425 (USD), whereas the Avid Media Composer (Version 10.5) ranges from $85,000 to $100, 000 (USD).

[4] There exists one major reason for Avid Media Composer's incompatibility with certain third-party software programs. Avid Technology has been profiting from Avid Media Composer's role as a closed "turnkey" system which locks and sells Avid-proprietary hardware and software together. Therefore Avid Technology has been wary toward third-party software developers who could profit from its market or threaten its market stronghold. Such wariness is reflected in its systems' structural "aloofness" towards any third-party software, such as Adobe Photoshop, used in conjunction with it.

[5] To access this tab, the editor must click on the clip in the Timeline and then right-click on the mouse to access the pull-out attributes tab.

[6] For instance, a January 2004 online Apple ad for Final Cut Express (released as an abridged version of Final Cut Pro and as a more sophisticated alternative to iMovie) promotes the DIY ethos, in relation to the diptych of goodness and the creation of a home editing studio:

> Edit like a pro with the latest version of the highly affordable yet decidedly advanced DV editing solution – Final Cut Express 2…Final Cut Express 2 offers the perfect blend of power, ease of use, and affordability. At just $299 (USD), it's simple enough to be used by home videographers yet provides the sophistication required by the pro, including high-quality compositing, titling, and effects (Apple eNews January 8, 2004).

[7] Final Cut Pro-based home editing systems are usually reserved for offline editing. However online editing can be accomplished on the same system provided that it has adequate storage space and can absorb uncompressed footage shot on digital video.

# CHAPTER FIVE: DIGITAL DISTRIBUTION AND EXHIBITION

> The theatrical cinematic experience is really born the moment someone says, 'Let's go out'...And here we have the battle between motion pictures in the home and cinema for I will venture that the cinematic experience cannot be had in the home, no matter how technically advanced the equipment becomes... This produces a mind-set that is open to experience in a way that home viewing can never be.
>
> Picture editor Walter Murch (1999)

## 5. DIGITAL PROJECTION TECHNOLOGY: DEMOCRATIZING CINEMATIC DISTRIBUTION AND EXHIBITION

Murch reveals the implicitly accepted reason amongst filmmakers for why cinemas have survived, despite the proliferation of home-based screening technologies. These technologies range from VCRs popular from the early 1980s to the late 1990s to DVD players and the Internet prevalent from the mid-1990s on. He is convinced that the cinematic experience is superior to the home-viewing experience of a film because there is a *je ne sais quoi* quality in the former that the latter lacks. One can argue that the ultimate goal of many independent and studio-backed filmmakers is to have films evoke this special cinematic experience. One also can reason that Murch's statement exudes their ingrained belief: Validation of a filmmaking practitioner's legitimacy as a "true" – or superior – filmmaker is above all the ability to screen his or her work in a movie theatre. Central to this desire is the assumption that a true cinéaste exhibits in a cinema, the traditional home of motion pictures.

The aforementioned belief clearly promotes the following myth: Filmmakers who secure theatrical distribution are considered truer filmmakers since a cinema is considered the ideal space in which a film can fully be appreciated. I contend that a filmmaker should still be considered a legitimate – or true – filmmaker even if he or she can secure only a straight-to-DVD distribution deal or release his or her film over the Web. Nevertheless I also argue that independent filmmakers generally privilege a theatrical release over all other available distribution channels. Therefore one must consider that digital projection

technology serves as a financially liberating force for them by being more affordable than traditional 35mm film projection technology.

Traditional 35mm film technology, which involves the screening of a 35mm release print loaded onto the film projector, continues to be the dominant screening format worldwide. Consequently many budget-minded independent filmmakers who shoot digitally but want a theatrical release must convert their digital master into a 35mm film master, from which theatrical releases prints can be struck. Although these cash-strapped individuals can cut down on costs by shooting on an SD or HD digital format and by editing on Final Cut Pro, the price of releasing their films theatrically may be beyond their budgets. For instance, a digital video-to-35mm film master transfer can cost between $50 000 to $150 000 (USD) for a feature-length film. Additionally the intermediate interpositive (made from the master) and the internegative (made from the interpositive) can cost together between $20 000 to $50 000 (USD). Theatrical release prints vary from $1500 to $2000 (USD) per reel since the price depends on the film duration and the amount of reels ordered. Finally freight or courier costs for each 70lb canister of a 35mm release print depends on distance but ranges from $100 to $200 (USD).[1]

Digital projection technology thus has been viewed as a more economical alternative over the last five years. One reason is that it eliminates the need to create film masters, intermediates, or release prints since it involves the screening of film released as digital files. Movies compressed onto DVDs can be played off computer servers attached to digital projectors in theatres. Alternately movies saved as digital files can be disseminated via satellite or fiber network transmission to these same computer servers.

Few mainstream theatres had permanent digital projection systems in the late 1990s. In 2001, during the making of *Star Wars Episode II: Attack of the Clones*, George Lucas predicted that by the year 2002 there would be at least 2000 screens throughout the U.S. equipped to handle the format. However, when the film was released on May 16, 2002, only 19 screens across the U.S. could screen it digitally (Baker 2002). From 2002 to 2005, the number of theatres equipped with the technology continued to be dismally low. For instance, there were approximately 82 screens with digital projection technology in North America and 165 screens worldwide in 2003 (Culkin and Randle 83; Taub 2003). The skepticism surrounding digital projection technology, in this time period, extended to Hollywood film production companies – with the obvious exception of George Lucas's Lucas Film Productions. The lack of technical standards for digital projection technology was of primary concern for them and cinema exhibitors. The absence of officially recognized, universal technical requirements for digital projection equipment and the scarcity of digital projection systems worldwide contributed to few studio-driven films being distributed digitally. For instance, from January 1999 to October 2004, only 86 studio titles were released in a digital format (i.e. as a digital file transmitted to theatres via satellite, broadband delivery, or on a DVD, and played from a computer server attached to a digital projector). This is a small figure considering that major Hollywood studios release an average of 500 films annually (Jardin 2005).

In the early 2000s, repertory film chains were more receptive to digital projection technology than mainstream cinema chains (Kelly 220). One concrete example is the Landmark Theatres chain. From 2002 to the present day, Landmark Theatres, the largest repertory theatre chain in North America, has consistently promoted its use of digital projection systems and its screening of digitally shot films. For this reason, a case study

of the chain's relationship with digital projection technology is an appropriate way to approach the technology's role as a financially democratizing force for independent filmmakers aiming for a theatrical release. An analysis of the chain's history with digital projection technology over the last five years is significant for two reasons. First this chain has been committed to experimenting with digital screening systems and has been highly vocal about it. Second the chain's financial and technological motives for using such systems illustrate that they can benefit both independent filmmakers and cinema exhibitors alike. They can make theatrical distribution affordable for independent filmmakers. At the same time, they can be lucrative and user-friendly for theatre owners.

For such reasons, this case study focuses on three aspects. The first centers on motives. I investigate the various economic, technological and artistic reasons that have encouraged the Landmark Theatre chain to use digital projection technology to screen independent works. The second focuses on digital projection technology's inherently democratizing role. I examine how digital projection technology has been more economical and functional than traditional 35mm film projection technology for the Landmark Theatres chain over the last four years. I also demonstrate that the technology can make theatrical distribution more affordable for independent filmmakers. The third aspect deals with barriers. I investigate the aesthetic, technological, and economic obstacles that have been preventing digital projection technology from turning into the dominant global form for film distribution and theatrical exhibition and, in this way, making 35mm film projection technology obsolete in mainstream cinemas. Whereas economic and technological barriers include digital technology's inherent limitations (e.g. the costliness of digital projectors, the inferior picture quality of older systems), one

aesthetic barrier is the perception that the imagery generated by a theatrical projection should look celluloid.

Consequently I examine how Mark Cuban and Todd Wagner, co-owners of the Landmark Theatres chain since 2003, have been reacting to such barriers. Of importance is a study on how the different digital projection systems at the Landmark Theatres chain have been reflecting Cuban and Wagner's negotiated perspective on a number of concerns over the last four years. These include their desire to have digital screenings at all Landmark Theatres, their acceptance of certain obstacles (i.e. the costliness of digital projection system installations) and refusal of others (i.e. the use of equipment falling below technical standards), and their privileging celluloid's look as the cinematic standard of aesthetic excellence. I conclude the case study with a brief overview of digital projection technology from a soft determinist perspective.

## 5.1. MOTIVES

### 5.1. 1. FINANCIAL MOTIVES

Since the inception of the Landmark Theatres chain in 1974, the chain's various owners have remained committed to screening first-run independent, foreign, and art films. As such, they have all stayed true to the chain's raison d'être. However, in 2003, billionaire entrepreneur Mark Cuban (best known as the owner of the NBA basketball team Dallas Mavericks) and business partner Todd Wagner purchased the chain under their company 2929 Entertainment. Since then, Cuban and Wagner have been expanding the chain's mission statement. In the last four years, they have focused on implementing the full use of digital projection technology in all of the chain's branches and on screening independent, foreign, and art films specifically shot on HD digital format. In this period,

they have set aside approximately $10 million (USD) to install digital projection systems at *all* Landmark Theatres nationwide. In March 2005, the installation process began in San Francisco and Dallas branches, and it is expected that all branches will be "digitized" by 2007.

Cuban and Wagner's primary motive for installing digital projection systems in all Landmark branches is the prospect of monetary profit. When asked to explain his interest in the creation of digitally equipped cinemas, Cuban bluntly responded: "I want to make more money...and I love finding ways to make more money" (qtd in Jardin 2005). Cuban's attitude toward digital projection technology sets him apart from mainstream theatre owners who depend on big budget Hollywood studio-produced motion pictures to generate revenue. In fact Cuban acknowledges that he views cinemas equipped with digital projection systems as potential moneymakers, whereas mainstream exhibitors view them as risky business ventures and have been wary of them: "People get frightened about all kinds of things in Hollywood...That's not my system. I don't have a business to protect. I have a business to build (ibid).

Cuban and Wagner's belief that they can profit monetarily from digital projection technology is grounded in the political economy concept *technological convergence*. According to David Croteau and William Hoynes (2001) and Anna Herold (2003), one facet of technological convergence refers to the seamless ability of media products made for one digital medium to be integrated into, appropriated by, and/or disseminated by another digital medium. Since all digital media depend on binary coding to create and read data, digital media products can be created by one digital technology yet be read or modified by another without any generation loss. By investing millions in digital projection technology, Cuban and Wagner are gambling that, in the near future, they

could profit not only from the theatrical projection of digitally- or non-digitally-shot movies but from other media products.

Xena Jardin (2005), Steve Cohen (2002), and Laurie Sullivan (2005) all point to the fact that non-movie entertainment forms – on which Cuban and Wagner could capitalize – include live, high resolution broadcasts of programs previously limited to TV (e.g. sporting events) and of previously unfilmed live events (e.g. Broadway plays and fashion shows). Such forms also include corporate training DVDs and multiplayer electronic games which could be screened for private parties, during the theatres' off-hours. According to the authors, Cuban and Wagner also intend to maximize their returns through digital advertising. Digital advertising is different from advertising film trailers on celluloid reels since such trailers must be manually spliced to the start of a feature film. In contrast, during the screening of digital advertisements, the theatre manager or projectionist retrieves digital ads matching the audience demographic from the computer database and screens them in a montage. Evidently Cuban and Wagner's need to spend at least $10 million (USD) to implement digital projection systems for the chain's 215 screens (in 60 theatres nationwide) is a costly process. Nonetheless the fact that they aim to recoup their investment through the various aforementioned ways demonstrates that digital projection technology in time can serve as a lucrative business venture for them.

The other facet of technological convergence that makes digital projection technology potentially lucrative is vertical integration. In terms of cinema, vertical integration creates an environment wherein companies can produce films, distribute them on DVD or over the Internet, and own theatres to screen them (Herold 114). In the current climate of media deregulation (which the 1994 U.S. Telecommunications Act helped to create), Cuban and Wagner have been taking full advantage of vertical integration. By

using Landmark Theatres as theatrical outlets, Cuban and Wagner can profit from ticket sales for independent films produced by their two production companies, 2929 Productions and HDNet Films, and released by their two distribution companies, Magnolia Pictures Distribution and Rysher Entertainment.[2] This vertically integrated arrangement is significant for the independent film community because it ensures that independent films shot on a digital format, such as those made through Cuban and Wagner's HDNet Films production company, can be screened in a digital format. It also demonstrates that Cuban and Wagner enable digital projection technology to be cost-effective for independent filmmakers who (on their own or through their production companies) enter into distribution deals for release at Landmark branches. After all such individuals would not be burdened by the costliness of creating 35mm release prints. Instead they could provide a "release print," which could assume a more affordable form, such as that of a DVD, a satellite feed, or a broadband-transmission.

It is essential to focus on the principal aspect of digital projection technology that makes it a cost-effective venture for Cuban and Wagner – the automation of cinematic screening procedures. This subject is significant since it serves as the main point of dissension between hard optimists who celebrate digital projection technology and hard pessimists who condemn it. It would appear that digital media scholars Steve Cohen (2002) and Nigel Culkin and Keith Randle (2003) are part of the hard optimist camp. In their respective studies, they focus on how the automation of screening processes could be a money-saving incentive for theatre owners (like Cuban and Wagner) to invest in digital projection technology.

More specifically Cohen, Culkin, and Randle argue that a prime economical feature of automated digital screenings is flexible screenings. The ability to draw up a film from a digital server and screen it at a moment's notice would allow theatre owners to replace unpopular screenings with popular releases or to add screening rooms for crowd favourites instantly. Furthermore the ability to screen infinite copies of a digital movie transmitted via satellite feed or broadband transmission or played off a DVD would eliminate the problem of having insufficient release prints of a popular film for additional screening times and rooms. All in all, Cohen, Culkin, and Randle, consciously or not, promulgate the technological sublime rhetoric through their overwhelmingly positive stance on digital projection technology. Their adulation for digital projection systems reinforces their belief that it is a force imbued with power only to benefit cinema.

Their rose-tinted view sets them apart from hard pessimist Stanley Aronowitz (1994) who espouses a dystopian theory of technology. In all likelihood, Aronowitz would argue that digital projection technology transforms cinematic projection into a technocratic activity that is dehumanizing. Aronowitz argues that the main use of cybernetic technology within a factory is first to reduce overhead by replacing most human labour with automated machines and second to turn any remaining human employees into quasi-robots (29). As such, were he asked for his perspective on digital projection technology, Aronowitz would criticize the potential loss of projectionists' status as full-time employees or the possible loss of their jobs. Such concern would distance him from Culkin, Randle and Cohen who are more concerned about the cost-cutting benefits for theatre owners than for their employees' livelihood.[3]

Moreover Aronowitz would deplore the loss of direct physical contact with reels of release prints. For him, it would symbolize a loss of humanity. In a factory setting, Aronowitz theorizes that the automation of assembly line work can relieve workers of physically demanding labour. The problem is that the automation of previously manual tasks eliminates a "humanizing sense of tactility" in the work process and abstracts the worker-to-product interaction, thereby intensifying the monotony of assembly line work. In the context of traditional film projection booths, Aronowitz would argue that projectionists bored by the perfunctory nature of their jobs could still derive enjoyment from direct physical contact with reels of release prints and movie trailers. Touching film – the product that they are responsible for screening – would be an essential way to internalize some sense of self-worth as employees. Using their bare hands to load movie reels onto the traditional film projector or to splice trailers to feature presentations would make them view themselves as integral to the cinematic experience. It would sensorially confirm their importance in enabling hundreds of moviegoers to watch a film. For this reason, Aronowitz would claim that the automation of theatrical screenings would make the projectionist feel alienated rather than valued. The mere act of punching a button to launch a screening digitally would make the individual feel that his or her job is trivial. A feeling of self-worth is vital to any employee's sense of importance as a human being. Therefore digital screenings, for Aronowitz, would elicit the opposite dehumanizing effect: The employee would feel more like a robot rather than a valued employee.

From a soft determinist standpoint, it is evident that a conceptual gap is present in the hard optimist philosophy espoused by Cohen, Culkin, and Randle. It is also clear that there is a major theoretical oversight in Aronowitz's hard pessimist stance. Drawing from Emmanuel Mesthene's bad side/good side technology theory, I argue that, in the given context, a nuanced analysis of digital projection technology acknowledges its positive – and negative – aspects. Although they draw attention to the cost-effective and lucrative aspects of digital projection technology for Cuban and Wagner, Cohen, Culkin, and Randle should not overlook the technology's potential negative implications. These include the possible loss of full-time jobs amongst projectionists and a projectionist's sense of alienation caused by the automation of previously tactile – and therefore – self-validating tasks. Although these potential consequences could justify Aronowitz's wariness of digital projection technology, he should not ignore the benefits associated with its use. For example, he should not overlook its importance as a cost-effective measure for independent filmmakers wanting to screen their digitally shot films theatrically. He also should not forget that Cuban and Wagner, as co-owners of an independent film chain, employ it to benefit these very individuals, rather than to profit monetarily from it only. Therefore it is necessary to explore Cuban and Wagner's artistic motivation for turning the Landmark Theatres chain into a digital projection circuit.

### 5.1.2. ARTISTIC MOTIVES

Certainly digital projection technology's potential profitability is a major reason fueling Cuban and Wagner's desire to invest in digital projection systems. For

instance, the money that can be made from advertising fees for automated ads tailored to demographic-specific audiences is undoubtedly a strong motivating factor. However it is important to consider that they have been investing millions into digital projection systems for a repertory theatre chain which, by virtue of its independent, foreign, or art fare, would reap less box office earnings than a theatre chain devoted to big Hollywood blockbusters. Also significant is the fact that they purchased the Landmark Theatres, even though they could afford to invest in a more lucrative chain, like the AMC or Loews. They support independent filmmaking through their ownership of the chain, two independent film production companies (one of which supports lower-budget HD-shot films), two distribution companies catering to independent features, and a TV network for HD-shot films. Thus they demonstrate that their artistic motive for implementing a digital projection infrastructure in the chain's branches is to benefit independent filmmakers. With these systems in place, independent filmmakers who shoot digitally could save on the costs of digital video-to-35 mm film transfers and 35mm release prints. By furnishing their theatres with systems needed to screen digital files, Cuban and Wagner are helping to promote the voices of diverse filmmakers working outside the studio system. They are preserving the chain's integrity by sustaining the chain's legacy as an outlet for independent works.

### 5.1.3. TECHNOLOGICAL MOTIVES

Cuban and Wagner's third motive for transforming the Landmark Theatres chain into a digital projection circuit is to remain at the cutting edge of technology. For

example, their planned installation of 4K digital projectors in all of the chain's theatres illustrates their penchant for technological vanguardism. In March 2005, Cuban formally announced that, in the ensuing summer, he and Wagner would debut six of Sony's 4K digital SXRD (Silicon X-tal [Crystal] Reflector Display) projectors at various Landmark branches. He also noted that eventually at all 60 theatres would be outfitted with them (Lall 2005; Brooks 2005). In that year, Cuban and Wagner were indeed the first theatre owners to greenlight the use of 4K digital projection technology. They proved themselves more technologically progressive than any national or international exhibitor using 2K digital projectors. Cuban explicitly reveals their desire to be at the forefront of technological innovation in a 2005 promotional soundbite comparing the 4K projectors with 2K projectors:

> Digital cinema provides a new experience for theatre-goers. Landmark Theatres will give our customers the best of all digital experiences. Sony's 4K digital projectors allow us to project live concerts and sporting events, ultra-high resolution movies and presentations using future technologies. Most important, it provides a viewing experience for movies that far exceeds what other theatres are doing today with 2K projectors. We are excited to start to push the envelope in digital cinema with Sony's SXRD technology and see where the technology and experience can take our customers (qtd in Brooks 2005).

Cuban's conviction that 4K digital projectors provide a viewing experience superior to that of 2K digital projectors demonstrates the following: Wagner and he prefer 4K technology because they assume that the look of a 35mm film projection is cinema's ideal aesthetic standard. To understand this motivation, we must backtrack to June 2004. In that month, 4K digital projectors came to prominence. Sony gave the first public demonstration of a working model

of a 4K digital projector at the Digital Cinema Laboratory, a Hollywood trade show for cinema equipment manufacturers. Since that time, Cuban and Wagner have regarded the 4K digital delivery system as superior to that of 2K digital projectors because it provides a pixel count that is four times larger. Like 2K screenings, 4K digital projections are free of the scratches on 35mm celluloid print screenings caused by the wear and tear of running film through a projector. However the 4K projector's higher pixel count (4096 x 2160) has convinced Cuban and Wagner of its technological superiority to its 2K counterpart since the latter's pixel resolution (2048 x 1080) parallels the quality of a high definition TV set. In fact Cuban's implicit belief that 2K projectors are technologically inferior to their 4K counterparts is reinforced by Tom Mykietjn, spokesperson for Sony Electronics. In his sales pitch for Sony 4K digital projectors, he extols 4K systems' superiority by criticizing 2K systems' similarity to TV sets: "4K...digital projection resolution...will be vastly superior to what a consumer would be able to achieve in their own home theatre..." (qtd in Ankeney 2004).

For Cuban and Wagner, this "vast superiority" would mean that 4K projectors are better than 2K projectors at approximating the look of 35mm film projections. By gauging 4K and 2K digital projectors by how closely they resemble 35mm film projections, they sustain the myth that the look of projected celluloid is the ideal aesthetic for a cinematic screening. By upholding this notion, Cuban and Wagner distance themselves from a hard optimist view of "the new." Hard optimists would assume that Cuban's remark "digital cinema provides a new experience for theatregoers" refers to a previously inconceivable form of spectatorship. From a soft determinist perspective, Cuban is undermining this

concept of novelty. Through his 4K-versus-2K comparison, he insinuates that 4K projectors are technologically superior to 2K projectors because the generated imagery more closely resembles the visual quality of a 35mm film projection. From his perspective, a new viewing experience refers to the way current screening technology – such as 4K digital projectors – recreates the look produced by analog cinematic technology, namely 35mm film projectors. John Belton in fact agrees with Cuban: "Digital projection isn't a new experience for the audience. What is being offered to us is simply something that is potentially equivalent to the projection of traditional 35mm film" (104-5). Both Belton and Cuban interpret the notion of new spectatorship to mean a remediated spectatorial experience that makes use of digital projection technology. In other words, spectators who undergo this experience would be unaware that they are watching a digital, rather than a 35mm, screening. The assumption is that, if told, they would be impressed by how visually indistinguishable a 4K digital screening is from a traditional one.

## 5.2. INHERENTLY DEMOCRATIC FUNCTION

In their essay "Transnational Digital Imaginaries" (1999), Hess and Zimmermann posit that transnational digital imaginaries are realms where "there are no border patrols...no high tech/low tech divides" (15). They conclude that this realm remains, as its name suggests, imaginary since digital art, for the most part, remains inaccessible to the technologically underprivileged classes of the world. Their perception of a high tech versus low tech digital divide centers on two notions: One is that only economically wealthy countries can afford the

technology needed for digital art exhibition practices. The other is that venues equipped with such technology are scarce in the developing world. Interestingly their concept of a technological divide in relation to affordability is relevant to an analysis of theatrical exhibition opportunities for independent film communities in North America where another type of technological divide exists. On one side exist wealthy feature film studios with the budget to create numerous 35mm release prints compatible with projection systems in all major movie theatres. On the other side exist two groups. One party consists of independent film distributors who have purchased films from filmmakers or production companies. The other is made up of independent filmmakers who self-distribute. The costliness of 35mm release prints or film masters (from which such prints are struck) forces most independent film distributors with modest budgets to make a small amount of prints for limited theatrical release. However it makes a theatrical release unaffordable for many self-distributing filmmakers: They must abandon any desire for it and resign themselves to sending their films straight to DVD or distributing them over the Internet.

On two separate yet successive occasions, the owners of the Landmark Theatres chain have strategized to collapse the technological divide and turn Hess and Zimmermann's imaginary digital realm into a reality. In both instances, such a strategy focused on using digital projection technology to make theatrical distribution more economical for self-distributing independent filmmakers. It also has required the chain to ally with manufacturers of digital projection software and hardware. The first occasion lasted from November 2002 to September 2003. During this period, the Landmark Theatres chain's previous owner, the Oaktree

Capital Management LLC (a Los Angeles-based investment management firm) entered into an alliance with Microsoft. The second occasion has been lasting since January 2006. During this time, the chain's current owners, Cuban and Wagner, have been in a partnership with Qube Cinema Inc. Both occasions deserved to be analyzed since each focuses on how digital projection technology would make theatrical distribution more cost-effective for independent filmmakers. The first relates to Microsoft's Windows Media 9 (WM9) Series-based technology. The second pertains to Qube Cinema Inc.'s digital projection system, which is compliant with the Digital Cinema Initiatives (DCI) technical standards.

The Landmark Theatres chain's partnership with Microsoft began in November 2002. Already in an alliance, Microsoft and BMW approached the chain's then owner Oaktree Capital Management LLC for permission to use eight of its theatres to exhibit the music documentary *Standing in the Shadows of Motown* via digital projection. One major factor that motivated the chain to give its consent was that Microsoft and BMW were willing to absorb the installation costs of the digital projection system to be used for the screenings.[4] In return for co-sponsoring the screenings, BMW wanted to use the event for promotional purposes. Prior to each screening, the eight participating theatres would have to play a 7-minute promotional film for BMW (Harmon D11). Microsoft however wanted to use the screenings to promote its WM9 Series-based system. The system consisted of Microsoft software used for mastering, encoding, and encrypting films into digital files. Such files then could be transmitted to the theatre's server via broadband or satellite delivery or could be burnt onto a DVD

for playback on the same server. Once the film was brought into the server, the WM9 Series system could decrypt it so that it could be viewed properly through a digital projector attached to the main server. The fact that Microsoft and the Landmark Theatres chain renewed their partnership five months later testifies to the success of the digital screenings.

On April 3, 2003, Microsoft and Landmark Theatres announced that 177 screens in 53 Landmark branches across the U.S. would be equipped with digital cinema delivery systems based on Microsoft's WM9 Series technology. The two companies formed an alliance with Digital Cinema Solutions (DCS), a company specializing in WM9 Series-based theatrical projection systems.[5] Through this three-party collaboration, the Landmark Theatres chain could screen films in two ways. One way would be for the DCS to send screenings to theatres through a virtual private network (VPN). In this process, master copies of films would be encrypted as WM9 Series files and sent to each theatre over the VPN. Once recovered, it would be decrypted and screened. The alternative would be to have films compressed and encrypted so that they could be played only at the designated theatre. Upon playback, they could be decrypted by a WM9 Series playback software system.

It is clear the partnership among all three companies could be beneficial for all of them. By employing the WM9 Series-based technology, the Landmark Theatres chain could save on the usual $100,000 (USD)+ budget needed to install a digital projection system in one screening room. DCS's digital projection systems were substantially less expensive than other systems because they were composed of PC-based, off-the-shelf hardware and software technology. For its

part, DCS could gain popularity as a credible digital projection system company. The chain's actual use of the WM9 Series digital delivery also could enable Microsoft to be recognized among cinema exhibitors as a legitimate manufacturer of digital projection technology. It is also evident that the Landmark Theatres chain's use of the WM9 Series-based digital delivery system provided by DCS could be especially financially liberating for self-distributing independent filmmakers whose films are shot on SD or HD digital format. The chain's use of digital projection technology to screen films could enable them to afford to release their films theatrically. For most of them, a traditional theatrical release on 35mm film would be an expensive and – usually unaffordable – endeavor since it would incur the costs of a master negative, an intermediate interpositive made from the original, an internegative made from the interpositive, and finally release prints struck from the internegative.[6] For instance, P. David Ebersole had to distribute three of his digitally-shot features on DVD because of the costliness of the digital tape-to-film conversion process. In an April 2003 interview, the independent writer, director, and producer expressed excitement over the planned use of WM9 Series-based digital projection systems at various Landmark branches:

> If it is filmed digitally and there's no blow-up master, we [his production company Killerpix Global Media Filmco] have a big black X against us to find theatrical distribution...you always realize when you make a digital film and you want it to go out to the theatres, you're going to have a huge expense in the end making a 35mm [film] print. If that gets taken out of the equation, you're going to see a lot of happy digital filmmakers and probably more digital filmmaking (qtd in Dean 2003).

Peter Baxter, President of the 2003 SlamDance Festival for emerging filmmakers, shared Ebersole's enthusiasm over the chain's plans for digital delivery. He also viewed it as a way to make theatrical releases financially viable for independent filmmakers on tight budgets: "It strikes me as a big positive for emerging filmmakers...It's a great opportunity for these kinds of filmmakers to have their films seen with a bigger, wider audience and not just on the festival circuit" (qtd in Diorio 2003).

Through their optimism over the Landmark Theatre chain's plans for WM9 Series-based digital delivery, Ebersole and Baxter illustrate that the use of digital projection technology serves to counter the myth of financial inaccessibility. Whereas 35mm film projection technology perpetuates the myth that theatrical distribution is invariably unaffordable for self-distributing filmmakers, digital projection technology (i.e. DCS's WM9 Series-based digital projection system) proves that this does not have to be the case. For instance, if self-distributing filmmakers could screen at any of the Landmark branches equipped with the WM9 Series-based systems, they would simply compress and encode their SD or HD digital master into a Windows Media Player (WMP) file; this file could then be decrypted and decompressed on the theatre's server, then screened through the projector.

It is obvious that the Landmark Theatres chain's proposed use of WM9 Series-based digital projection systems also could benefit independent filmmakers with larger film budgets. These are individuals who shoot on 35mm film or who shoot digitally then undergo the digital tape-to-35mm film conversion process. For those who shoot on 35mm film, the WM9 Series-based system could save

them the costs of making interpositives, internegatives, and release prints. For those who go through the digital tape-to-35mm film process, the WM9 Series systems could enable them to save on the conversion costs. For documentarian Kate Davis, such systems would be a financial relief. Tying the costliness of the conversion process to financial oppression, she says: "It de-democratizes the whole process if you have to blow up a cheaply made film to 35mm (qtd in Nick James "Digital Deluge" 22).[7]

In a less dramatic way, Gina Kwon, producer of Miranda July's *Me and You and Everyone We Know* (2005), addresses the same dilemma. While the use of digital camera technology (i.e. the Sony 24p HD Cine Alta F900 camera) made filming a cost-effective process, the conversion to 35mm film for theatrical exhibition at the 2005 Sundance Film Festival ended up being a pricey endeavor. As Kwon puts it: "[W]e were on such a tight budget and schedule, digital video made more sense than film...of course some of that savings is cannibalized...when we film out (transfer to 35mm for exhibition)" (qtd in Boyer 2005).[8] Through this statement, Kwon demonstrates that HD digital camera technology's inherent cost-effectiveness convinced the film production team to use it for July's film. However she does point out that its role as a financially democratizing force is, to some extent, undermined by the costliness of making it compatible with 35mm film projection technology.

It is important to realize that the "upconversion" procedure (from digital tape to 35mm film) invariably compels all filmmakers, such as Davis and Kwon, to view the look of 35mm film as the standard aesthetic for theatrical projection. During the process, they end up judging the look of the transferred narrative in its

new celluloid state and cannot help but measure the success of the conversion based on how well it approximates the look of 35mm film. In fact independent filmmakers' concerns over how well a digitally shot film looks after upconversion would explain why, from the mid-1990s to the present day, the two most popular digital camera formats have been SD DV-PAL and 24p HD Digital.

In all likelihood Davis and Kwon would agree that digital projection technology could eliminate the digital tape-to-film costs and in this way be profitable for them. In fact the management team of the Landmark Theatres chain was aware that its use of WM9 Series-based digital projection technology would make theatrical distribution financially possible for Ebersole or more cost-effective for Davis and Kwon. In April 2003, Landmark's then CEO Paul Richardson (now President and CEO of Sundance Cinemas) even noted that the chain's use of a file encoding system could enable emerging independent filmmakers (like Ebersole who could not otherwise absorb the digital tape-to-film costs) to exhibit theatrically. He expressed this point in a press release on the Landmark-Microsoft joint venture: "There's a whole bunch of product [i.e. digitally shot films] that doesn't get picked up at the festivals because people don't believe it's worth the cost to invest the money to make a master print, which can cost $50,000-$60,000 (USD)...[b]ut for $6000 to $8000 (USD), you can encode the film for digital [to] play our Landmark Theatres circuit" (qtd in Diorio 2003). In a separate press release, Landmark Theatres Marketing VP Ray Price remarked that the chain's use of the cheaper system could eliminate the upconversion process. In doing so, it could enable independent filmmakers to redirect the money reserved for the process to go elsewhere, such as promotion:

"If we lower the bar [i.e. make theatrical distribution more economical] so independent filmmakers can save a few 100,000 dollars, they could increase the size of their advertising budgets and get a bigger market share for their film" (qtd in Dean 2003).

The management team of the Landmark Theatres chain also was fully aware that its alliance with Microsoft could be artistically beneficial for the independent film community. By using the WM9 Series-based digital projection technology, it wanted to increase the screening opportunities of digitally-shot works by independent filmmakers who previously could not afford to create 35mm film release prints of their digital masters. Price criticizes large movie complexes' general penchant for big-budget formulaic films made to appeal to a wide demographic and ensure box office ticket sales. At the same time, he emphasizes that the chain's planned use of digital projection technology is to provide an artistic outlet for alternative or non-commercial films: "A mainstream cinema chain tends to favour the very broad, bland films that favour everybody but nobody specific...It's [the Landmark Theatres chain's desire to go digital is] a big step toward maintaining and creating diversity in storytelling" (ibid). In 2003, then Landmark Executive VP Bert Manzari (now President of Film for Sundance Cinemas) reinforced Price's declaration. Referring to the chain's alliance with Microsoft, he says: "Landmark's mandate has always been to build an alternative infrastructure dedicated to the enhancement and proliferation of independent cinema. We exhibit over 250 films a year, and too many of these films succeed or fail due to market economics rather than artistic accomplishment" (qtd in Diorio 2003).

Evidently Manzari's and Price's respective quotes resemble promotional soundbites justifying the chain's importance for the independent film community. Nonetheless both spokespeople do reveal that the repertory theatre chain is committed to showcasing a variety of feature films that may garner critical acclaim but not commercial success. They also insinuate that their planned use of WM9 Series-based digital projection technology could increase their access to a plurality of independent voices. Through it, the chain could screen digitally-shot works by unknowns who previously could not afford a theatrical release. From a hard optimist perspective, one would argue that the WM9 Series technology represents a panacea for independent filmmakers. Its "curative powers" derive from its ability to make theatrical distribution a reality for independent filmmakers who cannot afford to make 35mm release prints or who only can afford to make a small number of release prints. From a soft determinist standpoint, I argue that there will always be external forces challenging its ability to accomplish these financially democratizing feats.

Since April 2003, the Landmark Theatres chain, Microsoft, and DCS have not provided any updates on the planned installations of the WM9 Series-based digital delivery systems. It is suspected that Mark Cuban and Todd Wagner contributed to the dissolution of the alliance upon assuming ownership of the chain on September 23, 2003. Therefore it is integral to examine the two external forces that instigated them to sever the alliance. These consist of (1) the WM9 Series-based technology's incompatibility with industry-wide technical standards and (2) the film industry's general reluctance to embrace the Microsoft system.

From the late 1990s to 2005, the lack of industry-wide technical standards for digital projection systems played a major role in slowing their widespread integration into the majority of North American cinemas. The importance of such standards is to enable digital projector and server manufacturers to develop equipment based on uniform, high quality system requirements. Of major concern is the need for an industry-wide codec and a standard pixel count for all digital projectors. The codec – short for compression/decompression – refers to a specialized computer algorithm. It is needed to compress data (i.e. the entire digitally shot film) to a sufficiently compact size to be burnt onto a DVD or delivered via broadband or satellite transmission. It is also needed to unpack or decompress data for playback on a digital server attached to a digital projector. In 2003, Microsoft submitted the WM9 Series codec as a candidate for the codec standard. It was refused by the DC28, the official technical standards committee consisting of members of the Society of Motion Picture and Television Engineers (SMPTE). The committee's reason for rejecting it parallels Cuban and Wagner's own motive for severing their chain's ties with Microsoft: the codec's visual degradation upon decompression and subsequent inability to emulate the look of celluloid. It is standard knowledge that the higher the visual resolution of a compressed movie is, the higher the file size becomes.

For instance, a feature-length film needs at least two 36 GB hard drives to be played back at high resolution on a server connected to a 1K digital projector (whose pixel count is 1280 horizontal pixels x 1024 vertical pixels). Consequently a 2K digital projector (2048 x 1080 pixel count) and a 4K digital projector (4096 x 2160 pixel count) would require even more hard drive space. The fact that the

WM9 Series codec can compress a feature-length HD-shot film on only 6GB is alarming. A small file size is indicative of data compressed at a low resolution rate. Thus it is obvious that the WM9 Series codec compresses at a low resolution and that the 6GB film, once decompressed, would manifest visual degradation (Argy and Murray 2003). When the Digital Cinema Initiatives (DCI) committee took over the DC28's responsibility of developing digital projection technical standards, it chose JPEG2000 as the codec standard. Julian Levin, Executive Vice-President of Digital Exhibition for Twentieth Century Fox (one of DCI's seven studio backers), insinuates that the image quality of a film compressed (and decompressed) through the WM9 Series codec is substandard: "There are some entities putting in place systems [i.e. Windows Media 9 Series-based delivery software] that may be suitable for advertising or other kinds of entertainment...But from my perspective it clearly does not replace the theatrical exhibition experience you need to have" (qtd in Harmon D6).

According to Levin, the underlying objective of a digital screening is to have the projected film emulate or come close to emulating the clarity and crispness of the look of 35mm film. For him, the DCI would consider unprofessional and unacceptable any digital projection system that cannot approximate the look of this perceived standard of cinematic excellence. Once Cuban and Wagner learnt that the DCI had chosen the JPEG2000 and 2K and 4K digital projectors as industry standards for codecs and projectors, it is likely then that they decided against their predecessors' planned use of the WM9 Series-based codec. Since they want the Landmark Theatres chain to remain at the cutting edge of cinematic technology, they would be opposed to the installation of

screening systems based on a low-grade codec. Their desire to comply with the DCI's technical specifications also explains why they decided to install Texas Instrument's 2K digital projectors in a few Landmark branches in January 2006. As noted in previous pages, Cuban and Wagner are convinced that 4K digital projectors produce a superior picture quality compared to 2K digital projectors. Nonetheless their reason for acquiring 2K digital projectors is to ensure that their chain would have both DCI-approved formats.

Cuban and Wagner also abandoned the use of WM9 Series-based digital projection technology because they feared Microsoft's potential domination of the theatrical exhibition industry. At the centre of such trepidation was their reluctance to support the bid to turn the WM9 Series codec into the industry standard. Files based on the WM9 Series-based codec only could be played on Windows Media Player and by Windows-friendly hardware devices (Berry 2003-2005). Were the DCI to accept the WM9 Series-based codec as the universal codec for theatrical exhibition, Microsoft could become – what Belton calls – "the single gatekeeper" and monopolize the digital projection service and equipment industry (113). Potentially Microsoft could prevent other manufacturers of delivery software and computer servers from competing on the basis of price and quality. Potentially the proprietary nature of WM9 Series codec technology could make Landmark Theatres indefinitely hardware-dependent on Windows-based PC servers and prevent the chain from using non-Windows-based hardware. This possibility explains why Cuban and Wagner severed the former owners' alliance with Microsoft. They may not have wanted to use their theatre chain as a catalyst

to turn the WM9 Series-based codec into a technical standard that would discourage market competition.

Cuban and Wagner's concern over the technological inferiority and proprietary status of the WM9 Series system possibly explains why they ended their alliance with Microsoft and DCS on January 31, 2006. On this day, they officially announced their partnership with Qube Cinema Inc. Like DCS and Microsoft combined, Qube Cinema Inc. offers software and hardware solutions for the main digital projection procedures such as mastering, encoding/decoding, encrypting/decrypting, and storing uncompressed films. However, unlike Microsoft and DCS, Qube Cinema Inc offers digital cinema servers that utilize the DCI-compliant JPEG2000 codec. Since the company's software is based on the JPEG2000, the chain can use it with other JPEG2000-compatible digital servers on the market. Such flexibility would be non-existent if the WM9 Series codec was the standard and the chain was restricted to Windows-based software and hardware.

Ultimately Cuban and Wagner's decision to utilize the DCI-compliant digital projection system by Qube Cinema Inc reveals their soft determinist perspective on the WM9 Series-based technology. Hard optimists, such as Bert Manzari and Ray Price, members of the Landmark public relations team in 2003, regarded the Windows digital projection system as a financial panacea for independent filmmakers. From their perspective, the costliness of 35mm film masters and release prints deprives many self-distributing independent filmmakers of a theatrical release or is a financial burden for independent distribution companies with limited budgets. For them, the WM9 Series-based technology

would serve as a liberating force for independent filmmakers because of the cheap costs of its software bundle. This bundle would include applications for compressing/decompressing and encrypting/decrypting films, transmitting them as digital files via satellite or broadband, or saving them on a DVD. All in all, the off-the-shelf value of the bundle would make theatrical exhibition possible for independent filmmakers who could not afford it before and cheaper for those who previously could afford only a limited number of release prints. By making theatrical distribution more financially accessible for independent filmmakers and distributors, the WM9 Series-based system, from Price and Manzari's perspective, could compel production and distribution companies worldwide to pressure exhibitors to utilize it and make traditional film projection technology obsolete.

In 2003, Cuban and Wagner were aware that the WM9 Series-based digital projection technology could be a financially liberating strategy for the independent film community. However they realized that their decision to employ or abandon the technology depended on whether they valued its cost-effectiveness over their concern about its inherent limitations or external opposing forces. While one limitation is the technology's tendency to degrade the visual quality of a decompressed movie file, another is that its codec's proprietary status would force the chain to use solely Windows-based hardware or software. In addition one external force is their desire to own only digital equipment compliant with DCI technical standards – standards which would make the WM9 Series-based technology substandard. Another is their allegiance to the myth of celluloid's look as the idealized aesthetic standard. Because the WM9 Series-based codec would lead to noticeable visual loss in a film's visual quality, they realize that it could

not create moving imagery that replicates the look of 35mm film. Therefore their decision to replace the WM9 Series-based system with the Qube system demonstrates that the cheapness of the former technology is not a sufficient reason to cope with its limitations or with external forces opposed to its use.

Ultimately the compromise that Cuban and Wagner made is revealed in their decision to use the DCI-compliant Qube system in conjunction with Sony 4K digital projectors and Texas Instrument 2K projectors. Since the Qube system utilizes the non-proprietary JPEG2000 codec, the Landmark chain in the future could continue to use Qube's software but be free to use it with servers manufactured by other companies. Their use of JPEG2000, in combination with the latest DCI-approved projectors, would satisfy their need for equipment that produces or comes close to producing the look of celluloid. The JPEG2000 codec would be a guarantee that moving imagery, once decompressed, would not suffer from visual degradation. Consequently once the decompressed movie were sent through a 4K projector, it would mirror the look of 35mm film. Even if it were sent through the latest 2K projector, whose visual resolution is not nearly as high as 4K projectors, its visual quality would be sufficient for the Landmark chain's smaller screens. On the other hand, the slight monetary disadvantage for independent filmmakers and distributors is that they must provide digital masters of extremely high quality, prior to compression, in order to have their films be technologically compatible with the chain's 2K and 4K systems. Thus those who shoot their films on SD or HD digital or 35mm film must go through the somewhat costly process of creating a 2K- or 4K-compatible digital master.

Nonetheless it can be argued that, even if the Landmark chain were using the Microsoft codec in conjunction with 2K and 4K projectors, $6000 to $9000 (USD) would have to be spent for a high quality digital master. If the chain's use of 2K and 4K digital projectors forces independent filmmakers to create a 2K- or 4K-compatible digital master, the chain's commitment to the use of digital projection technology still would be a more cost-effective endeavor for the independent film community. For those who previously could not afford to exhibit theatrically or could afford only a limited theatrical release, the creation of a digital master (from which infinite cheap copies of compressed digital files for satellite, broadband, or DVD delivery can be made) is clearly more cost-worthy than that of a few expensive 35mm film release prints.

## 5.3. BARRIERS

Since the early 2000s, two major financial barriers – high equipment costs and piracy – have contributed to the general reluctance by Hollywood studio-affiliated distributors and mainstream cinema exhibitors to install digital projection systems. However the Landmark Theatre chain, under Cuban and Wagner's ownership, has remained undeterred by such obstacles. These two barriers should be examined in relation to Cuban and Wagner's consistent experimentation with the use of digital projection technology.

Over the last six years, the issue of official technical standards has not been the only major factor slowing progress in the implementation of digital projection technology. The question "Who pays?" also has been a topic of dispute between theatre owners and Hollywood studio distributors. Over this time span,

each side has been reluctant to shoulder the financial burden alone and has argued that the other should pay for the total costs of digital equipment acquisition and installation.[9]

Central to the dispute has been both parties' refusal to disrupt the traditional approach to the profit division of ticket sales. Under this set-up, the profits earned by ticket sales of a certain film are divided between the theatre exhibitor and the distribution company that licenses the film to the theatre. Charles Swartz, head of University of Southern California's Entertainment Technology Centre, has proposed the *third-party profit-splitting* approach as a possible solution to this dispute (Jardin 2005). According to Swartz, who researches on digital technology's impact on the entertainment industry, both parties could seek a third party, such as the manufacturer of digital projection equipment, to help them shoulder the costs of acquiring and installing it. In return the third party would charge a fixed fee per ticket sold for each digital presentation until its investment was fully recouped.[10] In practice this approach has been rejected by theatre exhibitors and Hollywood studio-affiliated distributors. For instance, in 2001, Technicolour Digital Cinema offered to build the first 1000 digital screens for several mainstream exhibitors. In exchange it wanted 12 cents for every ticket sold. However both exhibitors and studios declined this offer since they presumably did not want to share sales revenues with it.[11]

Although mainstream exhibitors and studios have been unreceptive to Swartz's third-party profit-splitting approach, they have been considering Swartz's other theory – the *studios-pay-all* approach. Under this set-up, the

studios pay for the total costs of digital equipment acquisition and installation in theatres because they have the most to gain by theatres going digital. Specifically they could save a considerable amount in distribution costs. The money usually spent on 35mm release prints could be used to pay for the costs of "digitizing" movie theatres. Statistically the approach would be lucrative for the studios. The Motion Picture Association of America (MPAA) estimates that studios spend an average of $3.74 million (USD) to print and distribute one feature film non-digitally (Sullivan 2005). In fact, in 2003 alone, they even spent more than $631 million (USD) to manufacture release prints for the North American market. A digital delivery system could help decrease expenses, including the costs of printing and distributing release prints, by 85% to 90% (Jardin 2005). Since July 20, 2005, the day on which the DCI specifications were released, mainstream film studios have been in concrete talks to go digital. For instance Disney, Sony, and Warner Brothers have joined forces to shoulder the costs of at least 1500 digital installations in various U.S. movie theatres; the three studios have earmarked $3 billion (USD) for digital cinema over the next few years. Of this amount, $80,000 is to be allocated to every theatre screening room (Sullivan 2005). Another example is Regal Entertainment Group, an American-based network of 6264 screens and 553 theatres. It has invested nearly $75 million (USD) to set up a digital supply chain whose fiber cables, satellite dishes, and digital projectors support DCI technical standards (ibid).

In time it is probable that other studios will initiate their own plans to absorb the costs of digital equipment acquisition and installation in mainstream theatre chains. Walt Ordway, chief technology officer for the DCI committee,

predicts that the official DCI specifications will encourage mainstream theatre exhibitors to invest in digital projection technology. Thus the increased market competition will help drive down the aforementioned costs. As he says,

> These specifications should...encourage many more players who were previously resistant to invest capital in [digital projection] technology that may or may not have been viable. As the market gets more competitive, the price of the equipment and its installation – previously thought to be a major barrier to digital cinema – will become increasingly affordable to the point where that stumbling block should not longer be of consequence (DCI Press Release 2005).

It thus appears that major film studios and mainstream exhibitors have begun resolving the issue of who pays without disrupting the established profit-division between them.

As co-owners of a chain devoted to independent, foreign, and art films, Cuban and Wagner cannot depend on major film studios to bear the costs of digital equipment acquisition and installation in their theatres. Being self-made billionaires, Cuban and Wagner fortunately can afford to dip into their own pockets to subsidize their operation. Unlike mainstream cinemas that screen films distributed by major film studios and rely on box office sales for their earnings, the Landmark Theatres chain is part of the vertically-integrated group of media properties owned by Cuban and Wagner under their company moniker 2929 Entertainment. Consequently Cuban and Wagner can generate revenue through the diffusion of independent, foreign, and art films as well as through non-film entertainment screenings. They also can profit by screening films produced by 2929 Entertainment, distributed by their company Magnolia Pictures Distribution, and shown on their cable and satellite TV networks, HDNet and HDNet Movies.

Since April 2005, Cuban and Wagner have begun experimenting with a business model that could be profitable for them, self-distributing independent filmmakers, and independent film distributors. Most mainstream theatre owners fear it because it challenges the traditional profit-division model. Named the *day-and-date* release, Cuban and Wagner's exhibition model takes advantage of technological convergence since digital technology allows for the simultaneous release of a digitally mastered film across different digital media platforms. Cuban and Wagner tested the concept on April 22, 2005. On that day, they debuted the feature-length documentary *Enron: The Smartest Guys in the Room* on their cable TV network HDNet Movies and at Landmark Theatres in New York and Houston. On January 22, 2006, they embarked on a broader test of the model through the simultaneous release of Steven Soderbergh's *Bubble* on HDNet Movies, at their Landmark Theatres, and on DVD. This three-outlet release allowed Cuban, Wagner, and Soderbergh to profit immediately from revenue generated from ticket sales, TV advertising, and DVD sales since Cuban and Wagner's 2929 Entertainment and Soderbergh's Section 8 Productions co-produced the film. More significantly this arrangement enabled Cuban, Wagner, and Soderbergh to recoup their production investment faster than through the traditional distribution model – the *release windows* approach. Through the release windows approach, they would recoup their investments in separate spread-out installments, known as windows, in the following order: theatre, DVD, pay-per-view, cable, and finally TV (Kirsner 70).

In contrast the day and date release approach could enable them to profit immediately through the film's simultaneous release on all or some of these

exhibition outlets. This concept also enables Soderbergh to benefit artistically. Just as visual artists derive gratification from an exhibition in which their artwork can be seen by numerous people, so can Soderbergh, as a filmmaker, appreciate the opportunity to maximize exposure for his film. This set-up ensures that spectators can view his film through as many different media as possible while it is still new – and thus desirable for them. From the perspective of a spectator, Cuban describes how the public's interest in a new movie release relates to its freshness on the market: " I look at my own movie consumption habits and a lot of times I'm saying 'Boy, I want to see this movie' and 'Damn I missed that one. I'll buy the DVD when it comes out.' And I never do it" (qtd in Kirsner 70). Elaborating on the missed opportunity, he adds: "No question about it. How many movies have you said you would buy when the DVD comes out and then never did because of the time lapse?" (qtd in Tourmarkine 2005).

Through the two statements, Cuban explains that the simultaneous release of a new film through different media outlets is important because people generally prefer to watch a film when it is newly released rather than when it becomes old. From Cuban's perspective, there is not any adequate reason for why a film must be released first in a movie theatre *before* it can be released on DVD, TV, and even over the Internet. For Cuban and Wagner, profiting from a movie's release through various media is worth abandoning the traditional window release approach employed by major film studios over the last 25 years. Apart from Cuban and Wagner, self-distributing independent filmmakers and independent film distributors evidently welcome the day and date release concept. It carries the potential to be lucrative not only for Cuban and Wagner but also for them. At the

same time, it is artistically beneficial for them because they, like Soderbergh, can maximize exposure for their film through different media outlets, while it is still new in the public's eye and therefore "audiovisually desirable" by it. Most theatre exhibitors have remained opposed to the approach ever since Cuban and Wagner test-ran the day and date release concept. Their fear has been that it would disrupt their traditional profit-division set-up by instigating diminished ticket sales and cutting into their profits. On the day of *Enron*'s release, several theatre owners unsurprisingly refused to show the film in protest over the concept. As a result Cuban and Wagner developed the *bonus pool* scheme: If the theatres screen a first-run film distributed by Magnolia Pictures Distribution, Cuban and Wagner would give them 1% of the gross DVD sales.

However this measure has not satisfied most exhibitors. In a press release, John Fithian, president of the National Association of Theatre Owners (NATO) in the U.S., warned that the widespread implementation of Cuban and Wagner's day and date release concept would plunder "the 25 billion plus worldwide theatrical window without a very solid assurance that...DVD sales will make up for the lost theatrical revenues" (qtd in Toumarkine 2005). Fithian's cautionary stance is a reflection of most theatre exhibitors' general hesitance to adopt the approach. Nonetheless it appears that one big film studio executive has been seriously considering it. Bob Iger, the Disney film studio's new CEO, put his stamp of approval on it when he admitted that it might be the inevitable trend of the future. He also alarmed fellow studio executives with his declaration that "all old rules [of distribution] should be called into question" (qtd in Kirsner 70). It seems probable that, in time, the allure of maximizing a film's profitability by releasing

it simultaneously through different media outlets will compel studios and theatre exhibitors to abandon the tradition of giving priority to a theatrical release before all other types of releases.

If ever this day-and-date concept were adopted by big film studios and mainstream cinemas, Cuban and Wagner would remain unconcerned. According to Wagner, "I don't view this as, 'We're talking on the studios or the theatre owners.' All we're doing is experimenting to see if we can make our business model better" (ibid). Through this passage, Wagner reveals that Cuban and he are not worried if their concept is mainstreamed. As providers of independent, foreign, and art films, they are not trying to profit by competing with theatres that release big-budget blockbusters. Instead they are using this concept to generate revenue for each of their media companies, including their movie chain, their cable channels, and their distribution and production companies. For self-distributing independent filmmakers and independent film distributors in distribution deals with Cuban and Wagner, this concept also enables them to profit through monetary gain and maximized exposure for their film.

Another major factor slowing the progress of the implementation of digital projection technology in mainstream cinemas has been exhibitors' and studios' fear over piracy. Culkin and Randle estimate that the global film industry suffers an annual loss of $2 billion to $10 billion due to pirate copies clandestinely sold or disseminated freely over the Internet (89). Such piracy usually occurs by video-recording a film screening in the movie theatre. As the studios and cinema exhibitors contemplate the transition toward digital projection systems, their fear of lost revenue due to piracy of 35mm film screenings has been replaced with one

of lost profit due to the potential piracy of digital screenings. Their fear is not unwarranted. Because the digital master of *Star Wars Episode I: Attack of the Clones* was not encrypted, a computer hacker managed to obtain a digital copy of the film and distribute it over the Internet before the movie officially opened. However it is common practice to encrypt all digital masters prior to their theatrical release nowadays. For this reason, Cuban dismisses studio distributors and exhibitors' fear of digital piracy; he contends that it is easier to pirate traditional 35mm film prints than any of his chain's digital screenings:

> [Pirates today] can go out and buy film prints. That's easier than knocking off digital projection booths like banks and stealing the hard drives. If a property walks away from one of my booths on a projectionist's watch, they're losing their job and they're going to jail. But even if someone does steal that server, they've got to de-encrypt and reencode a massive file, and that's a fair amount of work (qtd in Jardin 2005).

Cuban's statement parallels Culkin and Randle's own analysis: Although it is easy to pirate 35mm film prints, it is harder to pirate an encrypted digital film from a stolen computer server or a satellite feed. As the digital file is sent encrypted to the theatre, only permitted users have the appropriate key to decrypt it once it is on the server.

Nevertheless Cuban overlooks the fact that a digitally projected film is not susceptible to illegal recordings done within a theatre. DCI-approved forensic markers, image watermarks specifying a screening's time and location, can be detected on pirated DVDs of a particular film. Such markers however cannot stop people from recording movies in theatres. In any case, Andrew Downie offers a plausible theory for why works digitally screened at Landmark branches would be less susceptible to piracy than digital screenings of big-budgeted studio-driven

films in mainstream cinema houses. He reasons that bootleggers invariably target big Hollywood films rather than independent, foreign, or art films (2004). One reason is that movie pirates would be able to sell more copies of the former in the streets. Another reason is that Robin Hood-type bootleggers who pirate a film from a movie theatre to disseminate it freely over the Internet would derive greater satisfaction from uploading a commercial film, which most filesharers would want to download, than from uploading a lesser known work, which fewer people would care to have for free. By targeting major studio films shown in mainstream cinemas, bootleggers, in the process, ignore independent fare screening at repertory cinemas such as Landmark Theatres. They inadvertently safeguard the profits generated through ticket sales of an independent film, its same-day DVD sales, or even pay-per-view TV subscriptions. Perhaps then one possible solution for mainstream studios and exhibitors is to accept the day-and-date release approach since it could help to curb the sale of pirated DVDs or the free online distribution of popular and new theatrical releases.

## 5.4. A RECAP OF DIGITAL SCREENINGS (THROUGH A SOFT DETERMINIST LENS)

When the DCI specifications were released on July 20, 2005, George Lucas and collaborator Rick McCallum issued the following statement:

> It's a giant leap forward for those of us who create movies and more importantly for everyone who sees them. We've been advocates of digital cinema for nearly a decade, and this is a day we have long hoped would come. Digital cinema will increasingly become the standard and will change the way movies are made, seen, and experienced around the world (qtd in DCI Press Release 2005).

Lucas reveals his hard optimist stance by relating digital projection technology with the phrase "a giant leap forward." The phrase is reminiscent of Neil Armstrong's remarks made as he became the first man to walk on the moon. Lucas unequivocally regards the release of the DCI standards as a technologically progressive event (like walking on the moon) that will positively impact filmmakers, distributors, exhibitors and spectators. As a staunch advocate of digital projection technology, Lucas has been pressuring Hollywood studios to adapt it since the mid-1990s. However technical standards for the technology were only created and approved by the Digital Cinema Initiatives consortium in 2005.

From a soft determinist perspective, this situation reveals a significant point: Digital projection technology can affect technological progression by screening films via satellite, broadband, or DVD delivery rather than via a traditional film projection system. Because of this ability, there may exist hard optimists, like Lucas, campaigning for its widespread use. However there will always exist other social forces that challenge them. One actual example is the DCI's seven Hollywood studios. Although they had considered Lucas's argument, until July 20, 2005, they had been reluctant to endorse digital projection technology without formal, uniform technical standards guaranteeing professional quality. As such, within the mainstream film industry, digital projection's progression has been based on a compromise made between the force's initial resistors (i.e. the seven Hollywood film studios) and its supporters (i.e. Lucas and his fellow digital enthusiasts pressuring the studios).

Within the realm of independent cinema, the Landmark Theatres chain's experimentation with digital projection technology has expanded the concept of technological progression thereby creating a dialectical movement. In other words, over the last five years, it has demonstrated that digital projection technology is technologically progressive because theatre exhibitors no longer have to rely on 35mm film projection technology. It has manifested this through its actual consistent employment of digital projection technology, including WM9 Series-based servers, JPEG2000-based servers, and DCI-compliant 2K and 4K projectors. In the process, it also has shown that digital projection technology can make theatrical distribution affordable or cost-effective for independent filmmakers or independent distributors. In this context, it has been technologically progressive by serving as a financially liberating force for them. Nevertheless, as this chapter has shown, the technology's inherent limitations and external social factors have been challenging its capacity to serve this role. Examples of the technology's limitations are the high cost of a DCI-approved digital projection and the WM9 Series-based system's visual degradation. Examples of external social factors include Cuban and Wagner's desire to remain at the cutting edge of technology and their need to have digital projection systems approximate the look of traditional film screenings and meet DCI technical standards.

The Landmark Theatres chain's initiatives over the last five years, Lucas's constant campaigning over the last decade, and the DCI's 2005 technical specifications have helped digital projection technology to become a concrete alternative to 35mm projection technology. However what long-term impact will this have on 35mm film projection technology in the realm of cinema? In Chapter

Six, I explore what the future holds for digital production, post-production, and projection technologies.

# ENDNOTES FOR CHAPTER FIVE

[1] For more information on these costs, see Belton 110, Culkin and Randle 82, Cohen 2002, Harmon D11, and "Windows Media 9 Series for Digital Cinema Applications" 2002.

[2] 2929 Productions produces films in the $10 to $30 million (USD) budget range, while HDNet Films produces lower budget films for under $10 million (USD).

[3] Thus far the implementation of digital projection systems in Landmark branches has not led to a loss of jobs for projectionists. In contrast, they play an essential role in monitoring screenings and safeguarding digital projection booths from pirates (Jardin 2005).

[4] BMW and Microsoft gained consent to do a similar digital screening at two other repertory cinemas, the Angelika in New York City and Regent Showcase in Los Angeles.

[5] The decision by the chain's former owner, Oaktree Capital Management LLC, to recruit DCS may have been prompted by the positive publicity DCS had received at the 2003 Sundance Film Festival. The 2003 Festival organizer relied on DCS to install a digital playback system using WM9 Series-based technology (Microsoft PressPass 2003). For the first time in the Festival's history, they screened digitally four feature-length films through the system.

[6] The average costs of these processes are noted on p. 137.

[7] As a British filmmaker, Kate Davis evidently has used SD digital cameras that conform to PAL, the British video standard of 25 frames per second (fps). From the mid-1990s to the early 2000s, the period of SD digital camera technology's popularity, North American independent filmmakers would also use SD PAL digital cameras to shoot their feature films. They would use these cameras even though the video standard is NTSC in North America and NTSC SD digital cameras record images at a 29.97 fps frame rate. For example, Spike Lee and Harmony Korine used SD digital PAL cameras to shoot *Bamboozled* (2000) and *Julien Donkey Boy* (1999) respectively.

Consequently they would go through the trouble of using a system incompatible with North American video editing systems and video equipment. They realized that if they wanted to upconvert their film to 35mm film format, SD digital PAL was, in this period, the only format whose frame rate could come close to emulating 35mm film's 24fps frame rate. Although they did not expect blown-up SD digital PAL to look indistinguishable from an actual film shot on 35mm film, they still wanted its movement to approximate the speed of celluloid, and not to have the staccato movement of 29.97 fps DV.

[8] Kwon does not disclose the film's total production budget. Still she does admit that shooting digitally shaved off approximately $150,000 (USD) from the production budget due to the lack of the need to purchase film stock, create dailies, and make film-to-tape transfers for offline non-linear digital video editing.

[9] While a traditional film projector is valued at $30,000 (USD) with a 30-year life span, 2K and 4K projectors are pegged between $100,000 and $150,000 (USD) and have unknown lifespans (Dettmer 2003; Belton 111; Taub 2003). Digital projectors will remain more expensive than traditional film projectors until there is a higher demand for them and until manufacturers' experimentation with cheaper material causes their costs to drop.

[10] In fact this was the approach that the Landmark chain's previous owner, the Oaktree Capital Management LLC ownership, had agreed to take during its (now defunct) alliance with Digital Cinema Systems and Microsoft (Diorio 2003).

[11] There have been short-term instances during which mainstream exhibitors have experimented with Swartz's third-party profit-splitting approach. In fact a few of them utilized it for promotional screenings of *Star Wars Episode II: Attack of the Clones.* Boeing Digital Cinema, for instance, equipped 25 venues with encrypted servers and projectors for the film opening (Cohen 2002).

# CHAPTER SIX: THE FUTURE OF DIGITAL TECHNOLOGY AND THE DEMOCRATIZATION OF INDEPENDENT CINEMA

## 6. DIGITAL CINEMA: THE NEXT DECADE

Throughout the previous pages, my dissertation has demonstrated how digital camera technology, digital non-linear editing technology, and digital projection technology have been liberating the processes of cinematic production, post-production, distribution and exhibition for the independent film community over the last decade. From Chapters Three to Five, my work has explored this subject by focusing on three main questions: (1) How have digital production, post-production, and distribution and exhibition technologies been functioning as financially and/or technologically democratizing forces? (2) How have these technological forms' effectiveness, as such forces, been challenged by their innate limitations and by external factors? (3) How has the decision by independent film practitioners to use or not to use digital cinema technology been shaped by their deliberation over (1) and (2)? Additionally how has the ideology promoting the look of celluloid as the ideal aesthetic for cinema impacted this decision? I refrain from turning this concluding chapter into a mere summary of the preceding chapters' exploration into these three queries. Instead I revisit such chapters through an analysis of three *other* questions. In sum, these questions centre on the future of digital cinematic technology in the coming decade, and on its impact on the studio-driven film industry and the independent film community.

Building on my study of digital camera technology in Chapter Three, the first question is: In the next decade, will digital camera technology replace celluloid camera technology, both in the studio-driven film industry and in the independent film community? In the short time span of ten years, digital camera technology has evolved

from SD digital cameras, which produce "video-looking" moving imagery to HD digital cameras, which approximate the look of 35mm film. Therefore this rapid evolution may lead a hard determinist – be it a pessimist or optimist – to think that the emergence of more sophisticated HD digital cameras, or of a superior yet presently undeveloped digital format, will make celluloid camera technology obsolete in the next decade. From a soft determinist perspective, the obsolescence of celluloid camera technology within the studio film system, over the short time span of a decade, is unlikely since studios may split into two camps. There may exist those willing to forsake traditional celluloid technology. They may be convinced that digital camera technology's relative cost-effectiveness and user-friendliness, compared to 35mm film, and its generation of footage visually indistinguishable from 35mm film, would be worth the switch. On the other hand, other major film studios would be wary to do so, due to a number of factors. These include the studios' lack of readiness to break with the century-long tradition of celluloid film production, studio-commissioned cinematographers' lack of competence or experience in HD digital camera technology, and even studio directors' lack of interest in using it. I thus contend that digital camera technology will not replace celluloid camera technology due to the demand for both production technologies. Instead it will become a popular alternative and studios will have the option of using either technology.

Within the independent film community, one does not have to wait for another ten years to answer this question. In Chapter Two, my analysis, which covers the proliferation of SD digital cameras in the mid-1990s to the rise of HD digital cameras in the early 2000s, demonstrates that digital camera technology already has replaced 16mm film technology as the production medium of choice among independent filmmakers on tight budgets. As the chapter points out, independent film practitioners are willing to use

it, despite its various drawbacks. This illustrates that digital camera technology's diptych of goodness compensates for such limitations. For instance, cinematographer Ellen Kuras and documentarian Kate Davis argue that SD digital cameras cannot replicate the smooth, velvety look of celluloid and contend that its use instigates lazy filmmaking and unnecessary overshooting.[1] However the fact that they employed SD digital cameras to shoot *Personal Velocity* and *Southern Comfort* demonstrates that in the end the medium's cost-effectiveness so greatly outweighed their reservations they used it for their respective projects.

Digital camera technology has endeared itself to independent filmmakers. Its diptych of goodness, function as a conduit for aesthetic realism, and role as a catalyst for DIYism have dispelled the myth of feature filmmaking as a financially and technologically inaccessible practice for them. Evidently independent filmmakers' greater financial and technological access to the means of production will not automatically lead to an increase in quality work, and the ratio of good to bad independent works will remain the same. One significant implication of this shattered misconception is that filmmakers, who previously could not afford to make their feature films on celluloid, now feel empowered to do so because of the technology's affordability and easy operability.

Another vital consequence is the continued actualization of media theorist Nick Rombes's prediction. Rombes believes that the pro-regular movie realistic aesthetic soon may eclipse the anti-classical Hollywood realistic aesthetic. As I mention in Chapter Three, the pro-regular movie realistic aesthetic and the anti-classical Hollywood realistic aesthetic, two distinct interpretations of an authentic cinematic look, have co-existed within the independent film community over the last decade. However it appears that Rombes's forecast of digital camera technology's seamless reproduction of the

"[celluloid] medium it replaces, as opposed to a further deconstruction of that medium" has been materializing in the last two years (2003-2005). Two factors have led to this phenomenon. First there has been a rise in popularity of HD digital cameras among independent filmmakers over this period of time. Second the independent film community's interest in the Dogme 95 movement has declined. Since 2004, such waning interest has been signaled by (a) the community's increasing preference for HD over SD digital cameras and (b) a surge of independent films bearing the pro-regular movie realistic aesthetic, rather than the anti-classical Hollywood one. These factors suggest that independent filmmakers have begun privileging the pro-regular movie realistic aesthetic as their preferred definition of an "authentic" cinematic look. Over the next decade, sustained advances in HD digital camera technology (and the further relegation of SD digital camera technology into the realm of corporate and wedding videography) will ensure this trend's longevity.

Thus two facts are clear. Digital camera technology's ever-improving ability to generate imagery mirroring that of 35mm film technology in time will turn it into a dominant production medium just like celluloid camera technology. In addition, as long as HD digital camera technology remains popular, the pro-regular movie realistic aesthetic, which supports the look of a film shot on 35mm, is bound to remain the prevalent aesthetic within the independent film community. For this reason, in the unlikely event that digital camera technology makes 35mm film technology obsolete in the next decade, this would not cause the demise of the look of celluloid. Were 35mm film stock to become outdated within the independent and studio-driven industries, its look would remain cinema's aesthetic standard ad infinitum. The two facts mentioned above reinforce this prediction. Consequently any current (e.g. HD digital camera

technology) or future alternative to celluloid camera technology must produce an aesthetic identical to that of 35mm film to be considered a worthy replacement for traditional 35mm film cameras.

Building on my study of digital non-linear editing software in Chapter Four, the second question is: In the next decade, will Final Cut Pro replace Avid Media Composer as the industry standard for picture editing in the independent film community *and* studio-driven film system? To answer this question, I must first identify key issues dealt with in this chapter. My study on Final Cut Pro's function as a financially and technologically democratizing force in the realm of visual post-production, from 1999 to the present day, demonstrates that the Apple software indeed has become the preferred picture editing software amongst independent filmmakers. Final Cut Pro has earned a loyal following within this crowd because of three factors: Its inherent diptych of goodness (i.e. affordability and easy operability), its function as a catalyst for DIY picture editing on a home studio, and its role as a conduit for creative self-expression. All three undermine the myth that digital visual post-production process is financially and technologically inaccessible endeavor for independent filmmakers with limited budgets and/or picture editing experience.

Within the same chapter, I also show that Final Cut Pro cannot make the entire visual post-production process cost-effective for independent filmmakers. At the first stage of the picture editing process, one can do the offline edit on Final Cut Pro software installed on a home Apple computer. However, at the second stage, the online edit, which consists of an uncompressed edit and colour correction, is invariably an expensive endeavor requiring an online editor's service at a professional lab. I also reveal that media theorist Don Slater would be skeptical of Final Cut Pro's user-friendliness as a catalyst

for self-creativity among its users. He would argue that the software restricts one's creative expression through its pre-fabricated aesthetic structures or inherent technical limitations.

From a soft determinist standpoint, I nonetheless demonstrate that these financial and technical drawbacks may neutralize a bit of Final Cut Pro's cost-effectiveness and user-friendliness but cannot undermine them completely. With regards to the high costs of online editing, most time and labour in post-production is spent on offline editing. Therefore the total budget of an offline and online edit on Avid Media Composer or Avid Xpress editing system would be considerably higher than the total cost of a home-based Final Cut Pro offline edit and an in-studio Final Cut Pro online edit. Consequently Final Cut Pro makes professional visual post-production more economical than either of Avid's two editing solutions. Furthermore one must realize that every technological apparatus possesses inherent aesthetic and technical restrictions that may limit one's artistic or technical options. Therefore independent filmmakers demonstrate self-creativity through the innovative ways in which they circumvent such restrictions to express their artistry.

Although Avid Media Composer is still the preferred visual post-production system among feature film and TV show editors, two factors showcase that Final Cut Pro could replace Avid Media Composer as the de facto industry standard over the next decade. First the false notion that deems Final Cut Pro unprofessional because of its cheaper retail value will be challenged each time an industry professional uses it. For instance, over the last seven years, Walter Murch, the Coen brothers, and the *Scrubs* editing team have proven that the software can be used for editing feature films and TV shows. It can be assumed that, in the years to come, more big-budget feature film editors and commercial TV editors will be drawn to it, thereby increasing its popularity. Second

the industry standard is regarded as the technology that most film practitioners use. For this reason, as each generation of filmmakers moves up the industry ranks, so will the tools that they bring with them. As independent picture editor Michael Cioni observes:

> The truth is today Avid has the toehold in entertainment, but every day the new generation of editors are slowly saturating the market and with it, they bring new technologies like Final Cut Pro to the professional world. This, in itself, is the reason one can predict without a doubt that Final Cut Pro is on its way to becoming the NLE industry standard (2005).

In fact more and more film schools are instructing cinema students on Final Cut Pro platforms. At the same time, young no-name filmmakers relying on Final Cut Pro to picture-edit their first few feature will mature into tomorrow's name indie stars or big-budget studio filmmakers. These aforementioned factors illustrate that Final Cut Pro could become the standard post-production technology in the independent and studio-driven realms. NYU film student Charles Wachter summarizes this rosy future for Final Cut Pro: "None of us [young generation of emerging filmmakers] are using Avid unless we can get it for free. As we age and move into the industry, we are going to take Final Cut Pro with us and slay the giant. Avid is dead. It's a dinosaur" (qtd in Cave 2001).

Building on my case study of the Landmark Theatres chain's use of digital projection technology, the third question is: Will digital projection systems replace 35mm film projection systems, in mainstream and repertory cinema over the next ten years? In Chapter Five, I explain that the Landmark chain owners Mark Cuban and Todd Wagner have been installing digital projection systems into all of the chain's branches since 2003. In the process, they have been helping to make theatrical distribution financially possible for self-distributing independent filmmakers who previously could not afford to make 35mm film release prints. In this way, they have been helping to challenge the notion that theatrical distribution and exhibition are financially inaccessible for them. They also have

been helping to make it more economical for other self-distributing filmmakers or independent distributors who previously could make only a limited amount of release prints. In Chapter Five, I also indicate that the publication of the industry-wide Digital Cinema Initiatives on July 20, 2005 has spurred on some studios (i.e. Disney, Sony, and Warner Brothers) and large mainstream theatre chains (e.g. Regency Entertainment Group) to draft concrete plans to digitize various theatres or put such plans into practice.

Nonetheless I contend that digital projection systems will not phase out 35mm celluloid film projection systems in the coming decade. Instead mainstream and repertory film chains, including the Landmark Theatres chain, will maintain dual projection systems. Renowned cinematographer Michael Balhaus concurs: "Digital images and film images will exist next to each other for a long time" (qtd in McKernan 160). Balhaus even reveals one fundamental reason for why 35mm film projection technology won't be phased out anytime soon: "[W]e're still working with film and loving it" (ibid).

While emerging and low-budget independent filmmakers may be grateful that digital camera technology enables them to make films affordably or to gain greater maneuverability or portability, many of them – such as Jean-Marc Barr and Kate Davis – still love the look and feel of film. If presented with a bigger budget, these individuals may seize the opportunity to shoot on 35mm film. Within the studio-driven film industry, a few big-budget filmmakers, most notably HD digital enthusiast George Lucas and Robert Rodriguez, have publicly renounced the use of 35mm film. Most studio filmmakers however will continue to use 35mm film to shoot their films because (a) they are familiar with its aesthetic results and its use and (b) they are still skeptical about HD digital camera technology's ability to replicate the look of celluloid.

In all likelihood these two concerns will persuade certain studio and independent filmmakers to propel celluloid cameras into the next decade and maintain its relevance. However improvements in HD digital camera technology may enable it to generate an aesthetic that is visually indistinguishable from the look of celluloid, over this time span. As such, more and more film schools may utilize HD digital cameras for film production classes since HD digital tape is considerably cheaper than 35mm film stock. Consequently today's cinema students, who may become well-known studio and independent filmmakers in the coming decade, could turn HD digital camera technology into the *other* dominant film production medium by taking it, along with Final Cut Pro, into the industry with them.

In the unlikely event that 35mm projection technology becomes obsolete and digital projection systems consequently become the dominant medium for cinema projection in this time span, the look of celluloid will remain cinema's ideal aesthetic. As I point out in Chapter Five, current DCI-approved digital projection systems are evaluated based on how well they mirror or approximate the aesthetic of a traditional 35mm screening. Regardless of the fact that technological advances could lead to more sophisticated 2K or 4K projectors, such DCI-certified systems will be judged on how well they replicate the look of celluloid. As such they will perpetuate – rather than stifle – the notion that the look of celluloid is cinema's ideal aesthetic.

A desire to save on the costs of 35mm release prints is another reason why digital projection systems will exist alongside traditional celluloid projection systems in mainstream and repertory movie theatres in the near future. After all studio-affiliated or independent distribution companies and self-distributing independent filmmakers may want to distribute their films to the theatres via satellite delivery, broadband transmission,

or DVDs. In this case, theatres will need to have digital projection systems readily available to accommodate them. On the other hand, their detractors may remain skeptical about these systems' ability to replicate the look of a celluloid projection. For this reason, they want to continue using traditional film projection technology, while observing how successful their counterparts are with digital screenings.

From a soft determinist perspective, a dual projection set-up would be the most pragmatic compromise satisfying both supporters and skeptics of digital projection technology. A hard optimist solution would be to replace 35mm film projectors with digital screening systems. For mainstream and repertory theatres, this option evidently would be technologically impractical since certain studio-affiliated or independent distribution companies may continue distributing 35mm release prints. Consequently it would be imprudent for mainstream and repertory cinema exhibitors to lose distribution deals with this clientele.

At the same time, the hard pessimist alternative – which is not to install any digital projection systems – would be disadvantageous for mainstream and repertory cinema exhibitors and the independent film community. If big film studios interested in exhibiting digitally are willing to shoulder the costs of digital projection systems in commercial cinemas, theatre exhibitors would profit from their business. The financial pay-off for mainstream and repertory theatre owners, such as the Landmark chain's Cuban and Wagner, would be revenue earned from film screenings and non-movie ticket sales. The latter includes automated demographic-specific advertising and private screenings of corporate DVDs, live event presentations, and multi-player video game parties. More significantly the major financial benefit for self-distributing filmmakers

would be the ability to afford a wider theatrical release or, in many instances, their first theatrical screening.

Over the next ten years, more refined, advanced, and efficient incarnations of technologies for digital production, post-production, and distribution and exhibition will arise. They probably will perpetuate what their current forms maintain – the myth exalting the look of celluloid as cinema's ideal aesthetic. More sophisticated forms of HD digital cameras will continue to be used for shooting feature-length films and documentaries and to produce footage resembling celluloid. As the eventual industry standard, Final Cut Pro will continue to be used to edit footage that is either genuinely 35mm film or that simulates its look digitally. Furthermore digital projection systems will become available to HD-shot, Final Cut Pro-edited narratives. The use of a professional-grade codec and high resolution digital projectors will make the screening of an HD-shot narrative visually indistinguishable from that of a 35mm film projection.

Therefore such trends will make the distinction between the terms *film* and *video* irrelevant and dispense with the need for the term *video.* It will no longer be necessary to differentiate between a fictional film and a fictional video, a documentary film and a documentary video. One will be left with the term *film* or *movie* to designate a fictional or documentary narrative, even if it is shot on digital video, edited as digital video, and screened as a compressed digital (video) file. On p.1 of my introductory chapter, Lucas claims that the cinema of the past was celluloid, and the cinema of today is digital. I conclude my dissertation by expanding on his claim. The cinema of today is indeed digital. However digital cinema does not abandon celluloid. By exalting the celluloid aesthetic in all three major stages of filmmaking, digital cinema immortalizes it.

# ENDNOTES FOR CHAPTER SIX

[1] Other filmmakers, such as Dogme enthusiasts Eric Eason and Chris Cooke would view the technology's natural production of a rough, grainy aesthetic, as a strength, rather than a limitation.

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