March 2018

Conceptualizing television viewing in the digital age: Patterns of exposure and the cultivation process

Lisa Prince

CONCEPTUALIZING TELEVISION VIEWING IN THE DIGITAL AGE: PATTERNS OF EXPOSURE AND THE CULTIVATION PROCESS

A Dissertation Presented

by

LISA PRINCE

Submitted to the Graduate School of the
University of Massachusetts Amherst in partial fulfillment
of the requirements for the degree of

DOCTOR OF PHILOSOPHY

February 2018

Communication

CONCEPTUALIZING TELEVISION VIEWING IN THE DIGITAL AGE: PATTERNS OF EXPOSURE AND THE CULTIVATION PROCESS

A Dissertation Presented

by

LISA PRINCE

Approved as to style and content by:

_____
Michael Morgan, Chair

_____
Erica Scharrer, Member

_____
Wenona Rymond-Richmond, Member

_____
Mari Castañeda, Department Head
Department of Communication

ACKNOWLEDGEMENTS

I would like to thank my advisor, Michael Morgan, for invaluable wisdom and guidance throughout the writing process. I would like to thank my parents, who are truly the most dedicated, caring, and supportive individuals in the world; words can't express my gratitude for all you have done for me from day one. I want to thank my husband, whose faith in me and endless patience throughout this process was unwavering. I am so happy your steadfast belief that I would become Dr. Prince was actually realized. And finally, to Lester and Jonathan, for being the most loyal study buddies imaginable.

ABSTRACT

CONCEPTUALIZING TELEVISION VIEWING IN THE DIGITAL ERA:
PATTERNS OF EXPOSURE AND THE CULTIVATION PROCESS

FEBRUARY, 2018

LISA PRINCE, B.A. UNIVERSITY OF PENNSYLVANIA

M.A., TEMPLE UNIVERSITY

Ph.D., UNIVERSITY OF MASSACHUSETTS AMHERST

Directed by: Professor Michael Morgan

With an ever-increasing variety of platforms, devices and services to choose from, new media technologies have altered and transformed the television viewing experience. With television more accessible and convenient than ever, viewers are consuming even more content, ensuring that television continues to dominate the cultural landscape. Therefore, it is imperative to understand how television viewing in the current media environment impacts audiences. For more than fifty years, cultivation theory has proven to be an enduring and generative research approach to understanding how exposure to the world of television shapes audiences' views of social reality. However, no cultivation study to date has addressed the question of how different television technologies and patterns of viewing intervene in the cultivation process. This study fills this void by examining this unexplored area of cultivation research. A questionnaire was developed that measured television exposure in the current media environment, specifically focusing on the use of new and traditional viewing platforms, devices, and services. These new and traditional forms of exposure were presented along with measures of overall viewing, demographic control items, and traditional measures of cultivation outcomes, including estimates of violence, crime, and the distribution of law enforcement in the workforce, and second order measures including mean world views and politically moderate ideology. Employing a cross-

sectional research design, five hundred and nine adults completed the questionnaire designed for this study. In order to investigate the impact of new and traditional forms of exposure on the cultivation process, regression analyses were conducted for each cultivation outcome, with overall exposure serving as the independent variable, and each new and traditional form of exposure serving as a moderating variable. Each regression analysis tested the interaction between overall exposure and each respective moderating variable to determine whether the interaction significantly predicted the cultivation outcome. For each of the significant interactions, further analyses were conducted to specifically examine how cultivation outcomes varied across levels of exposure as a function of the moderator variable. The patterns of conditional effects reveal the ways in which traditional and new forms of exposure both differentially and similarly impacted the cultivation process. And, there is evidence, albeit mixed, that new and traditional forms of exposure differentially impact cultivation outcomes. This study serves as a starting point for future analysis and avenues of inquiry into what was previously an unexplored area of cultivation research: the implications of new and traditional forms of viewing on the cultivation process.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1

INTRODUCTION

Television Today

In his 2015 article, *What the evolution of television means for the world,* 1 Mainstream CEO Rajeev Raman states*:*

> If a picture is worth a thousand words, a video is worth even more. Television has been, and continues to be, one of the most important communication and entertainment tools for the world at large. As access to high-speed Internet continues to expand and, more significantly, the speed of access in people's homes continues to rise, we are witnessing a dramatic transformation in breaking down the walls of control around the TV in the living room.

As illustrated in the passage above, while much has changed—television technology has evolved, transforming the viewing experience—one thing has remained the same: Across the world, television is a dominant cultural force. We watch a lot of TV; in fact, thanks to these evolving technologies, we watch more than ever. According to Nielsen (2014), "American consumers are connected with screens throughout the day and engage with media content for more than 60 hours per week. TV remains at the center of consumer media consumption" (p. 5).

And, even though technological advancements have altered the television landscape, it is the convenience and abundance of access that technology affords that enables television to be such an enduring and integral part of our cultural world. Today, viewers can watch content across a multitude of different platforms and devices—for instance, on a traditional television or on a tablet or smartphone. According to Nielsen, viewers do watch content on different devices, with nearly two-thirds of television viewers watching content on their smartphone per month

(63%), approximately 40 percent of viewers watch on their PC, and nearly all viewers watch content on a traditional television (93%). And, viewers spend nearly 30 hours per week watching live or time-shifted television on a traditional television, as compared to 15 minutes of weekly viewing on a smartphone, and 1 hour and 15 minutes on a PC (Nielsen, September 2016). While the proportion of users per month who view on different devices demonstrates the reach of new media television viewing platforms, the amount of time spent viewing on these devices demonstrates that traditional television is still the dominant platform of choice.

Both amount of television viewing and the use of new digital television viewing technologies vary across age and race, with traditional media use and overall viewing increasing with age, Black viewers watching more television than other racial groups, and new device usage increasing among younger audience members (Nielsen, March 2016).

The amount of time spent viewing on smartphones, televisions, and computers only offers a glimpse into today's viewing environment. For instance, even when someone is watching on a television in their living room, it does not mean that they are viewing content through traditional means (e.g., over-the-air, wired cable, telco, satellite). Alternatively, they may actually be streaming content on their Internet-connected Smart TV or on their TV through a streaming media device, gaming console, DVD player, or other multimedia device connected to the television set. In March of 2016, viewers watched an average of more than 4 hours a week on these devices. And, in households with at least one traditional television, more than a quarter (27%) also owned a multimedia device (e.g., Apple TV, Roku), nearly a quarter owned a Smart TV (24%), nearly half owned a gaming console (44%), and more than three-quarters (76%) owned a Blu-ray or DVD player (Nielsen, September 2016).

Just as technology has afforded viewers a variety of different devices and platforms on

which to view television, viewers also have significantly more control as to when they can view content as well. For instance, DVRs allow viewers to time-shift and watch shows when it is most convenient for them, and more than half of television households (51%) own this time-shifting technology (Nielsen, September 2016). However, it is video on demand (VOD) viewing that is quickly becoming even more dominant in the daily viewing habits of audience members who place a premium on watching anytime (Nielsen, March 2016), with 53 percent of television households paying for a Subscription Video On Demand (SVOD) service such as Netflix (Nielsen, September 2016). And, Internet streaming services such as Netflix or Hulu Plus represent only a portion of VOD options available to consumers, with the greatest proportion of VOD viewers accessing On Demand content through their cable providers (Nielsen, December 2015).

Further, those who do pay for an Internet SVOD service like Netflix are generally paying for this service in addition to their cable or satellite subscription, not replacing the more traditional service with a newer option (Nielsen, March 2016). This pattern of new technology supplementing traditional television rather than replacing it is echoed by the findings that generally, SVOD viewers live in households with more television viewing devices (Nielsen, March 2016), and the more television a viewer watches, the more channels he or she views (Nielsen, September 2016).

With all of these changes to the television landscape—the abundance of devices, platforms, VOD services, and time-shifting options—traditional television viewing is still the most popular form of viewing, and our devotion to watching content still dominates our free time. This is evidenced by the fact that an adult in the United States spends an average of nearly

a week out of every month (more than 149 hours per month) watching traditional live television, and another 15 hours on average watching time-shifted content (Nielsen, March 2015).

The fact that television viewing still consumes so much of our time underlines the significance of understanding the continuing cultural dominance of television. Furthermore, it highlights the importance of gaining further insight and depth of knowledge regarding its evolution and how these changes impact audiences. The current study uses the conceptual and methodological framework of cultivation theory, introduced below, to advance this understanding. And, as will be described later, this new research serves as a source of theoretical refinement and elaboration for cultivation.

Theoretical Approach

Cultivation theory is founded on the premise that television serves the function of society's storyteller. Further, according to the cultivation perspective, the portrayals, plots, and scenarios—the "stories"—we see depicted on screen have become so entrenched in our everyday lives that television plays an integral role in shaping our conceptions of social reality. Because of television's central role in developing our shared reality, it is imperative that we understand the process of how, and in what ways, the predominant images and themes shape our social interactions and the way we view the world around us (Gerbner et al., 1986a).

In 1967-1968, Gerbner and his colleagues at the University of Pennsylvania commenced the landmark Cultural Indicators Project, a three-prong analytic approach to elucidating how television content contributes to the views and attitudes of the members of the viewing public. Morgan, Shanahan and Signorielli (2012) describe this tri-phased approach:

> The first component, known as *institutional process analysis*, investigates how the flow of media messages is produced and managed, how decisions are made, and how media organizations function. The second, *message system analysis* . . . track[s] the most stable, pervasive, and recurrent images in media content . . . to document the parameters and boundaries of the emerging 'systems' of messages . . . The third prong, *cultivation analysis*, is the study of how exposure to the world of television contributes to viewers' conceptions about the real world. (p. 3)

Particularly, it is the third prong of the analytic approach—cultivation analysis—that has been utilized most in empirically examining how television shapes viewers' perceptions and attitudes, and it is the methodological approach employed in this study.

While cultivation does analyze the impact of what a viewer watches on screen on their values and beliefs, it is important to emphasize that cultivation is not a theory of cause-and-effect that views television as an agent of social change. Rather, cultivation is a theory of cumulative impact, one that emphasizes the integral role that television plays in the complex process of socialization. Shanahan and Morgan (1999) affirm this point, asserting:

> Cultivation does not imply a one-way monolithic causal impact, but rather a contribution that is subtle, complex, and intermingled with other influences, deriving from interactions between the medium and its publics, in (once again) dynamic and reciprocal ways. (p. 37)

To date, more than 650 studies have been published that fall within the broad purview of cultivation research (Morgan, Shanahan, & Signorielli, 2015). Cultivation theory has therefore proven to be an enduring and generative research approach and framework for communication scholarship. Despite this amount of empirical work, however, because television has evolved so

much over time, some question the relevance of cultivation (a theoretical tradition that emerged during the "network era" of television) as a viable approach to studying television and its impact in the current media environment.

As will be discussed in the next chapter, cultivation theory has evolved greatly from when it was originally conceived; research has advanced the theory through conceptual elaboration and through empirical refinement. Rather than challenging its viability, the technological evolution of television instead presents cultivation with yet another opportunity for theoretical advancement—and this study seeks to capitalize on that opportunity.

Study Rationale and Overview

According to Nielsen (2015, March), "TV remains at the center of consumer media consumption . . . increases in time-shifted viewing and streaming video through a PC or smartphone . . ." have resulted in a total increase in consumption of television content as compared to 5 years ago. This means, first and foremost, that with people watching more TV than ever before, cultivation is more relevant than ever. This is not to say, however, that the new television environment does not present new challenges.

As predicted by Shanahan and Morgan more than 15 years ago, "New media . . . do present measurement challenges for cultivation research" (1999, p. 218). With so many new ways of consuming content—viewers now watching on multiple platforms and devices, streaming content from the Internet, viewing content both live and time-shifted, as well as accessing content on demand from cable, Telco, and streaming services—measuring television exposure has become far more complex than ever before. Despite this complexity, no cultivation

study to date has attempted to incorporate new media technologies in the measurement of overall television exposure.

The current study fills this void by operationalizing television exposure across platforms, devices, and services. In addition to the issue of measurement, new media technologies present other challenges and opportunities. As proclaimed by Shrum and Lee (2012):

> One challenge for cultivation researchers in the next decade is to determine whether there are any interesting interactions between the new media and the old, whether the new media enhance traditional cultivation effects, and whether new media may create some of their own. (p. 164)

This study addresses questions regarding how these new patterns of television exposure intervene in the cultivation process. For example, "Does heavy viewing online (or on a DVR) have different implications for cultivation than heavy viewing over the air on a conventional television?" (Morgan et al., 2012, p. 399). No cultivation study to date has measured or addressed the question of how new media technologies and patterns of viewing intervene in the cultivation process, and this study examines this unexplored area of research.

Finally, in his discussion of the relevance of cultivation theory as an approach to mass communication research today, Perloff (2015) asserts, "Research attention should be directed at the ways that the modality on which content is viewed and the nature of the modality's formal features influence cultivation" (p. 543). This study is therefore firmly in alignment with Perloff's suggested research agenda for cultivation theory, for it directly addresses the void in cultivation research that currently exists—the measurement of television exposure in the current environment and analysis of the implications of new media technologies for the cultivation process.

It accomplished this by first offering a new conceptualization of television exposure across platforms, devices, and ways of viewing. Then, employing a cross-sectional research design, these new and traditional forms and patterns of exposure were presented along with measures of overall television exposure and demographic control variables that may impact outcomes. Traditional measures of cultivation outcomes served as the dependent measures; including estimates of violence, crime, and the distribution of law enforcement in the workforce, degree of interpersonal/social mistrust, political identification (also a demographic control variable), and sexism. Together, this exploratory study contributes to our understanding of how (if at all) elements of the new media environment, as well as traditional forms of exposure, have impacted the cultivation process.

In the chapter that follows, the origins and formative research and core concepts of cultivation theory are described. Also in Chapter 2, the refinements and growth of cultivation are presented, along with a discussion of the cognitive aspects of the process of cultivation. Finally, the existing research examining cultivation and the new media environment is introduced, including content diversification and new television technologies in order to contextualize the current study.

In Chapter 3, the methodological approach employed in this study is described, including the specific research questions addressed, the measures used in the questionnaire, sampling procedures, and the plan for data analysis. The results of the analyses are discussed in Chapter 4, primarily focusing on the degree to which new and traditional forms of television viewing impact the process of cultivation. Lastly, in Chapter 5, a summary of the results is provided, along with a discussion of this study's limitations. In the final section, suggestions for directions for future research are presented.

CHAPTER 2

CULTIVATION THEORY

Origins and Formative Research

From its inception, cultivation differentiated itself from other theories and approaches to media effects research by asking not "how to *change* ideas and behaviors, but what public perspectives, conceptions and actions different types of mass communication systems tend to cultivate" (Gerbner, 1966a, p. 433). While the landmark Cultivation Indicators project didn't commence until the end of the 1960s, as early as the 1950s Gerbner argued for alternative approaches and models of mass communication effects (Shanahan & Morgan, 1999). These critical appraisals would serve as the conceptual foundation for cultivation as a model of communication, and as an approach to studying the impact of mass media.

Specifically, Gerbner argued that communication research into mass media effects should not solely concentrate on how the mass media can best serve as stimuli for behavior change. This line of inquiry, according to Gerbner (1966b),

> . . . obscured not only the concept of communication as a special type of social interaction, but also the meaning of effect. Equating effect with change tended to inhibit investigation of the massive historical and structural connections between communication behavior, the nature and composition of message systems, and corresponding system of social relations. (p. 102)

Thus, rather than analyzing the degree to which a single media message enacted a specific attitudinal or behavioral change, Gerbner's foundational model of communication was concerned with long-term consequences of exposure to "the 'built in' qualities of communication products

as they reflect aspects of the communication sequence of which they are a part" (Gerbner, 1956, p. 198).

At the same time that Gerbner's model of communication and approach to understanding media effects gained momentum during the 1950s and 1960s, the medium of television was rapidly becoming the centralized institution and channel through which cultural messages were communicated to the masses. As early as 1960, viewers were already spending 20 percent of their waking hours watching television, with televised movies reaching the same number of viewers per night in their own homes as viewers per week in a movie theater (Gerbner, 1960). Because of television, culture was able to be commodified and broadcast on a massive scale, with the same messages viewed and consumed by every person who watches television; no matter their socio-economic status, education level, part of the country they live in, or any other myriad of ways that viewers differ from one another, television is the great equalizer. Television has transformed society by creating a sense of shared identity among people who, according to Gerbner (1972):

> May be totally different in every other way except for having messages in common . . . Having messages in common means having a basis for interaction through sharing the issues and definitions and the agendas of life, that these message systems, common message systems, cultivate. (p. 2)

The Cultural Indicators project was thus borne out of a "need know what general terms of collective cultivation about existence, priorities, values, and relationships are given in collectively shared public message systems" in order to empirically evaluate how the system of messages that comprise the television world impacts its audiences (Gerbner, 1969, p.141).

The Cultural Indicators research commenced in 1967-1968 with a study for the National Commission on the Causes and Prevention of Violence, in which Gerbner and his colleagues were tasked with measuring the extent and nature of violence on primetime American television. This project marked the first of a multitude of message system analyses, and led to the development of the Violence Index. The Violence Index captured the multidimensional nature of violence portrayals, measuring the prevalence of violence in programs, the frequency at which violent acts occur, and the nature of the portrayals of perpetrators and victims of violence and crime, tracking trends in portrayals of television violence over time. The Index was updated annually and the results were published periodically in a series of "Violence Profiles" (Gerbner et al., 1978).

As stated above, the message system analyses provided the Cultural Indicators team with data regarding the prevalence and nature of violence and crime in the television world. This statistical data comprised the "facts" of the television world that could be directly compared with real world data to determine how closely the facts of television violence matched the facts of societal violence. These comparisons revealed that the rates of violence, crime, and victimization in the television world were disproportionately higher than the rates of violence and crime in the real world (Shanahan & Morgan, 1999). This disparity between rates of violence in the television world and the real world is exemplified by the following comparisons of message system and 1970 Census data.

As reported in the violence profiles (Gerbner et al., 1977, 1978), characters in primetime drama had anywhere between a 30 and 64 percent chance of being involved in violence, while the chance of being involved in violence in the real world was only one-third of 1 percent; these statistics indicate that the likelihood of being involved in violence in the television world was, at

minimum, 100 times that of the real world. Gerbner and colleagues also found that in the television world, 58 percent of homicides are committed by strangers, which was 3 times the percentage of homicides that occurred between strangers in the real world.

As briefly described in the previous chapter, message system analysis is just one stage of the cultivation research approach. As described by Gerbner and colleagues:

> Once the 'television view' and the 'real world' or some other view of selected facts and aspects of social reality have been determined, we construct questions dealing with these facts and aspects of life. Each question has an inferred or objectively determined 'television response' reflecting the 'television view' of the facts and a 'non-television answer.' (1978, p. 195)

For example, grounded in the data reported above, the cultural indicators team asked viewers if they believed that "Most fatal violence occurs between strangers *or* between relatives or acquaintances." If viewers believed that most fatal violence occurs between strangers, they would be providing the "television answer;" the percentage of viewers who provided the television answer was then calculated and analyzed across levels of viewing. This was done in order to determine if the percentage of heavy viewers providing this television-consistent response was significantly higher than that reported for light television viewers (Gerbner et al., 1977). More specifically, a typical cultivation analysis starts with:

> . . . cross-tabulations between television viewing (using a three-way split of light, medium, and heavy viewing) and the answers to the substantive questions (categorized by the TV and non-TV answers). The percentage difference between heavy and light viewers is reported as the 'Cultivation Differential' (CD). (Shanahan & Morgan, 1999, p. 26)

The analyses were not limited to the comparison of the facts of the television world and the facts of the real world; the cultural indicators team was also interested in how exposure to these portrayals contributed to viewers' beliefs and attitudes, and how television informed their worldviews.

In order to investigate this, in addition to simply asking questions about rates of violence, researchers would also ask viewers questions about how fearful they were and how trusting they were. For example, viewers were asked to indicate whether they believed "that most people can be trusted" or "that you can't be too careful in dealing with people." Gerbner and colleagues found that heavy viewers consistently chose the latter response option "that you can't be too careful in dealing with people" more frequently than light viewers (Shanahan & Morgan, 1999). The finding reported above was just one example of the evidence gathered from their research. By the end of the 1970s, all of the evidence gathered to that point led Gerbner and colleagues to assert, "The most significant and recurring conclusion of our long-range study is that one correlate of television viewing is a heightened and unequal sense of danger and risk in a mean and selfish world" (1979, p. 196).

Theoretical Advancement and Refinement

As the 1970s came to a close, a general hypothesis emerged from the research of the cultural indicators team: "That the nature and contours of the symbolic cultural environment—and the amount of time we spend living in it and absorbing its messages and lessons—have a relationship to how we think about the world" (Shanahan & Morgan, 1999, p. 81). As cultivation research moved into the next decade, its agenda expanded and advanced. While much of the early empirical work of cultivation research was related to the measurement and

analysis of portrayals of violence on television, and the evaluation of how exposure to these portrayals cultivated judgments and perceptions of social reality, cultivation research was not limited to the subject of television violence. Message system analyses of the nature and prevalence of television's portrayals of race, sex, age, marital status, occupational status, and the intersections among these portrayals, also provided demographic data about the television world that could be directly compared to the demographic structure of society. According to Signorielli (1984), these message system analyses revealed:

> Consistent and persistent patterns of over- and under-representation. Patterns that are race and sex related and that serve to perpetuate many existing stereotypes. Moreover, these images serve to relegate certain groups of characters, namely women and minorities, to similar types of roles, to stereotyped roles, to being less useful, and to having fewer opportunities and life chances. (p. 157)

In addition to expanding the range of topics covered for the message system analyses, research was also conducted analyzing the cultivation of a broader range of attitudes and beliefs. Specifically, the analyses focused on the cultivation of attitudes and beliefs related to sex-roles, science and the environment, family values, materialism, religious ideology, and political attitudes were conducted (Morgan, Shanahan, & Signorielli, 2012). For instance, based on these findings regarding the portrayals of women in the television world, studies examined the degree to which television cultivated notions of traditional sex roles, determining that adolescents who viewed more television expressed more gender-stereotypical attitudes about household chores and feminine and masculine traits (Morgan, 1982; 1987).

Based on the message system analyses of the portrayals of scientists and science on television, Gerbner and colleagues (1981) analyzed television's cultivation of attitudes regarding

the scientific community. The message system analyses revealed that scientists were rarely portrayed, and when they were portrayed, that these portrayals were rarely positive. Rather, scientists were more likely to be shown as strange, and even sinister. Next, in their analysis of television's cultivation of attitudes regarding the scientific community, Gerbner and colleagues (1981) found that the strongest association between television viewing and low confidence in the science community was found for the group of viewers who are predisposed to having the most positive view of the scientific community (viewers who are younger, more highly educated, and have a higher income). In another study, Gerbner and colleagues analyzed television's cultivation of political orientations. They found that particularly for liberals, "viewing blurs traditional differences, blends them into a homogenous mainstream, and bends the mainstream toward a 'hard line' position on issues dealing with minorities and personal rights" (p.126). These findings are both demonstrative of mainstreaming, which is discussed next.

In addition to expanding its topical repertoire, the 1980s was also period of theoretical advancement and refinement; it was during this period that a more nuanced understanding of the complexity of the cultivation process emerged. Specifically, two core components of the cultivation model of media impact—mainstreaming and resonance—emerged as a result of analyzing how demographic variables may intervene, moderate, or mediate the relationship between television viewing and the cultivation of social beliefs and attitudes.

The empirical foundations of these theoretical concepts can be traced first to the acknowledgment that heavy and light viewers may differ from one another across any number of demographic and social characteristics. To deal with this, Shanahan and Morgan (1999) explain:

> Differences between the responses of light, medium and heavy viewers are routinely examined within specific demographic subgroups, and/or the effects of

> other variables are statistically controlled . . . The differences associated with amount of viewing are sometimes independent of, but usually interact with the many social, cultural and personal factors that differentiate light and heavy viewers. In other words, the strength, shape and even direction of cultivation relationships . . . may all vary considerably for different types of people and members of different groups at different social locations. (pp. 26-27).

Perhaps cultivation's most empirically supported phenomenon is the process through which exposure to television seems to override the differences that exist among heavy viewers, pulling their worldviews to reflect the values promoted on screen—namely, those that reflect and maintain the status quo. Gerbner and colleagues referred to this phenomenon as 'mainstreaming,' explaining:

> The 'mainstream' can be thought of as a relative commonality of outlooks and values that exposure to features and dynamics of the television world tend to cultivate. By 'mainstreaming' we mean that the expression of that commonality by heavy viewers in those demographic groups whose light viewers hold divergent views. In other words, differences found in the responses of different groups of viewers, differences that can be associated with other . . . characteristics of these groups, may be diminished or even absent from the responses of heavy viewers in the same groups. (1982, p. 104)

Mainstreaming has been identified as the central and defining phenomenon of the cultivation process, demonstrating that cultivation is not a theory of cause-and-effect that views television as an agent of social change, but rather a theory of cumulative impact, one that emphasizes the

integral role that television plays in the complex process of socialization. (Shanahan & Morgan, 1999).

Mainstreaming is a prime example of how accounting for cultural, social and demographic viewer characteristics in statistical analyses can reveal the dynamics of the cultivation process, and specify patterns of interaction through may reduce or enhance the cultivation effect. Another example of a cultivation phenomenon that enriches our understanding of the interplay between television viewing and the social world of the viewer is the concept of resonance.

More specifically, resonance is a concept that recognizes the moderating role that a viewer's life experience may have on the cultivation process. As explained by Shrum and Bischak (2001), "Resonance suggests that those people whose life experiences are more congruent with the experiences of the television world will be most affected by the television message" (p. 191). For instance, Gerbner and colleagues found self-reported fear of crime was highest for heavy viewers who lived in high crime urban areas. This led them to conclude that because television's violent imagery may align "with the rea1-life experiences of urban dwellers in high crime areas . . . these people receive a 'double-dose' of messages that the world is violent, and consequently show the strongest associations between viewing and fear" (1980, p. 46).

Additionally, in the empirical development of cultivation theory, researchers have focused on distinguishing between different types of cultivation effects. This research has resulted in two distinctive categories: first-order and second-order effects. As stated by Gross and Aday (2003, p. 412), "First-order effects involve audiences adopting television's overestimation of the occurrence of everything from the number of murders to the number of

doctors in the real world; second-order effects are the ways in which television viewing shapes audiences'" real world perceptions, attitudes, and values such as interpersonal mistrust, fear of victimization, feelings of isolation, and sexism.

To summarize, through empirical research, the theory has been further explicated, resulting in a richer and more refined understanding of the cultivation process. In addition to these conceptual clarifications and refinements in the theory, critiques of the empirical research have produced methodological clarifications as well. For instance, critics of cultivation have focused on the possibility that variables such as demographic characteristics may present alternative explanations for significant relationships found in cultivation studies (Williams, 2006). In response, cultivation research has acknowledged and addressed this issue, for "cultivation patterns are examined controlling for these other background factors—both within specific subgroups . . . as well as through statistical techniques that control for multiple variables simultaneously and test for interactions" (Morgan, Shanahan, & Signorielli, 2015, p. 681). The previously mentioned concept of resonance is one example of how controlling for multiple variables, and testing for patterns of interaction, can result in theoretical refinement and enhance the power of the explanatory model.

As will be discussed in greater detail later, television as we know it today is far different from television in the late 1960s (when the Cultural Indicators project was introduced); this has led some to question the relevance of cultivation as a viable approach to studying television and its impact in the current media environment. But as is evident from the discussion above, cultivation theory has evolved from when it was originally conceived; research has advanced the theory through conceptual elaboration (for instance, the concepts of resonance and mainstreaming) and through empirical refinement (for instance, statistically controlling for

demographic and other confounding variables all at once, rather than one variable at a time). As cultivation theory has evolved, so has our understanding of how cultivation "works." The evolution of this understanding is discussed next.

Cognitive Processes

Cultivation is a macro-level approach to understanding how television functions as a dominant cultural force in society. Further, according to Hawkins, Pingree and Adler (1987, p. 554), "Its main concern is with the influence of television as an industry and as a symbolic system on society as a whole . . . the individual is not the main subject of current research on cultivation." Despite the fact that the focus of cultivation is not on the individual, Hawkins and colleagues argue that there are still issues that need to be addressed concerning how cultivation "works," and what is going on in the mind of the heavy television viewer. Specifically, they asked:

> How does viewing large amounts of television lead individuals to possess certain beliefs and not others? What kinds of psychological processes are involved, in what order, and at what times? Should these processes be conceived in terms of learning, meaning construction, prototype recognition, or some other form? (1987, p. 554)

These questions serve as the foundation for the years of research that followed concerning the psychological processes underlying cultivation effects.

In addition to laying some of the groundwork for psychological inquiry in cultivation, in 1982, Hawkins and Pingree were the first to draw attention to the important empirical distinction between measures of first order (or what they labeled "demographic beliefs" about social reality)

and second order cultivation effects (which they labeled "value system measures") (Shanahan & Morgan, 1999).

Specifically, demographic measures or first order effects are objective in nature because, for instance, using the "clear benchmarks in television content [derived through message system analysis] and real-world census and crime statistics, one could compare a respondent's estimates of prevalence of violence both to manifest content of television and to real-world statistics" (Hawkins, Pingree, & Adler, 1987, p. 560). Second-order effects (or value system measures), on the other hand, are more subjective, for they do not have a direct means of comparison to the television world. Rather, second-order effects are judgments that are inferred by the system of messages presented in the television world. Hawkins and colleagues were interested in how these inferences were constructed, and proposed that these beliefs were constructed through the following process:

> Viewers may construct second-order beliefs based on the influence that television viewing has had on their beliefs about demographic patterns. That is, a viewer whose beliefs about the demography of life in the United States (e.g., occupations, chances of being involved in violence) are influenced by television's distortions would then use those distorted demographic beliefs to generalize to beliefs such as interpersonal mistrust or fear of walking alone at night. (1987, p. 561)

If this process was correct, then the relevant demographic measure should be a more significant predictor of the related outcome belief than the predictor of television viewing (for example, estimates of crime rates should be a stronger predictor than amount of television viewing for the second-order measure of fear of crime). In order to test this hypothesis, the researchers controlled for demographic predictors in their correlational analysis of the relationship between

television viewing and second-order social beliefs, with the expectation that controlling for these variables would reduce the strength of the association between television viewing and the second-order outcomes.

Hawkins and colleagues (1987) found that, contrary to their hypothesis that demographic beliefs would predict value system beliefs, demographic measures were not "an intervening variable or condition in the relationship between television viewing and second order beliefs," leading them to question "not only the proposed implication process but also the distinction between these two kinds of cultivation beliefs" (p. 573). As described below, while Hawkins and Pingree recognized the distinction between first and second order effects, in the decades that followed their initial observations, researchers would offer alternative and refined models of the cognitive processes through which these beliefs and attitudes are formed.

Most notably, Shrum and colleagues' development of two explanatory process models of cultivation effects that " . . . separately explain the processes underlying different types of cultivation effects, in particular what are generally referred to as effects on first-order (e.g., estimates of prevalence, probability) and second-order (attitudes, values, beliefs) judgments" have illuminated how these two types of cultivation effects are constructed, and explain why factors that may have little impact on first-order effects may actually facilitate second-order effects, and vice-versa (Shrum, 2003, p. 58).

The process model of first-order cultivation effects is an accessibility model, which asserts that these estimate judgments are memory-based judgments that are constructed through heuristic processing (which refers to the tendency for people to take cognitive shortcuts when they are faced with answering questions for which they may not have a ready answer). So, when asked to make a prevalence estimate, rather than search their memory for information, people

will apply the availability heuristic, a term which "refers to the tendency to infer frequency of occurrence from ease of recall" (Shrum & Lee, 2012, p. 151). Due to the fact that "television portrays certain constructs more often than they occur in real life, frequent television viewing increases the accessibility of these constructs in memory" (Shrum et al., 2011, p. 36). Thus, the more someone views television, the more accessible and easy-to-recall the exemplars become. Therefore, when the heavy viewers apply the availability heuristic when making frequency judgments, it is the exemplars that serve as their source of information, causing the heavy viewer to "make higher judgments of frequency of occurrence, consistent with a cultivation effect" (p. 37).

Due to the fact that first-order judgments are constructed through heuristic processing, it stands to reason that conditions that increase the propensity to use cognitive shortcuts should enhance first-order cultivation effects. Two conditions that facilitate the use of heuristic processing involve the motivation and ability to process information. When the motivation to process information is high (i.e., when one wants to search their memory in order to make accurate judgments), they are less likely to apply heuristic shortcuts; thus, it is when motivation to process is low that heuristics are used. Similarly, when the ability to process information is low (for instance, when someone is asked to make a quick snap judgment), heuristic processing is likely to occur. Therefore, low motivation and low ability to process information are the conditions that facilitate heuristic processing and enhance first-order cultivation effects.

While these memory-based judgments are made at the time the questions about prevalence are elicited, second-order value judgments are made in an online fashion, meaning they are constructed during the viewing process and they are made spontaneously. According to Shrum and Lee, "This type of process generally describes a model in which television portrayals

function as a persuasive communication" (2012, p. 159). In models of persuasion, such as the Elaboration Likelihood Model, variables that impact the processing of information enhance persuasion. Two such variables that impact persuasion are motivation and ability to process information; particularly, persuasion is enhanced when motivation and ability to process is high. Interestingly, Shrum and Lee note, "These two predictions are exactly the opposite of the effects of motivation and ability that were predicted and observed in the case of first-order cultivation effect" (2012, p. 159).

In their research, motivation to process information is operationalized as "need for cognition," which refers to the extent that an individual enjoys engaging in complex thinking, while ability to process information is operationalized as "attention to viewing." Across several studies of the effect of television viewing on material values, Shrum and colleagues (Shrum, Burroughs, & Rindfleisch, 2005; Shrum, 2009; Shrum et al., 2011; Shrum & Lee, 2012) determined that greater frequency of television viewing was correlated with higher levels of materialism (clear evidence of second-order cultivation effects); they also found that cultivation correlations were strongest for heavy viewers who also scored high on measures of need for cognition and attention to viewing. This finding supports the proposition that persuasion is enhanced when motivation and ability to process is high.

In addition to motivation and ability to process information, Shrum and Lee have found that second-order judgments are "affected by the extent that people are involved in the program, pay attention to it, and are transported into the narrative" (2012, p. 162). According to Shrum and Lee, narrative transportation is a concept that encapsulates involvement, attention, and, of course, transportation into a narrative. They explain:

> Transported viewers become engrossed in the story, are highly involved and cognitively engaged, think vivid thoughts, and react emotionally to the narrative . . . To achieve and maintain this state of transportation, viewers may suspend disbelief and actively avoid counter arguing, thereby ignoring facts that may contradict the narrative's message. (Shrum & Lee, 2012, p. 161)

While Shrum and colleagues have not analyzed how transportation impacts second-order cultivation outcomes in cross-sectional research yet, their experimental data indicates that transportation may indeed enhance second-order cultivation effects (Shrum et al., 2011).

Over the course of the past half-century, cultivation theory has evolved, resulting in a more complex, refined and comprehensive understanding of the process of cultivation. This research on the cognitive processes of cultivation is essential to understanding how cultivation "works" at the micro-level. Next, the existing literature examining cultivation in the new media environment is presented in order to contextualize this study's analysis of the impact of new and traditional forms of exposure on the cultivation process within the broader cultivation framework.

Cultivation and the "New" Media Environment

Cultivation theory is based on the assumptions that 1) television provides viewers with a "stream of messages" that cut across genres and programs and 2) that the television viewer is relatively non-selective in what he watches, and ritualistic in the pattern of viewing (Morgan, Shanahan, & Signorielli, 2015, p. 667). Over the course of its growth as a theory and area of research, these assumptions have been challenged on both methodological and conceptual grounds. But, when considering its historical origins, this conception of television and its

audience was fitting to the times, for cultivation theory was developed during the “network" era of television, in which there were 3 broadcast networks; unlike today’s viewers, who can actively choose to view content live, the audiences of yesteryear were bound by the linear and limited programming schedule. As Gerbner and Gross (1976) explained,

> All major networks serving the same social system depend on the same markets and programming formulas. That may be one reason why, unlike other media, television is used non-selectively; it just doesn’t matter that much. With the exception of national events and some “specials,” the total viewing audience is fairly stable regardless of what is on. Individual tastes and program preferences are less important in determining viewing patterns than is the time a program is on. The nearly universal, non-selective, and habitual use of television fits the ritualistic pattern of its programming. (p. 177)

Thus, if viewers were going to watch television at 8PM, for example, they would only have 3 primetime programs from which to choose. And, if you missed your favorite program, you had no way of watching it at a later time. Thus, while a light viewer could be relatively selective if they only watched 1 hour of television per day, for the heavy viewer, consuming 4 or more hours of television per day would inevitably result in exposure to more of everything. In all, viewers at this time had little choice in content, and little control, for they were bound to the medium in terms of time (the network schedule) and place (usually the living room).

But as cultivation—and its conception of programming as formulaically coherent, and its audience as non-selective—was gaining prominence in the 1970s, technological advances in the television industry were presenting viewers with (what, at the time, seemed like) television

unlike anything they had experienced in the past; one with far more choice in content, as well as greater control over the medium itself.

This shift towards an age of greater choice and control gained momentum in the mid-1980s, ushering in what Lotz (2014) has labeled the "multichannel transition" era of television. This new era emerged as a result of several technological advances that seemingly altered the television landscape; namely, cable television, remote control devices (RCDs), and videocassette recorders (VCRs). While cable gave viewers access to a multiplicity of channels, and a variety of content (the actual extent of variation being questioned by Gerbner and colleagues) from which to choose, it was the VCR drastically altered our conception of the television viewing experience. As Lotz contends:

> The VCR is one of the first technologies to trouble our understandings of 'television.' The distribution of the VCR as an affordable technology . . . significantly expanded viewers' relationship with and control over television entertainment . . . allowed viewers to negate programmers' strategies through time shifting and introduced new competitors such as the home video purchase and rental market . . . the VCR also enabled the television set to function entirely independently of the networks' linear program schedules. (2014, pp. 56-57)

With these new technological developments, however, came new challenges to cultivation's theoretical assumptions; this resulted in several critiques regarding the relevance of cultivation research in this multichannel era—an era in which new technologies have transformed the television viewing experience.

From the outset, proponents of cultivation contended that these new technologies did not challenge the basic assumptions of cultivation theory, and that diversity in content and potential

for selectivity does not threaten or negate the core assumptions of cultivation. As argued by Gerbner:

> Even to the extent that viewers feel that they are being selective in favoring or avoiding certain types of programs, the thematic and dramatic elements making up different types and genres of programs are often quite similar. . . These overarching elements expose large communities over long periods of time to a coherent structure of conceptions about life and the world . . . Steady repetitive exposure to these structural components tends to cultivate stable images of society and the self . . . [which are] more likely to stem from the coherent and interrelated symbolic structure to which most viewers are constantly exposed than from any specific programs, idiosyncratic viewing, or selective habits. The existence of this coherent, mainstream system of messages is thus the basic 'medium' of cultivation. (1990, pp. 255-257).

Further, as Shanahan and Morgan (1999) asserted, there is no "evidence that more channels have meant more diversity in voice" (p. 209). And VCRs were viewed not as a technology that would drastically alter television viewing, but rather as "new 'delivery vehicles' for the same mass produced content. . . as an extension or strengthening of existing marketplace mechanisms and content patterns" (Shanahan & Morgan, 1999, p. 204). While conceding that these technologies did have "the *potential* to allow more diversity and selectivity in the choices that Americans make in their entertainment decisions," it does not mean that this potential will be actualized (Morgan & Shanahan, 1991, p. 126).

Concisely stated, the critiques described above centered on cultivation's alleged view of content as uniform, its operationalization of exposure which did not account for this supposed

diversification of content, and its lack of recognition for the agency of the viewer. Further, if these technologies gave viewers so many options, critics argued that they are going to be selective—which challenges a central tenet of cultivation theory; namely, the relatively nonselective nature of television viewing.

More specifically, according to Perse and colleagues (1992), "These newer television technologies allow for greater television selectivity for two reasons. First, they increase the programming options available to viewers. Second, they increase the ease with which viewers can selectively expose themselves to television content" (p. 3). Whether or not a greater number of channels and programming options actually translated to diversification of content is debatable. For instance, Morgan and Rothschild's (1983) study of how cable access impacts the cultivation of sex role stereotypes led them to conclude, "Instead of increasing diversity per se, cable may be providing 'more of the same,' which will only intensify and confirm the messages of network television" (p. 40). Regardless of whether or not they diversified television content, these technological changes generated a great deal of cultivation research. The studies reviewed next focus specifically on the impact of cable television and the supposed content diversification that this new technology ushered in. As detailed here, researchers responded to the abundance of (potentially diversified) content by measuring exposure to specific categories or genres of television content, such as comedy, crime shows, and soap operas (as opposed to overall exposure). Following the discussion of this body of research focused on genre exposure, this chapter will conclude with a discussion of the cultivation research concerning the impact of the other "new" television technology: the VCR.

Studies of genre exposure challenge the assumption of television viewing as ritual based on the concept of selective exposure. Selective exposure is a concept that builds upon this idea

of heterogeneity of television content. Described in early genre research (Hawkins & Pingree, 1980, 1981), and developed and explained in greater detail in more recent research (Bilandzic & Rossler, 2004; Bilandzic & Busselle, 2008, 2012; Cohen & Weimann, 2000), television viewers are selective because they "do have specific preferences and compose their individual television fare accordingly" (Bilandzic & Rossler, 2004, p. 299).

It is important to note that contrary to these critiques painting Gerbner and colleagues as uncompromising in their belief in content uniformity, and unwavering in their rejection of any notion of viewer preferences, the views of the Cultural Indicators team did not match up with this portrayal. In fact, according to his colleagues:

> Gerbner never claimed that all types of programs were completely identical in content but rather that certain patterns and lessons appeared across a number of different genres, that the same viewers watched them all, and that many genre differences were complementary. (Morgan, Shanahan, & Signorielli, 2015, p. 690)

The genre-specific critiques of cultivation, however, argued against Gerbner's notion of grand ideologies that cut across genres, instead asserting that there was a different set of messages and themes for different genres and programs; therefore, selective exposure necessarily implied exposure to only the narrow set of messages that characterized the genre or program which the viewer had chosen to watch.

Hawkins and Pingree (1981) were among the earliest researchers to consider a genre-specific approach to cultivation theory. Their study analyzed young people's amount of exposure to different television content types, with exposure to each genre measured as the average viewing reported in the subject's four-day television diary. Interestingly, in the process of

categorizing television programs into genre categories, they encountered a major issue that plagues genre measurement in general: the ambiguous and subjective nature of categorization. According to the authors:

> [The] potential problem is that our assignments may have still been too broad. For example, "M*A*S*H" and "Happy Days" were both classed as comedies, but the nature and setting of the comedy is quite different. Similar problems exist within two other categories-drama and documentaries and public affairs" (p. 294).

In addition to genre exposure, this method represents a departure from cultivation's classic approach of asking participants to self-report what they think their average viewing habits are; acknowledging this departure and in an effort to check the accuracy of the 4-day diary, the researchers also included a scaled response measure of viewing frequency for each genre. They found that the two measures were not related; however, the diary measure was found to be more predictive of cultivation outcomes (Hawkins & Pingree, 1981). The overall purpose of this study, according to Hawkins and Pingree, was to challenge the 2 foundational assumptions of cultivation theory (outlined earlier) in three ways:

> [By analyzing] the relative contributions of viewing different program types of cultivation . . . the relative predictive power of total viewing and individual content types, and . . . the relationship between conceptions of social reality and watching more or less of a given content type. (p. 292)

However, despite their stated intent, rather than rejecting cultivation and its assumptions, they actually spoke in support of cultivation, and argued for the importance of future research: "Even

if patterns of events and characterization differ by content types, the task of inferring symbolic messages can and should proceed, since cultivation does occur" (p. 300).

Nearly two decades later, Cohen and Weimann (2000) studied how genre devotion (along with factors such as age and gender) moderated the relationship between television exposure and social beliefs. A sample comprised of Israeli students was asked to estimate the average number of hours they view on a typical weekday and during vacation. Measuring television exposure through self-report average estimates of daily exposure is a methodological approach commonly used in cultivation research, but as the researchers acknowledged, by asking how many hours youth viewed during school vacation, they may not have been provided with the most accurate picture of typical viewing habits. However, as will be addressed, the fact that the researchers included an overall measure of exposure (as opposed to only genre exposure) is laudable, for this is a logical methodological approach if the analysis is to fall within the confines of cultivation research methodology (unfortunately, this logic seems to be missing from so many other genre-specific studies of cultivation).

Genre devotion was measured using frequency scales; nine items measured devotion to nine separate television genres. This study wasn't an analysis that sought to disprove the assumptions of cultivation; its inclusion of genre devotion as a possible moderating variable was exploratory in nature (Cohen & Weimann, 2000). Thus, while the researchers did support the perspective that television offers a wide variety of different content, and that audiences are selective in choosing what they want to watch, their analysis still focused upon overall exposure as the primary independent variable. This inclusion of a measure of overall exposure is crucial, for, according to Morgan, Shanahan and Signorielli (2015):

> Too often, studies look at the impact of watching some genre on some attitude and assume they are observing the independent contribution of exposure to that genre, but most viewers still watch more than one genre. Although viewers may learn a lot about doctors from medical dramas, messages about doctors (perhaps contrary, perhaps congruent) also appear in . . . many other genres. (p. 691)

Again, as is evidenced above, the cultural indicators team never stated that diversity in content and genres do not exist, but rather that beneath this surface diversity is a foundational system of messages that characterizes television as a cultural institution. Thus, according to the authors, there is value in looking at genre viewing as long as overall exposure is also measured, for the methodological approach could "allow us to make these sorts of overall versus genre comparisons more open to systematic empirical assessment" (Morgan, Shanahan & Signorielli, 2015, p. 691).

The critiques of cultivation research have not solely focused on content diversity, of course. Over the past several years, Bilandzic, along with Rossler (2004) and Busselle (2008, 2012) have conducted genre-related research that critiques two of cultivation's core assumptions (as outlined earlier). Regarding the first assumption, Bilandzic and Rossler (2004) argue (with no denial, yet again, from the cultivation camp):

> *Homogeneity* of television content can easily be refuted when simple factual (traditional) indicators are considered, like acts of violence, professional roles or gender of television persons. Such indicators do vary across genres and even across individual shows. (p. 321)

For these researchers, it is the second assumption, that of the habitual and ritualistic viewer (as opposed to the selective viewer) that has been an area of intense scrutiny.

The research conducted by these scholars has been fruitful and complex. Some of this research has contributed to the breadth of knowledge by providing a better understanding of the conceptual meaning of television genres and identifying the underlying psychological mechanisms involved in the selective viewing process. For instance, Bilandzic and Busselle's (2012) research found that "genres not only share specific common characteristics in plots and characters, but may also predict the type of experience that viewers can expect" (p. 265). Relatedly, research has explored how motivations for and gratifications sought from selective viewing (Bilandzic & Busselle, 2008; Bilandzic & Rossler, 2004), as well as degree of engagement or transportability of the narrative (Bilandzic & Busselle, 2008), impact the cultivation of genre-consistent attitudes.

Specifically, Bilandzic and Busselle's research proposes a complex interplay between the constructs of genre exposure, genre affinity, narrative engagement (also labeled as transportation), and genre enjoyment in the cultivation of genre-consistent beliefs. In this interplay, genre enjoyment is enhanced through narrative engagement, which in turn facilitates viewers' motivation to seek out that genre. Greater exposure to the genre facilitates familiarity with the genre's conventions which "helps viewers focus on the actual plots without having to think about the prerequisites of the genre; ultimately, this will increase effects" as well as encourage repeated exposure to the genre (2012, p. 267). In addition to an abundance (and debatably, diversification) of content , the introduction of the VCR, as described earlier, also transformed the television viewing environment.

In their exploratory study of how VCRs may impact the cultivation process, Morgan and Shanahan (1991) analyzed longitudinal and cross-sectional data measuring overall television viewing, VCR penetration, and patterns of usage (how much they used the VCR and for what

purposes, such as renting movies or taping TV shows), and the cultivation dependent measures of sex role stereotypes, interpersonal mistrust and perceptions of violence. Because the study was exploratory in nature, there were no hypotheses explicitly tested, but the authors generally expected that VCR usage, and its ability to augment amount of exposure, would either maintain or strengthen the cultivation effect.

The sample for this mixed longitudinal and cross-sectional study was comprised of teenagers from the local school system in a suburban/rural Northeastern town. At Time 1, the sample was composed of 910 students (ranging in grade level from grade 7-grade 12). At Time 2 three years later, the questionnaire was administered to a cross-sectional sample of students in grades 9-12 (this sample of students was drawn from the same high school as Time 1). The sample was composed of 642 participants total; 206 of these participants were also measured at Time 1, allowing for longitudinal analysis of the data for these 206 students.

As compared to the instrument used in the first phase of the study, the questionnaire administered in the second wave of the study more specifically focused on amount and patterns of VCR use, of which ownership had nearly tripled over the three year period. In this second phase of the study, amount and patterns of VCR usage were measured in several ways:

> These included overall family and respondent use (almost every day to hardly ever on a 5-point scale), VCR co-viewing patterns, types of uses of the VCR endorsed by the respondent (e.g., cable movies taped, late night TV, and so on), decision making and conflicts about the VCR, and rules about the VCR. (Morgan & Shanahan, 1991, p. 128)

The measures of the amount and nature of VCR use listed above were analyzed in 2 ways: 1) They were treated as independent variables in order to ascertain the new technology's

independent contribution to cultivation outcomes, and 2) They were analyzed in order to determine how the amount and nature of VCR usage and "varied across light, medium and heavy television viewers to see if the implications of the VCR are different according to overall television exposure" (p. 130).

When analyzed as the predictor variable, VCR usage did not significantly independently impact cultivation outcomes, but when combined with overall viewing, the associations with the dependent measures did get stronger. Further, when analyzed across light, medium, and heavy viewers, interesting patterns of VCR use were revealed. Most notably, for light viewers, the VCR did lead them to be even more selective in their viewing; in fact, their diversification may have led them to be exposed to alternative viewpoints. However, for heavy viewers, Morgan and Shanahan's prediction that the VCR would increase their exposure to more of the same content rang true, for it strengthened the relationship between viewing and greater mistrust, fear, and sexism.

Specifically, for heavy viewers, the analyses revealed that the associations between overall VCR use and 2 of the 3 outcome measures (chances of violence and sexism) were positive and significant. And among heavy viewers, while the relationship between overall amount of VCR use and the other dependent variable of mistrust was not significant, when the VCR was used specifically for the purposes of renting tapes and time-shifting, the correlations between mistrust and amount of VCR usage were positive and significant. This led the researchers to conclude:

> The general implication of these results is that for heavy television viewers, the VCR signifies greater commitment to video as a form of entertainment and greater exposure to (and absorption of) consistent messages about life and society

. . . All this suggests that traditional messages can be transmitted in nontraditional ways. (pp. 133-134)

Perse and colleagues (1992) also explored the impact of new media technologies on cultivation effects. Using two of the cultivation outcomes used in Morgan and Shanahan's (1991) study—mistrust and chances of violence—this study looked at the impact of VCR use and ownership, broadcast and cable channel repertoire (referring to the number of channels typically watched by the viewer), television viewing, and remote control ownership and use.

The two repertoire measures did conceptualize viewing in an interesting and novel way. While there are cable channels that offer a form of specialized content, there are also cable "superstations" whose content "mimics the broadcast networks" (Webster, 1986, p. 82). This study took these superstations into account, and combined these channels into a measure of broadcast repertoire (the more channels you report watching, the higher your repertoire score). Cable channel repertoire, on the other hand, sought to measure exposure to specialized content by providing a summative score for the amount of channels offering specialized content watched.

Broadcast channel repertoire ended up being the most significant predictor of cultivation outcomes, as the viewers with the highest broadcast repertoire scores reported greater feelings of mistrust and fear. Unlike Morgan and Shanahan, however, this study did not conduct analyses comparing light, medium and heavy television viewers, and instead television viewing was *only* measured and analyzed continuously. Further, unlike Morgan and Shanahan who looked at how VCR use varied across amount of viewing, and explored the implications of these interactions for cultivation outcomes, VCR usage was only tested as an independent predictor of cultivation outcomes in in Perse and colleagues' analyses. Unfortunately, then, Perse and colleagues' study did not offer comparable data on how usage varied across light and heavy viewers, and how this

differentially impacted cultivation outcomes. Thus, their analyses offered no evidence either supporting or refuting the results of Morgan and Shanahan's study outlined above. Perse and colleagues summarize their primary conclusions regarding VCR usage and cultivation:

> While VCR ownership may reflect a greater commitment to video entertainment it may also signal a more selective use of time-shifted and rented content . . . Perhaps some VCR users rent and time-shift programing that reinforces the dominant messages of broadcast television while others specialize in more diverse content. (1992, p. 20)

This, of course, points toward what Morgan and Shanahan (1991) posited from the results of their study, except their methods enabled a more empirically precise conclusion—while some light viewers, who are more selective to begin with, may take the opportunity to watch different types of programs and diversify their television exposure, heavy viewers' exposure just gets heavier.

Furthermore, according to Van den Bulck (1999), their exposure does not seem to diversify at all; heavy viewers who are heavy VCR users actually expose themselves to *fewer* channels and genres, and concentration of their diet occurs. In light of the above passage, for heavy viewers who use the VCR to watch more of the same "programing that reinforces the dominant messages of broadcast television," cultivation effects may actually be enhanced by this "new" media technology.

As demonstrated by Morgan and Shanahan (1991) and Perse et al. (1992), researchers sought to address questions of how new technologies impacted viewing practices, and to what degree (if any), the use of new media influenced cultivation outcomes through the incorporation of variables related to the use new television technologies. While cultivation researchers

explored the impact of the VCR on the cultivation process, the advancements in television technology in the twenty-first century, and the implications of these new technologies for the cultivation process, have been unexplored in the cultivation literature. This study fills this void in cultivation research by measuring television viewing as it exists today; specifically, across new and traditional platforms, devices, and forms of viewing. Additionally, the implications of these new and traditional forms of exposure for the cultivation process will be analyzed.

Specifically, this study explores how new media technologies impact the cultivation process, addressing questions regarding how heavy and light viewers use new television technologies, and whether these technologies may enhance or attenuate cultivation effects. For example, like the findings of cultivation research involving the VCR, do new forms of time-shifting just offer heavy viewers a more convenient way to watch the same content they always have, and even the opportunity to watch even more of the same programming? Or, do new media technologies such as SVOD services offer new and different content with messages that may counter those portrayed on mainstream broadcast television? Do heavy and light viewers differ in the degree to which they use new and traditional television technologies? In other words, do heavy viewers use new media technologies to supplement or replace their traditional viewing, or do they not use new technologies at all?

If new forms of exposure offer viewers more of the same content that they are already exposed to, and just make this content more accessible, then greater exposure via new television technologies should enhance cultivation effects. If, however, new television platforms, devices, forms of time-shifting and content delivery systems present viewers with alternative messages and portrayals which counter those on traditional mainstream television, use of these new technologies may attenuate cultivation effects. In the next chapter, the methods, measures,

specific research questions, and statistical procedures used to evaluate the impact of new and traditional forms of television viewing on the cultivation process are described.

CHAPTER 3

METHODOLOGY

This study explored television exposure in the current media environment, examining forms and patterns of viewing across new and traditional platforms, devices, and services, and analyzed the implications of these patterns and types of viewing for the cultivation process. Employing a cross-sectional research design, this study collected and analyzed survey data collected from 509 participants. The data collection procedures and sample are described below, followed by a description of the items used to measure the variables of interest. In the final section of this chapter, the data analyses conducted to answer each research questions are presented.

Procedures

In late March of 2016, participants for this study were recruited using Amazon's Mechanical Turk Web site (MTurk). MTurk is an online crowdsourcing marketplace where "requesters" can hire and pay "workers" for the completion of computerized tasks. Advantages of MTurk, such as its utility as a method of convenience sampling and low cost, have made it popular among social science researchers as a tool for participant recruitment and data collection (Huff & Tingley, 2015). MTurk provides researchers with a large, diverse pool of participants; however, they are not necessarily "representative of the populations they are drawn from, reflecting that Internet users differ systematically from non-Internet users. Workers tend to be younger . . . overeducated . . . and more liberal than the general population" (Paolacci & Chandler, 2014, p. 185).

Past research has found that MTurk workers tend to overwhelmingly be drawn from urban areas (Huff & Tingly, 2015), and samples tend to underrepresent Hispanics and African Americans (Berinsky, Huber & Lens, 2012). These claims regarding the demographic composition of MTurk samples were generally supported by the demographic makeup of the sample (refer to "Sample"). However, although MTurk convenience samples do not accurately reflect all demographic characteristics of the United States population, MTurk participants are typically "more demographically diverse than standard Internet samples and significantly more diverse than typical American college samples" (Buhrmester, Kwang & Gosling, 2011, p. 4).

Prior to publishing a request on the MTurk site, requesters must set up an account, write up a description of the task and compensation amount for worker and set worker qualifications and pre-pay for the number of HITs they are requesting MTurk workers to complete based on the rate of compensation and surcharges. For this study, the description simply stated "This survey will take about 10 minutes to complete. The webpage will do an automatic check on whether you have done this survey." MTurk allows requesters to select worker qualifications such as age, gender, and location; in this study, workers needed to be located in the United States to complete the survey. For an additional fee of 5 percent, MTurk allows requesters the option to limit the participant pool to MTurk masters, who are "an elite group of workers, who have demonstrated superior performance while completing thousands of HITs for a variety of requesters . . . Masters must maintain this high level of performance or risk losing this distinction" (Amazon, 2011, p. 7).

This study required that workers have MTurk Master Qualification. MTurk workers who selected to complete the survey were directed to the Qualtrics survey platform, and completed the survey on this site. Participants were paid $1.10 to take the approximately 10-minute survey

(which is slightly higher than the average compensation for the time length of this task). In order to ensure that participants completed the survey, at the end of questionnaire they were provided with a passcode that they were required to enter on the MTurk site in order to receive compensation.

Sample

The sample was composed of 509 respondents residing in the United States. There was a slightly higher percentage of females (52.1%) than males (47.5%), which is a gender ratio that approximates that of the population in the United States (0.4% of the sample did not identify their gender). The age range of the participants was 18-73 years, with an average reported age of approximately 38 years (M=37.88, SD=11.67). More than 80 percent of the sample reported their age as less than 50, which is not representative of the United States population, in which persons 50 years or older comprise more than a third of the general population (U.S. Census Bureau, 2015a).

On the 7-point scale ranging from Extremely Liberal ("1") to Extremely Conservative ("7"), the sample reported aligning to a greater degree with a slightly liberal political ideology (M=3.38, SD=1.68). Specifically, more than half of the sample indicated that they were either Extremely Liberal, Liberal, or Slightly Liberal (54.6%), while only one-quarter identified as Extremely Conservative, Conservative, or Slightly conservative (25.1%). As this sample is younger than the average adult United States population, this greater degree of liberal ideology is unsurprising; conservatism has been shown to increase across generations, with those falling within the silent generation cohort (age 70+) reporting the highest levels of political

conservatism (40%) (Pew Research Center, 2016); there were virtually no participants in this age range, thus this generation was not represented in this sample (0.2% was age 70 or older).

Just over three-quarters of participants identified as Caucasian/White (76.8%), 8.4% reported they were "Black/African American," 8.3% "Asian/Asian American," 4.7% as "Hispanic/Latino," and the remaining 1.8% of participants identified as "Other" (N=5), "Native American" (N=1), or indicated they did not want to respond to the question (N=3). The racial/ethnic composition of this sample does not accurately represent that found in the general United States population. Most notably, the proportion of participants identifying as Hispanic/Latino in the sample is less than one-third of the Hispanic/Latino population in the United States (17.6%) and the proportion of Black/African American respondents in the sample is less than two-thirds than the proportion of African Americans in the US (13.3%). Conversely, the proportion of Asian Americans in the sample is much higher than in the general population (5.6%) (U.S. Census Bureau, 2015a).

The majority of participants (62.9%) were employed full time, 17.7% were employed part time, and approximately 16.5% of participants were not currently employed (identifying as "retired," "temporarily unemployed," or "not employed at all"). Approximately half (50.1%) of the sample described the area they live in as "suburban," slightly less than a third (31.8%) lived in an "urban" area, and the remaining 18.1% described the area they lived in as "rural."

Nearly all participants were high school graduates (99.2%), and more than half of the sample (52.1%) were college graduates. More specifically, when asked to indicate their highest level of education, 13.7% reported "High school graduate," 33.4% reported "some college," 38.7% indicated "College graduate," 4.3% had completed "some postgraduate/professional education," and slightly more than 9% of participants reported they had a "postgraduate or

professional degree." Of those who were 25 years or older in the sample, nearly all were high school graduates (99.1%), and more than half were college graduates (53.5%), indicating that the level of education reported for this sample is higher than that found for the population of the United States; 86.7 percent of the population 25 years or older are high school graduates and 29.8 are college graduates (U.S. Census Bureau, 2015b).

Measures

In this study, participants completed a questionnaire comprised of demographic items (described above) as well as items measuring overall television exposure, which served as the primary independent variable in the analyses. In addition to overall exposure, the questionnaire was comprised of questions about exposure across new and traditional media platforms and television set viewing devices, and items that addressed live and time-shifted viewing and genre exposure. Finally, the questionnaire contained items measuring the dependent variables in this study, including first order demographic estimates related to crime, violence, and employment, and second order outcomes, which included items addressing sexism, mean world views, and political ideology.

Independent Variable: Overall Television Exposure

Similar to procedures used in prior studies (Nabi & Riddle, 2008; Nabi & Sullivan, 2001; Shrum, Wyer, & O'Guinn, 1998), participants were asked to estimate the number of hours that they "spend watching television—whether 'live' or time-shifted, or on a TV or a laptop or any another device" during each of 4 time periods (6AM-NOON, NOON-6PM, 6M-Midnight, Midnight-6AM) on an average weekday, an average Saturday, and on an average Sunday. A sum

of the hours for 4 time periods for each of these days was computed. The hours reported for the average weekday were multiplied by a factor of 5 and combined with the hours reported for the weekend days. The total represented the number of hours watched on an average week; this number was then divided by 7 to create a measure of television hours viewed on an average day. The sample mean's daily television viewing hours was 3.72 (*SD*=2.55).

Television Viewing Environment Variables

In this study, new and traditional platforms, devices, and modes of television viewing served as the moderating variables in the analyses. More specifically, these questionnaire items measured the degree of overall exposure viewed on different platforms, ways of viewing on a television set, and of viewing done live and time-shifted in various ways. Additionally, several forms of television viewing diversity were also measured; specifically, diversity in platform use, ways of viewing on a television set, forms of time-shifting, and genre exposure.

Platform Exposure

To explore the impact of new and traditional television platforms, participants were asked to indicate on a 4-point scale ranging from "None of my viewing" to "Most of my viewing," of the total time they spend watching television, movies, and other video content, how much of their viewing they do on five different platforms: laptop computer, desktop computer, tablet, smartphone, and television set. Respondents were not asked to choose one platform they do most of their viewing on; they could report doing "Most of their viewing" on multiple platforms, or "None of their viewing" on all platforms.

Television Set Viewing

Next, in order to explore the impact of new and traditional ways of viewing on a television set, participants were asked to indicate on a 4-point scale ranging from "None of my viewing" to "Most of my viewing," of the total time they spend watching television, movies, and other video content on a television set, how much of their viewing is done in five different ways: streaming on the TV set through a gaming console, through a streaming media device connected to the TV set, streaming on an internet-connected Smart TV, using a Blu-ray or DVD player, and on a TV set connected through a cable or satellite provider not on a TV set not connected to the internet or streaming device (except for cable boxes or receivers). Respondents were not asked to choose one of the five ways in which that they do most of their television set viewing; they could report doing "Most of their viewing" on a television set in multiple ways, or "None of their viewing" on a television set in the ways listed.

Live and Time-Shifted Viewing

Next, in order to explore the impact of live and time-shifted viewing, participants were asked to indicate on the same 4-point scale ranging from "None of my viewing" to "Most of my viewing," of the total time they spend watching television, movies, and other video content, how much of their viewing they do broadcast live, as well as time-shifted in four different ways: Time-shifted (recorded and viewed later) using a DVR or Tivo, On Demand through cable, satellite or telco provider, on a subscription video streaming service that charges a monthly fee (SVOD), and on a free online service. Again, respondents were not asked to choose one way in which they do most of their viewing; they could report doing "Most of their viewing" live and time-shifted in all of the ways listed, or "None of their viewing" in the ways listed above.

Diversity

In addition to exploring how the degree of relative frequency of using different platforms, devices, and viewing practices impacted these outcomes, this study also looked at how diversity impacted cultivation outcomes. In particular, diversity of platform use, time shifting strategies, and ways of viewing on an actual television set were analyzed. Further, in order to represent the diversity in choice of content available today, genre diversity was also examined.

In order to measure diversity of platform use, the items in which respondents were asked to indicate how much of their overall viewing they do on each of the five platforms (traditional television, laptop computer, desktop computer, tablet computer and smartphone) were recoded. Specifically, each platform was binary-coded with the original "None of my viewing" response option assigned the value "0," and all other response options recoded as "1." These binary coded variables, therefore, indicated that the viewer either did or did not do any of their viewing on the given platform. An index of platform diversity was created from the summation of these five binary-coded items, ranging in value from "0" to "5".

This same approach was used to create the diversity index for ways of viewing on a television set. The television set viewing diversity index was also composed of five binary-coded items (gaming console, streaming media device, Smart TV, DVD/Blu-ray player, traditional cable/satellite), and thus had a range in values from "0" through "5". The same general procedure was used to create the diversity index for time-shifting. However, because live viewing was not included in the index because it is not a form of time-shifting, time-shifting diversity had a maximum value of "4", as it was composed of only four items (DVR/Tivo, cable/satellite On Demand, SVOD, free online).

For genre diversity, participants were asked to indicate on a 5-point scale of frequency ranging from "Never Watch" to "Very Frequently Watch", how often they watch 15 different types of programming; examples were provided for each type of programming. The 15 different types of programming were: Crime drama, drama, comedy, action-adventure, news broadcast, political, daytime talk, late-night talk, reality, sports, game shows, lifestyle, documentary/informational, newsmagazines, and soap operas. A genre diversity index was created based on the procedures used in previous cultivation research involving exposure diversity (Dahlstrom & Scheufele, 2010; Ferguson & Perse, 1993; Perse, Ferguson & McLeod, 1992). The frequency of viewing the 15 different television genres listed above, originally measured on 5-point scale, was recoded. If the viewer indicated that they had viewed the given genre (>=2) the genre was assigned a value of "1," and if they indicated that they had never viewed the genre, the item was assigned a value of "0." The index was created as the summation of these binary-coded variables, with the minimum and maximum possible values for the genre diversity index ranging from "0" and "15."

Dependent Variables

Five different first order societal estimates and 3 second order outcomes served as the dependent variables in the cultivation analyses.

First Order Estimates

The five first order societal estimates used in this study were based on measures used in previous cultivation research on violence, crime, occupations, and mental illness (Diefenbach & West, 2007; Gerbner et al., 1977; Nabi & Sullivan, 2001; Nabi & Riddle, 2008). Societal level estimates "refer to beliefs about the larger community and the condition of community residents

in relation to some social phenomenon (e. g., crime). These judgments are measured by such indices as . . . the estimated crime rate" (Tyler & Cook, 1984, p. 693). The first order societal level estimates were dichotomous measures, with one response option representing the estimate more consistent with the television world (over-estimations), and the other response option more consistent with real-life societal prevalence.

Five different demographic estimates served as dependent measures in these analyses. For the first demographic estimate (referred to in this study as violence estimates), respondents were asked to estimate "On any given week, how many people out of 100 are involved in violence-1 in 100 or 10 in 100." Responses were binary coded with the television-consistent estimate coded as "1" (10 in 100), and the real world estimate (1 in 100) coded as "0". The second first order cultivation outcome measured in the study asked respondents to estimate out of all working people, what percentage work in law enforcement or criminal investigation (about 1 percent or about 5 percent). Again, responses were binary coded with the television-consistent estimate coded as "1" (5 percent), and the real world estimate (1 percent) coded as "0" (referred to as law enforcement estimates).

Next, respondents were asked to indicate which proportion of all crimes are violent crime (about 10 percent or about 20 percent). Responses were binary coded with the television-consistent estimate coded as "1" (about 20 percent), and the real world estimate (about 10 percent) coded as "0" (referred to as violent crime estimates). Then, respondents were asked to indicate whether most murders happened between strangers or between people who know each other. Responses were binary coded with the television-consistent estimate coded as "1" (between strangers) and the real world estimate (between people who know each other) coded as "0" (referred to as murder-victim relationship estimates).

The final first order cultivation outcome measured asked respondents to estimate what percent of all violent crimes are committed by people with mental illness (about 5 percent or about 15 percent). Responses were binary coded with the television-consistent estimate coded as "1" (about 15 percent), and the real world estimate (about 5 percent) coded as "0" (referred to as mentally ill perpetrators estimates).

Second Order Outcomes

Three second order outcomes served as dependent measures in this study: mean world, sexism, and political ideology. Across several decades of research, the cultural indicators team has used the Mean World Index to assess the degree to which television viewing "cultivates a complex of outlooks which includes an exaggerated sense of victimization, gloom, apprehension, insecurity, anxiety, and mistrust" (Shanahan & Morgan, 1999, p. 55). Their findings have shown that heavy viewers are more likely to demonstrate higher levels of interpersonal and social mistrust than light viewers. According to Gerbner and colleagues (1986b):

> The Mean World Index measures the degree to which respondents agree that 1) People are just looking out for themselves, 2) You can't be too careful in dealing with people, and (3) Most people would take advantage of you if they got a chance. (p. 12)

Consistent with the approach often used by the cultural indicators team, the items were measured dichotomously (respondents are asked to choose if they generally agree, for instance, that people can *or* cannot be trusted).

In addition to interpersonal/social mistrust (as measured by the Mean World Index), the cultivation of sexism was also analyzed in this study. Content analyses have found that male characters outnumber female characters on television (Signorielli & Bacue, 1999), female

characters are more likely than males to have their marital status explicitly identified, and women are less likely to have a job outside of the home than their male counterparts (Signorielli & Kahlenberg, 2001). According to Rivadeneyra and Ward (2005), "Evidence suggests that frequent exposure to mainstream TV portrayals is often associated with stronger support for sexist attitudes and with more stereotypical associations about what the sexes do and how they behave" (p. 455). For instance, adolescents who view more television have been found to express gender-stereotypical attitudes about household chores and feminine and masculine traits (Morgan, 1982; 1987).

In this study, sexism was measured using the 8-item gender-linked subscale of the Social Roles Questionnaire (SRQ) which assesses "beliefs about whether certain roles are associated with a particular gender" (Baber & Tucker, 2006, p. 465). Items on this scale include "Men are more sexual than women," "Only some types of work are appropriate for both men and women," and "Girls should be protected and watched over more than boys." Higher scores on this scale indicate greater endorsement of stereotypical gender roles and more sexist attitudes.

In addition to the aforementioned relationships between heavy viewing and the outcomes of mean world and sexism, it has been found that heavy viewers "are less likely to call themselves either conservatives or liberals than comparable groups of light viewers, and more likely to say they are 'moderates'" (Gerbner, 1987, p. 5). In order to determine if there was a relationship between television viewing and political moderation was found in this cultivation study, the demographic variable of political ideology which was originally measured continuously, was transformed so that moderate political ideology served as the cultivation-consistent outcome. The continuous political ideology variable was thus dichotomized so that moderate/middle of the road (“4”) was coded as “1,” and all conservative and liberal political

positions (identifying as either extremely ("1"), very ("2"), or slightly ("3") liberal and extremely ("7"), very ("6"), or slightly ("5") conservative) were coded as "0."

Research Questions and Planned Analyses

Due to the exploratory nature of this study, a series of research questions, rather than hypotheses, guided the plan of the statistical analysis. The following section will present each set of research questions, followed by a description of the analytic procedures used to answer each set of questions. All analyses were carried out using SPSS version 24.0 (IBM Corp., 2016).

> Research Question 1: What is the distribution of overall television exposure across demographic characteristics?

To answer this research question, means for overall television exposure (measured in average hours per day) were computed across categories of the demographic variables. For gender, those who did not identify as "male" or "female" (0.4% of the sample) were excluded from the analysis. Next, means were computed for the following racial categories: "Caucasian/White," "Black/African American," "Asian/Asian American," and "Hispanic/Latino." Because age was measured continuously in the questionnaire, for this analysis, age was recoded into an ordinal variable with three categories, each representing approximately 1/3 of the sample: "young" (18-30 years), "medium" (31-40 years), and "older" (41+ years). Next, average television exposure was computed across the 3 categories of areas of residence: "urban," "suburban," and "rural." Lastly, mean television exposure was computed across education level. As only 0.1 percent of the sample were not high school graduates, these participants were excluded from the analysis.

Additionally, two levels of education (“some postgraduate/professional education" postgraduate/professional degree") were collapsed into a single category representing the highest education level. This was done because only 4.3 percent of the sample had completed “some postgraduate/professional education.” However, when combined with the slightly more than 9 percent of the sample reporting they had a “postgraduate/professional degree,” the total proportion in this category was approximately equal to those who reported their highest level of education as "high school degree." This ordinal education variable was thus composed of four categories: "High school degree," "Some college," "College degree," and "Postgraduate/professional work/degree."

While there are not specific hypotheses regarding the distribution of television viewing across demographics, based on Nielsen data (2016, January; September) describing television viewing across racial and age demographic subgroups, it is expected in this study that Black viewers will be the heavy viewers, Asian Americans will be the lightest viewers, and White viewers will fall somewhere in between (there are so few Hispanic respondents in this study that this group is not expected to be necessarily representative of the Hispanic television viewing population). The amount of viewing should be positively associated with age, with older viewers watching a greater amount than relatively younger viewers. Lastly, based on the data collected by the United States Department of Labor (2015), it is expected that amount of viewing will be lower among more highly educated participants than those who are less educated.

> Research Question 2: What is the distribution of overall viewing done using new and traditional forms of viewing (platforms, television set viewing, live and time-shifted viewing)?

As described in the "Measures" section, participants were asked to indicate how much of the total time they spend watching television, movies, and other video content they do on each of the 5 platforms (laptop, desktop, tablet, smartphone, and traditional television). Participants were also asked to indicate, of the total time they spend watching television, movies, and other video content on a television, how much of that viewing do they do in 5 different ways (streaming through a gaming console, streaming media device, Smart TV, Blu-ray or DVD, and through a traditional cable or satellite provider). Lastly, they were asked to indicate of the total time they spend watching television, movies, and other video content, how much is viewed live, time-shifted using a DVR/Tivo, On Demand through a cable or satellite provider, on SVOD, and free online. Response options for all 15 items were "None of my viewing," "Some of my viewing," "Quite a bit of my viewing," and "Most of my viewing."

Thus, to answer this question, proportions were computed across response categories for each platform, form of television set viewing, live broadcast and forms of time-shifted viewing. Participants were able to report that they did most of their viewing in multiple ways or report that they did some of every form of exposure measured, so this data simply reflects relative degrees of proportional viewing per platform, device, and form of time-shifting, and thus does not necessarily indicate that any single form of exposure was favored above all others.

Based on Nielsen data (2017, May) regarding platform viewing, it is expected that in this study television will be the platform that participants will report doing the greatest proportion of their viewing on, followed by a laptop or desktop computer; low proportions of overall viewing are expected for the smartphone or tablet. Next, in terms of ways of viewing on a television set, and based on available Nielsen data (2016, September), it is expected that participants will report doing greater proportions of their overall television set viewing through a cable or satellite

provider than any device. Then, based on this same Nielsen data on ownership and time usage, the gaming console will be reported as the device that respondents do proportionally higher amounts of their viewing on, closely followed by the streaming media device and Smart TV, and finally the DVD/Blu-ray player.

Lastly, again based on Nielsen data (2016, January), it is expected that live broadcast viewing will be reported relatively more than any form of time-shifting and free online viewing will be reported proportionally less than all other forms of time-shifting. Based on the Nielsen data that SVOD penetration is almost on par with DVR/Tivo in television households, these forms of time-shifting should see similar levels of proportional use. Finally, based on Nielsen data regarding video on demand (VOD) viewing (2016, March), cable and satellite On Demand viewing is more often used that SVOD so proportional viewing using these two types of time-shifting should be similar. It is important to note, however, that the data gathered in this study cannot be directly compared to Nielsen data because in this study ownership data was not gathered. More specifically, in the Nielsen reports much of their descriptive analyses are for 'television households' (a household that has at least one television set) and the amount of time spent viewing using different devices are calculated only for those who own that specific device. Therefore, Nielsen data simply guides expectations regarding proportional viewing across forms of exposure and is not used as comparative data in any of the analyses.

Research Question 3: What patterns or dimensions characterize the television viewing environment?

In order to answer this question, a principal components analysis was carried out; principal components analysis (PCA) is a statistical technique that is used to identify clusters of variables within a data set. In this study, components were retained based on an Eigenvalue of 1,

and the structure was examined using an oblimin rotation; this oblique rotation was used to allow for correlation among the components (Field, 2013). Specifically, a PCA was carried out on the 15 items measuring the proportion of overall television viewed on five different platforms (laptop computer, desktop computer, tablet computer, smartphone, and traditional television set), five devices/forms of accessing content on a television set (gaming console, streaming media device, Smart TV, DVD or Blu-ray, and traditional cable or satellite), and five modes of viewing/time-shifting (broadcast live, DVR or Tivo, cable or satellite On Demand, SVOD, and free online). As will be discussed in detail in Chapter 4, four components or viewing styles are extracted from these analyses (labeled traditional viewing, serious streaming, traditional shifting, and viewing on the go). Along with forms of platform exposure, television set viewing, live and time-shifted viewing, and forms of diversity, these four viewing style measures were included in the analyses conducted to answer many of the research questions described in the remainder of this chapter.

> Research Question 4: What is the relationship between sample demographics and overall viewing, degree of viewing done on new and traditional platforms, new and traditional forms of television set viewing, live and forms of time-shifted viewing, viewing styles, and forms of viewing diversity?

In order to answer this question, bivariate correlational analyses were conducted between the demographic variables and overall viewing, relative viewing on each of the five platforms (laptop, desktop, tablet, smartphone, traditional television), five forms of television set viewing (gaming console, streaming media device, Smart TV, DVD/Blu-ray player, traditional cable/satellite), live broadcast viewing, all four forms of time-shifted viewing (DVR/Tivo, cable/satellite On Demand, SVOD, free online), four viewing styles (traditional viewing, serious streaming, traditional shifting, and viewing on the go), and the four forms of viewing diversity

(platform, time-shifting, television set viewing, and genre). The demographic variables of age, education level, and political ideology were measured continuously in the survey, and they were kept in this form for the analysis.

As race, gender, and area of residence were measured categorically in the survey, in order to conduct bivariate correlational analyses, these variables were transformed and binary-coded. Specifically, area of residence was binary-coded ("Urban=1"), four binary-coded race variables (Caucasian/White, Black, Asian, and Hispanic) were created, and gender was binary-coded with "Male=1". Based on Nielsen's (2016, January; September) reports regarding device usage across age and racial demographics, it is expected that degree of exposure on a traditional television platform will be significantly positively associated with age, while tablet, smartphone and laptop viewing will be negatively correlated with age. Viewing on a television set through a cable or satellite provider should also be positively correlated with age as should live viewing, while television set viewing through a streaming media device or gaming console, time-shifting through an SVOD service and viewing free online should be negatively correlated with age. Scores on the traditional viewing style scale should be positively correlated with age, while serious streaming and viewing on the go should be negatively correlated with age.

For the degree of viewing done on new and traditional platforms, based on Nielsen's (2016, September) conclusion that Black viewers do more viewing on more devices and platforms, it is expected that all platform use by Blacks will be positively correlated with the use of all platforms, while Asians will be more likely to use new platforms when viewing and are not likely to view on traditional platforms. More generally, Blacks are expected to be higher in traditional forms of exposure (i.e., viewing through a cable or satellite provider, live viewing, and the traditional viewing style) than other racial groups while also reporting relatively high

levels of exposure via new technologies. Conversely, Asians should be high in new television technology use (i.e., viewing on an Internet-enabled Smart TV and viewing on the go) and low in forms of traditional viewing.

> Research Question 5: What is the relationship between overall viewing and degree of viewing done on new and traditional platforms, new and traditional forms of television set viewing, live and forms of time-shifted viewing, viewing styles, and forms of viewing diversity?

To answer this question, two statistical procedures were used. First, zero-order and partial correlational analyses were conducted to determine the strength and direction of the relationship between amount of overall television viewing and degree of viewing done on new and traditional platforms, new and traditional forms of television set viewing, live and forms of time-shifted viewing, viewing styles, and forms of viewing diversity when covariates were (partial) and were not controlled for (zero-order) in the analyses.

Next, analyses of variance (ANOVAs) were conducted to determine if there were statistically significant differences among light, medium and heavy television viewers in the relative amount of overall exposure they reported doing on new and traditional platforms, new and traditional forms of television set viewing, live and forms of time-shifted viewing, viewing styles, and forms of viewing diversity. In order to conduct the ANOVAs, the independent variable—level of television exposure—was transformed from the continuous variable (average number of hours viewed per day) into an ordinal variable with three categories, each representing approximately 1/3 of the sample: light viewers (hours per day<=2.43), medium viewers (2.43<hours per day<=4.14), and heavy viewers (hours per day>4.14).

Analyses of variance were conducted using the general linear model procedure. This procedure allows for the comparison of means across light, medium and heavy viewing while

controlling for covariates such as age, area of residence, and gender by computing estimated marginal means. Estimated marginal means are predicted values of the dependent variable for each level of exposure at the mean values of the covariates. Both observed means and adjusted marginal means (controlling for covariates) were then computed across levels of overall viewing for all of the variables listed above (e.g., degree of viewing on new and traditional platforms, viewing styles, forms of viewing diversity), and the ANOVAs were conducted on both sets of means. Post-hoc analyses were conducted to determine the size and significance of the mean difference specifically between light and heavy viewers for each of these variables ((M reported for heavy viewers)- (M reported for light viewers)).

In the most general terms, it is expected that heavy viewers will demonstrate higher levels of diversity than light viewers, as they will likely supplement their traditional viewing with viewing using additional new media technologies. While they many do proportionally more of their viewing on all of these new media platforms and devices, and may not do proportionally higher degrees of all forms of time-shifting, it is expected that because of their commitment to viewing in general, they will report doing at least "some" of their viewing in the greatest variety of ways.

When looking more specifically at viewing on different platforms and devices, it is expected that heavy viewers will report higher proportional viewing on platforms, television set viewing devices, and through forms of time-shifting that are more likely to facilitate longer periods of viewing. For instance, according to Nielsen (2015, March), when viewing thirty minute and sixty-minute television programs, sports, or movies, viewers report that they watch on a television (i.e., on a traditional platform, Smart TV), while shorter form content is most likely to be viewed online on a laptop computer. Thus, informed by this Nielsen data, it is

expected that heavy viewers will do proportionally higher viewing in traditional ways (television platform, cable or satellite viewing, live viewing), while light viewers will report doing greater proportions of their viewing free online, on a laptop and other portable device, and score higher on the viewing on the go scale.

> Research Question 6: What is the relationship between overall exposure and first and second order cultivation outcomes?
>
> Research Question 6a: Are there significant associations among amount of television viewing and cultivation outcomes?
>
> Research Question 6b: Are there significant differences in cultivation outcomes across levels of exposure?

In order to answer these questions, statistical analyses were conducted to determine the strength of the relationship between the primary independent variable—overall television exposure—and each of the cultivation outcomes. First order cultivation outcomes—also known as demographic or societal-level estimates—probe the degree to which viewers will provide answers that more closely match the world of television as opposed to the real world. As described in the "Measures" section, five different demographic estimates served as dependent measures in these analyses, which were labeled in this study as the following: violence estimates, law enforcement estimates, violent crime estimates, murder-victim relationship estimates, and mentally ill perpetrator estimates.

Three second order cultivation outcomes (i.e., attitude and belief outcomes) were also measured in this study: sexism, mean world (refer to "Measures"), and political ideology. For sexism and mean world, higher scores on each of these measures indicated attitudes and world views that were more consistent with the television world (i.e., cultivation-consistent). The last

second order outcome, political ideology, was used as a continuous demographic control variable in the analyses that was measured on a 7-point scale with responses ranging from “Extremely Liberal (1)” to “Extremely Conservative (7).”

Based on previous cultivation research, heavy viewers are most likely to report moderate, as opposed to more extreme liberal or conservative, political views. Therefore, the variable had to be transformed so that a moderate political ideology served as the cultivation-consistent outcome. The continuous political ideology variable was thus dichotomized so that moderate/middle of the road (“4”) was coded as “1,” and all conservative and liberal political positions (identifying as either extremely ("1"), very ("2"), or slightly ("3") liberal and extremely ("7"), very ("6"), or slightly ("5") conservative) were coded as “0.”

In order to determine the strength of the relationship, zero-order correlational analyses (controlling for no covariates), as well as partial correlational analyses (controlling for gender, age, race, education, area of residence, and political ideology) were conducted for overall viewing and all first and second order cultivation outcomes. Additionally, analyses of variance (ANOVAs) were conducted in order to determine whether there were statistically significant differences in the mean scores of each of the first and second order outcomes across light, medium and heavy levels of television exposure.

As described above for the planned analyses addressing Research Question 5, for these analyses, overall exposure was transformed into an ordinal variable with three categories, each representing approximately 1/3 of the sample: light viewers (hours per day<=2.43), medium viewers (2.43<hours per day<=4.14), and heavy viewers (hours per day>4.14). Again, the ANOVAs were conducted using the general linear model procedure allowing for the comparison of means across light, medium and heavy viewing while controlling for covariates such as age,

area of residence, and gender by computing estimated marginal means (i.e., predicted values of the dependent variable for each level of exposure at the mean values of the covariates).

Both observed means and adjusted marginal means (controlling for covariates) were then computed across levels of overall viewing for all of the first and second order outcomes listed above, and the ANOVAs were conducted on both sets of means. Post-hoc analyses were conducted to determine the size and magnitude of the cultivation differential, which is calculated by subtracting the mean score for the dependent variable of interest that found for light viewers from the mean score found for heavy viewers (cultivation differential= (*M* reported for heavy viewers)-(*M* reported for light viewers)).

> Research Question 7: Independent of overall exposure, what is the relationship between traditional and new forms of exposure and cultivation outcomes?

In order to address Research Question 7, partial correlational analyses were conducted among all cultivation outcomes and traditional and new forms of exposure while controlling for overall amount of television exposure and demographic covariates. Specifically, the traditional and new forms of exposure were: the relative degree of the total time the respondent uses each platform (degree of overall exposure on the traditional television platform and on four new media platforms—laptop computer, desktop computer, tablet computer and smartphone), watching on an actual television set (using new devices to watch content on a television set such as gaming console, streaming media device, Smart TV, Blu-ray or DVD player, or accessing through a traditional cable or satellite television provider), the relative degree of the total time the respondent spends watching television, movies, and other video content traditionally (broadcast live) and time-shifted in various ways (DVR/Tivo, Cable or Satellite On Demand, SVOD or free online), the four styles of viewing (traditional viewing, serious streaming,

traditional shifting, and viewing on the go), and the four forms of viewing diversity (platform, time-shifting, television set viewing, and genre). The cultivation outcomes were five first order estimates (violence estimates, law enforcement estimates, violent crime estimates, murder-victim relationship estimates, and mentally ill perpetrator estimates) and three second order attitude and belief outcomes (sexism, the mean world index, and moderate political ideology).

For all first order estimates, as well as the second order outcomes of mean world views and sexism, the analyses controlled for the continuous variables of education level, age, and political ideology, and the binary-coded covariates of male gender, Black/African American race, Caucasian/White race, and residing in an urban location. For the second order outcome of moderate political ideology, the analyses controlled for the variables listed above, but did not control for political ideology.

Thus far, the analyses investigating the research questions have not specifically addressed the primary objective of this study: to determine how new and traditional forms of exposure impact the cultivation process. While the preceding questions do not address the central objective of this study, they offer information to contextualize the questions that follow. Specifically, in order to determine the degree to which new and traditional forms of exposure moderate the relationships between overall exposure and the cultivation outcomes, analyses first must establish the relationships between overall viewing overall viewing and the various new and traditional forms of exposure. Differences in the degree of overall viewing that light and heavy viewers watch live and time-shifted and using new and traditional platforms and devices will determine whether those who view more overall are in fact using new technologies to supplement their traditional viewing, reflecting the findings of cultivation analyses of VCR use (Morgan & Shanahan, 1991).

Further, by establishing which new and traditional forms of exposure are used relatively more or less among heavy versus light viewers, more specific patterns of conditional effects can be hypothesized regarding how cultivation outcomes may vary across levels of television viewing as a function of levels of new and traditional forms of exposure. Similarly, the relationships between the primary independent variable of overall exposure and the dependent measures must be analyzed because the mean scores for the cultivation outcomes across levels of exposure are used to compare how much these scores vary at different levels of the moderating variables. Presented next are the research questions and data analyses which directly address the impact of new and traditional forms of exposure on the cultivation process.

> Research Question 8: How does the relative amount of exposure done on traditional and new media platforms impact the cultivation process?
>
> Research Question 9: When viewing on a television set, how does degree of overall viewing done using traditional and new devices/modes of access impact the cultivation process?
>
> Research Question 10: How does the degree of overall exposure viewed traditionally (live) and non-traditionally (through forms of time-shifting) impact the cultivation process?
>
> Research Question 11: How does the degree to which viewers engage in different styles of viewing impact the cultivation process?
>
> Research Question 12: How does diversity in platform use, ways of viewing on a television set, time-shifting, and genre exposure impact the cultivation process?

The analyses addressing this set of Research Questions all employed the SPSS PROCESS macro Model 1 (Hayes, 2012; 2015) to determine the if there was significant interaction effect of the independent and moderator variable on the given cultivation outcome (dependent variable) while controlling for covariates. In order to avoid multicollinearity, PROCESS provides an

option to mean-center the independent and moderator variables involved in the interaction analysis. Model 1 examines the interaction by using 1,000 bootstrap samples to estimate the conditional effects of amount of television exposure on the cultivation outcome (e.g., violence estimates, sexism). PROCESS Model 1 offers three techniques/ approaches to further probe significant interactions in conditional effect analyses, all of which were used in this study: the "pick-a-point" approach, the "plot" option, and the Johnson-Neyman technique. First, using the "pick-a-point" approach, PROCESS calculates the regression coefficients and significance for the simple slopes of the independent variable (overall exposure) on each dependent variable (cultivation outcome) at relatively low (one standard deviation below the mean), average (mean) and high (one standard deviation above the mean) levels of the moderating variable.

Next, by selecting the "plot" option for Model 1, PROCESS calculates values of the dependent variable (cultivation outcome) at varying levels of the independent and moderating variable. Specifically, nine values are calculated for all combinations of the three levels of the independent variable (light, medium, and heavy viewing) and the three levels of the moderating variable specified in the pick-a-point calculation (the mean and +/- one standard deviation). The mean values computed for the respective cultivation outcome are then plotted along the y-axis across the three levels of the independent variable (light, medium and heavy viewing) on the x-axis as a function of the level of the moderator (represented by separate lines).

The final method used to probe these interactions was the Johnson-Neyman technique. This technique, according to Hayes and Montoya (2017):

> Derives the value or values along the continuum of M at which point the effect of X on Y is just statistically significant . . . With these values derived, one is then in a position to discuss for whom or under what circumstances, as operationalized by

M, X exerts an effect on Y and for whom or under what circumstances it does not. (p. 16)

While the pick-a-point approach aids in the visualization and general interpretation of the patterns of conditional effects, the selection of the mean and +/- one standard deviation can fail to identify the conditional effects for values that fall outside of this range. Further, when the distribution of the moderator across levels of the independent variable is non-linear or curvilinear, the likelihood of error is higher, and because the Johnson-Neyman technique calculates the region of significance across all values of the distribution, it is particularly suited for such types of interactions (Miller, Stromeyer, & Schwieterman, 2013).

As described previously, five different binary-coded demographic estimates served as first order dependent measures in these regression analyses—labeled violence estimates, law enforcement estimates, violent crime estimates, murder-victim relationship estimates, and mentally ill perpetrator estimates—with mean scores representing the proportion/probability of providing the cultivation-consistent estimate. Three attitude and belief outcomes served as the second order dependent measures—sexism, the mean world index, and moderate political ideology. The analyses controlled for the continuous covariates of education level, age, and political ideology (this covariate was excluded from the moderate political ideology analyses), and the binary-coded covariates of male gender, Black/African American race, Caucasian/White race, and residing in an urban location.

In order to answer Research Question 8 regarding the impact of platform use on the cultivation process, the relative degree of the total time the respondent uses each platform (degree of overall exposure on the traditional television platform and on four new media platforms—laptop computer, desktop computer, tablet computer and smartphone) when

watching television, movies, and other video content were each tested as a moderator of the relationship between the primary independent variable of television exposure and the cultivation outcome. Separate regression analyses were conducted for each of the five platforms, with each of the eight outcomes serving as dependent variables in the regression model (i.e., a total of 40 analyses).

In order to answer Research Question 9, another set of analyses were conducted to test whether differences in cultivation outcomes existed in relation to the way that viewers are watching on an actual television set (using new devices to watch content on a television set such as gaming console, streaming media device, Smart TV, Blu-ray or DVD player, or accessing through a traditional cable or satellite television provider).

Forty separate regression analyses were conducted for each of the five ways of viewing on a television set, with each of the five first order outcomes and three second order outcomes serving as dependent variables in the regression model. The relative degree of the total time the respondent uses each of the 5 devices/methods when watching television, movies, and other video content on a television set was tested as a moderator of the relationship between the primary independent variable of television exposure and the cultivation outcome.

The impact of relative degrees of live and time-shifted viewing on the cultivation process was addressed in Research Question 10. The relative degree of the total time the respondent spends watching television, movies, and other video content traditionally (broadcast live) and time-shifted in various ways (DVR/Tivo, Cable or Satellite On Demand, SVOD or free online) were each tested as a moderator of the relationship between the primary independent variable of television exposure and the cultivation outcome. Separate regression analyses were conducted

for live viewing and each of the four forms of time-shifting with each of the eight outcomes serving as dependent variables in the regression model (i.e., a total of 40 analyses).

In order to answer the degree to which engaging in different styles of viewing impacted the cultivation process (Research Question 11), the four styles of viewing (traditional viewing, serious streaming, traditional shifting, and viewing on the go) were each tested as a moderator of the relationship between the primary independent variable of television exposure and the cultivation outcome. Separate regression analyses were conducted for each viewing style, with each of the eight outcomes serving as dependent variables in the regression model (i.e., a total of 32 analyses).

Finally, in order to explore how diversity in platform use, ways of viewing on a television set, time-shifting, and genre exposure impact the cultivation process (Research Question 12), regression analyses were conducted with each of the four forms of diversity tested as moderators of the relationship between the primary independent variable of television exposure and the cultivation outcome. A total of 32 analyses were thus conducted, with each of the eight outcomes serving as dependent variables in the regression model.

As stated previously, the analyses conducted to answer the first seven research questions offer information regarding how light and heavy viewers differ in their proportional viewing in traditional and new ways which will inform the expectations regarding how these variables may impact the cultivation process. Given the exploratory nature of this study, and particularly due to the fact that this study is the first to investigate—at least in the Internet age—how new and traditional television technologies moderate cultivation effects, no specific hypotheses are being tested. Despite the fact that there is no directly relevant empirical evidence to formulate these hypotheses, however, the expectations for the moderation analyses were guided by the same

general idea that informed Morgan and Shanahan's (1991) own study of how (what was at the time) new media technology intervenes in the cultivation process. More specifically, as stated by the authors:

> New home entertainment technologies have the potential to allow more diversity and selectivity in the choices that Americans make in their entertainment decisions. Yet expanded delivery systems may actually strengthen cultivation by increasing the time that audiences spend absorbing standardized, mass-produced myths–that is, if and only if the content matter remains essentially similar. Otherwise, competition between differing content patterns would attenuate cultivation by cultivating distinct and pluralistic publics . . . Indeed, many have assumed that the development of apparently 'alternative' technologies will somehow automatically bring 'alternative' views and portrayals (and by extension, effects). (pp. 126-127)

In this study, the forms of exposure that are most likely to attenuate cultivation by presenting alternative views and portrayals are those that provide access to content that does not need to conform to the industry standards that define commercial broadcast television. More specifically, in terms of platform exposure, according to Nielsen (2016, March), viewers overwhelmingly report watching traditional "primetime" programming (which is the content consumed most by television viewers), such as hour-long dramas and sitcoms, on a traditional television set. Therefore, viewing on this traditional platform could potentially enhance cultivation effects.

On the other hand, PCs, tablets, and smartphones are used to view a variety of online content, which could be anything from user-generated content, to network shows, to original

Web series, to SVOD content. Thus, while these platforms could potentially be used to view more of the same content they would watch on a regular television, these platforms are more likely to offer alternative content, and thus could potentially attenuate cultivation effects. Additionally, these new platforms necessitate viewers to be selective with their content, as opposed to the television, where viewers can just watch whatever is currently airing when they turn the television on. Selectivity can enhance cultivation effects by allowing viewers to watch more mass-produced conventional content, or attenuate cultivation by limiting exposure to specific genres or niche, alternative content.

Television set viewing devices, particularly the streaming media device, which can only be used to stream content from free online sites or SVOD services, should impact cultivation outcomes in the same fashion as the new media platforms. And, by extension, SVOD and free online viewing could potentially attenuate cultivation effects as well. It is not expected, however, that all forms of time-shifting will attenuate cultivation outcomes. For instance, time-shifting using a DVR or Tivo should not attenuate cultivation; rather, this form of time-shifting may enhance cultivation. More specifically, as the DVR or Tivo stores broadcast and cable programs, and not alternative content, it is likely that heavy viewers may use these recording devices to supplement the traditional live viewing they already do.

Based on the findings of Morgan and Shanahan (1991) for light viewers, it is expected that exposure to alternative portrayals via new media technologies may not attenuate cultivation effects, as light viewers are more selective by nature, and the relationships between overall exposure and cultivation-consistent beliefs and worldviews are already weak. However, among heavy viewers, high proportional viewing on platforms and devices that potentially facilitate

viewing of different content through SVOD and free online sites and services could reduce the magnitude of the effect of television viewing on cultivation outcomes.

In the next chapter, the results of the analyses for all research questions stated in this chapter will be discussed. First, the descriptive analyses and the development of the viewing style scales are presented. Then, the results of the analyses of the distribution of relative viewing across new and traditional media platforms, television set viewing devices, live and forms of time-shifted viewing, viewing styles, and forms of viewing diversity are presented, and the relationships of these forms of exposure and overall television viewing are discussed. Then, the results of the classic cultivation analyses are presented, followed by a detailed discussion and interpretation of the results of the moderation analyses.

CHAPTER 4

RESULTS

Sample Demographics and Overall Viewing

Prior to investigating in depth the relationships among overall television exposure, traditional and new forms and patterns of television exposure, and the impact of these relationships on the cultivation process, exploratory, descriptive analyses were conducted to address the following research question:

> Research Question 1: What is the distribution of overall television exposure across demographic characteristics?

In order to answer this research question, the means for overall television viewing (in hours) are computed across categories of the demographic variables measured in this study; the results are presented in Table 1.

On average, viewers in this sample watch 3.72 hours of television per day (M=3.72, SD=2.56). Men watch slightly less television than the overall sample average (M=3.57, SD=2.53), while women watch slightly more than the sample mean (M=3.86, SD=2.58), but this mean difference is not significant ($F(1)=1.74$, p=.191). In this sample, average daily viewing varies significantly across racial groups ($F(3)=3.412$, $p<.05$). Similar to the data reported by Nielsen (2016, January; September), Black participants watch more television than any other racial group, with average daily viewing exceeding the mean substantially (M=4.36, SD=2.22).

The average hours reported by White respondents, however, is very close to the overall sample mean (M=3.77, SD=2.66). Hispanic participants report viewing less than White or Black adults in this sample (M=3.34, SD=1.58), and Asian viewers watch the least television of all

racial groups, reporting average viewing that is more than 1 hour below the sample mean (M=2.70, SD=2.07). As revealed in pairwise comparisons, this is significantly less than the hours reported by both Black and White viewers (p<.01); none of the other differences in television viewing among racial groups reach statistical significance.

Table 1. Mean (hours) daily television viewing across sample demographics

		% of sample N=509	Overall television viewing (Hours/day) M (SD)
Total		100	3.72 (2.56)
Gender	Male	47.5	3.57 (2.53)
	Female	52.1	3.86 (2.58)
Race	White	76.8	3.77 (2.66)
	Black	8.4	4.36 (2.22)
	Asian	8.3	2.70 (2.07)
	Hispanic	4.7	3.34 (1.58)
Age	Young (18-30)	33.2	3.33 (2.43)
	Medium (31-40)	32.4	3.73 (2.36)
	Older (41+)	34.4	4.10 (2.81)
Residence	Urban	31.8	3.56 (2.79)
	Suburban	50.1	3.73 (2.42)
	Rural	18.1	4.00 (2.50)
Education	High school degree	13.8	4.23 (2.84)
	Some college	33.4	3.74 (2.57)
	College degree	38.7	3.52 (2.60)
	Post graduate work/degree	13.3	3.72 (2.56)

Next, the analyses determine that amount of overall viewing varies significantly across age groups (F(2)=3.979, p<.05). Again reflecting the Nielsen data (2016, January), younger participants view less television than older individuals. More specifically, participants aged between 18-30 years report average viewing lower than the sample mean (M=3.33, SD=2.43). Those falling within the range of 31-40 years report average daily hours of viewing

approximating the sample mean (M=3.73, SD=2.36), while older respondents (41 years or older) report viewing more than four hours of television per day (M=4.10, SD=2.81). Pairwise comparisons revealed that participants 41 and older view significantly more television than those 18-30 years old (p<.01); the difference in hours viewed among those 31-40 years old and the younger and older age groups is not statistically significant.

When looking at the distribution of viewing across area of residence, the analyses reveal that while amount of viewing does not significantly vary as a function of this variable (F(2)=5.564, p=.428), the greater the distance away that participants live from urban centers, the higher the amount of average daily viewing reported. More specifically, those living in rural areas report watching an average of four hours of television per day (M=4.00, SD=2.50); viewing is slightly lower and very close to the sample mean for suburbanites (M=3.73, SD=2.42), while urban residents report viewing the lowest average hours of daily television viewing (M=3.56, SD=2.79).

Lastly, the analysis reveals that education level does not have a significant main effect on average daily viewing (F(3)=1.306, p=.272). The distribution of average daily television viewing across levels of education indicates that those falling within the lowest categorical level of education (high school degree) report the highest average daily viewing hours (M=4.23, SD=2.50) across all education levels. Respondents who are in the next category of educational attainment (some college) view less, reporting average daily viewing approximating the sample mean (M=3.74, SD=2.57), while those who are college graduates report watching fewer hours of daily television (M=3.52, SD=2.60).

Finally, at the highest categorical level of education (post graduate work/degree), the hours of daily viewing is slightly higher, with the average hours commensurate with those

reported by the sample overall (M=3.72, SD=2.56). While pairwise comparisons reveal that high school graduates watch significantly more television than college graduates (p<.05), none of the other differences in viewing across education levels are significant.

Distribution of New and Traditional Forms of Exposure

Next, as stated previously, this study explores forms and patterns of viewing across new and traditional platforms, devices, and services, and analyzes the implications of these patterns and types of viewing for the cultivation process. Prior to conducting these inferential analyses, however, descriptive analyses provide an overview of the degree to which participants in this sample view television in new and traditional ways. More specifically, this study addresses the following research question:

> Research Question 2: How is overall exposure distributed across new and traditional forms of viewing (platforms, television set viewing, live and time-shifted viewing)?

As described in detail Chapter 3, this study measured relative overall viewing done on five platforms different platforms (laptop, desktop, tablet, smartphone, and traditional television), viewed on a television set in five different ways (streaming through a gaming console, streaming media device, Smart TV, Blu-ray or DVD, and through a traditional cable or satellite provider), viewed live and time-shifted in four different ways (using a DVR/Tivo, On Demand through a cable or satellite provider, on SVOD, and free online). Respondents indicate how much of their total television viewing (None/Some/Quite a bit/Most) they did (e.g., on, using) each of these platforms, television set viewing devices, live and forms of time-shifting. The proportional distribution of these responses are presented in Table 2.

Table 2. Proportions for relative amount of overall viewing done on each platform, form of television set viewing, live and time-shifted viewing

		How much of your total viewing is done on. . .			
		None	Some	Quite a bit	Most
Platform	Laptop	47.2	35.2	11.2	6.5
	Desktop	60.7	24.0	7.7	7.7
	Tablet	70.1	23.0	6.1	0.8
	Smartphone	63.9	30.8	4.5	0.8
	Traditional TV	9.8	17.3	21.0	51.9
Television set viewing	Gaming console	68.2	17.5	7.9	6.5
	Streaming media device	56.8	21.0	11.8	10.4
	Smart TV	70.7	16.1	7.1	6.1
	DVD/Blu-ray	55.2	39.1	5.1	0.6
	Traditional cable or satellite	35.0	19.8	16.3	28.9
Live and time-shifted viewing	Broadcast live	19.6	43.0	22.4	14.9
	DVR/Tivo	50.9	25.7	14.1	9.2
	On Demand	56.0	32.6	8.1	3.3
	SVOD	28.3	28.7	22.2	20.8
	Free online	29.5	42.4	15.5	12.6

When looking specifically at platform exposure, the analyses clearly indicate that the traditional television is overwhelmingly the platform predominantly used to do most of participants' total viewing (51.9%); this is more than 50 times the proportion of viewers who report doing "most" of their viewing on a tablet (0.8%) or smartphone (0.8%); approximately eight times the proportion of viewers who report doing "most" of their viewing on a laptop computer (6.5%), and approximately seven times the proportion reported for the desktop computer (7.7%). A little over half of viewers report doing at least "some" (if not more) of their overall viewing on a laptop computer (52.8%), followed by approximately 40 percent of desktop viewers (39.3%).

Of all the platforms measured, the tablet is the platform used least when watching television, with approximately 70 percent of participants reporting that they do "none" of their overall viewing on this platform. More than 60 percent of participants report doing "none" of their overall viewing on a smartphone (63.9%); conversely, under ten percent of participants do "none" of their overall viewing on a traditional television (9.8%). Clearly, as stated earlier, in terms of the choice of platform used when viewing content, it is the traditional television set that dominates the television landscape.

When looking at the proportional distribution of responses for degree of television set viewing through the use of new and traditional devices, the most common form of television set viewing is through a traditional cable or satellite provider, with 65 percent of participants reporting doing at least some of their viewing this way, and nearly half doing "most" or "quite a bit" of their television viewing this way (45%). Thus, while this form of traditional viewing is still the most common way of accessing content on a television set, it is not as dominant as the traditional television is amongst all platforms.

Relatively high proportions of viewers report doing "none" of their overall television viewing through either the gaming console (70.7%) and Smart TV (68.2%), while a little over half of the sample report doing "none" of their overall television viewing using a streaming media device (56.8%) or DVD/Blu-ray player (55.2%). In terms of the ways in which viewers report doing relatively more of their television set viewing, 45.2 percent do "quite a bit" or "most" of their total television set viewing traditionally through a cable or satellite provider, slightly over 22.2 percent do "quite a bit" or "most" of their viewing using a streaming media device, 14.4 percent reported doing "quite a bit" or "most" of their overall television set viewing through a gaming console, 13.2 percent on a Smart TV, and less than six percent of the sample

report doing "quite a bit" or "most" of their television set viewing streaming through a DVD or Blu-ray player (5.7%).

Finally, in this study, while a greater proportion of participants (80.4%) report doing at least some of their overall viewing traditionally (i.e., live broadcast) than non-traditionally through any form of time-shifting (DVR/Tivo=49.1%; Cable or Satellite On Demand=44%; SVOD=71.7%; Free Online=70.5%), traditional live viewing is not the dominant way in which participants in this study report doing "quite a bit" or "most" of their overall viewing. Rather, 43 percent of participants report that "quite a bit" or "most" of their overall viewing is done through a SVOD service such as Netflix or Hulu Plus, compared to the approximately 37 percent (37.3%) who do "quite a bit" or "most" of their viewing traditionally (broadcast live).

A lower percentage of participants report doing "quite a bit" or "most" of their viewing free online (28.1%); a little more than 23 percent (23.3%) do "quite a bit" or "most" of their viewing time-shifted using a DVR or Tivo, and only approximately 11 percent do "quite a bit" or "most" of their viewing On Demand through a cable or satellite provider (11.4%).

This last set of distributions for live and time-shifted viewing are particularly interesting because, unlike the findings for degree of exposure across platforms and television set viewing devices, the traditional form of viewing in this case (live viewing) is not the dominant way that viewers do relatively more of their overall viewing; rather, time-shifting through SVOD is the predominant mode of viewing television. SVOD not only offers viewers the ability to view at a time that is most convenient for them, it also offers viewers original programming that may potentially provide audiences with portrayals and messages that counter those found on broadcast, cable or satellite television. If this is true, then high levels of SVOD viewing may attenuate cultivation effects.

Viewing Styles: Patterns of Exposure

The descriptive analyses discussed thus far reveal the distribution of overall viewing across sample demographics, and the proportional distribution of responses for degree of viewing done on new and traditional platforms, ways of viewing on a television set, and degree of viewing done live and through various forms of time-shifting. The next set of analyses further explore new and traditional forms of television exposure, addressing the following question:

> Research Question 3: What patterns or dimensions characterize the television viewing environment?

In order to uncover the dimensions characterizing the television viewing environment, a principal components analysis was initially conducted on the 15 items measuring the proportion of overall television viewed on five different platforms (laptop computer, desktop computer, tablet computer, smartphone, and traditional television set), five devices/forms of accessing content on a television set (gaming console, streaming media device, Smart TV, DVD or Blu-ray, and traditional cable or satellite), and five modes of viewing/time-shifting (broadcast live, DVR or Tivo, cable or satellite On Demand, SVOD, and free online).

The principal components analysis retains factors based on an Eigenvalue of 1 or greater, and the structure is examined using an oblimin rotation; this oblique rotation is used in order to allow for correlation among the components. The initial analysis reveals a five-component structure, with the five component solution explaining 59.45 percent of the total variance; the component loadings are presented in Table 3.

However, after examining the structure matrix, the platform item "viewing on a desktop computer" is eliminated because it is the only item loading on a single component; while "viewing on a laptop computer" loads negatively on the same component, this item cross-loads

with a higher component loading on a different component. After dropping the desktop computer from the component structure, another principal components analysis using oblimin rotation was conducted on the remaining 14 items.

Table 3. Factor loadings for 5-component solution based on a principal components analysis with oblimin rotation

		Component				
		1	2	3	4	5
Platform	Laptop	.421	-.261	**.546**	-.487	-.037
	Desktop*	.232	-.178	.149	**.857**	.013
	Tablet	-.007	.173	**.588**	.357	.176
	Smartphone	.137	.057	**.738**	.100	.090
	Traditional television	**-.769**	.322	-.238	.212	.260
Television set viewing	Gaming console	-.163	-.293	.357	.058	**.532**
	Streaming media device	.124	.092	.038	-.041	**.692**
	Smart TV	-.024	.327	.134	-.005	**.557**
	Blu-Ray or DVD	-.209	.194	**.466**	-.231	.221
	Traditional cable or satellite	**-.668**	.281	-.078	-.073	-.481
Live and time-shifted viewing	Live broadcast	**-.767**	.020	-.048	-.067	-.287
	DVR or Tivo	-.104	**.783**	.031	-.087	.075
	Cable or satellite On Demand	-.209	**.664**	.246	.000	.059
	SVOD	.274	-.239	.250	.144	**.747**
	Free online	.457	-.388	**.465**	.116	.301

Note. The highest component loading for each item is in bold *Item dropped

This analysis results in a four-component structure, explaining 54.1 of the total variance. Component 1 explains 21.7 percent of the total variance (Eigenvalue= 3.031) and is composed of four items, all with loadings between .52 and .76. Component 2 is composed of two items, explaining 14.5 percent of the total variance (Eigenvalue= 2.029), with loadings of .79 and .67. Component 3 explains 10.5 percent of the total variance (Eigenvalue= 1.466) and is composed of five items, all with loadings between .45 and .74. Component 4 explains eight percent of the total variance (Eigenvalue= 1.155) and is composed of three items, all with loadings between .63

and .78 (component loadings are presented in Table 4). The component structure was retained, and the following labels were assigned to distinguish types of viewing style based on the items comprising each component.

Table 4. Factor loadings for 4-component solution of viewing styles based on a principal components analysis with oblimin rotation

		Component Name			
		Serious streaming	Traditional shifting	Viewing on the go	Traditional viewing
Platform	Laptop	-.043	-.268	**.587**	-.365
	Tablet	.196	.165	**.579**	.024
	Smartphone	.104	.054	**.740**	-.091
	Traditional television	.206	.336	-.281	**.780**
Television set viewing	Gaming console	**.520**	-.288	.345	.225
	Streaming media device	**.691**	.090	.057	-.066
	Smart TV	**.553**	.329	.137	.080
	Blu-Ray or DVD*	.198	.205	**.452**	.279
	Traditional cable or satellite	-.515	.296	-.131	**.632**
Live and time-shifted viewing	Live broadcast	-.329	.040	-.108	**.752**
	DVR or Tivo	.069	**.785**	.027	.115
	Cable or satellite On Demand	.053	**.667**	.229	.229
	SVOD	**.762**	-.243	.272	-.204
	Free online	.330	-.387	**.488**	-.389

Note. Loadings for items composing each component (viewing style) are in bold *Item dropped

As shown in Table 4, Component 1 is labeled “Serious Streaming” and is composed of three devices/forms of accessing content on a television set (gaming console, streaming media device, Smart TV) and one time-shifting item (SVOD). Component 2 is labeled “Traditional Shifting” and is composed of two time-shifting items: DVR or Tivo and Cable or Satellite On Demand. This viewing style is labeled "Traditional Shifting" because both items are significantly, positively correlated with viewing on a traditional television platform ((DVR or Tivo (r=.267, p<.001); Cable or Satellite On Demand (r=.177, p<.001)) and viewing on a

television set through a traditional cable or satellite provider ((DVR or Tivo (r=.208, p<.001); Cable or Satellite On Demand (r=.208, p<.001)). Component 3 is composed of three platform items (laptop computer, tablet computer, and smartphone), one device/form of accessing content on a television set (DVD or Blu-ray), and one form of time-shifting (free online viewing). After dropping DVD or Blu-ray from this scale (refer to the discussion of internal consistency below), this component is labeled "Viewing on the Go."

Lastly, Component 4 is labeled “Traditional Viewing” and is composed of three items: one platform (traditional television set), one device/form of accessing content on a television set (traditional cable or satellite), and one mode of viewing/time-shifting (live viewing). While not all viewing styles are highly correlated with one another, there is a highly significant, positive association between traditional viewing and traditional shifting (r=.238, p<.001), which provides additional support for labeling Component 2 as "Traditional Shifting." The serious streaming and viewing on the go scales are also significantly, positively correlated (r=.312, p<.001). Conversely, both serious streaming (r=-.251, p<.001) and viewing on the go (r=-.403, p<.001) are significantly, negatively correlated with traditional viewing, with these highly significant, negative associations underscoring the modern, non-traditional nature of these two viewing scales.

Next, because composite scores are created for each of the four components (computed as the mean score of the items comprising each scale, with higher mean scores indicating greater alignment with the respective viewing style) and are used in subsequent analyses in this study, the internal consistency for each scale was assessed. For the “Serious Streaming” viewing style (four items), Cronbach’s alpha is moderate (α=.578), and the analysis indicates that no increases in the alpha value result from dropping items from this scale. For the “Traditional Viewing”

scale (three items), Cronbach's alpha is higher (α=.690), and consistent with the previous analysis, dropping items does not increase scale reliability.

For "Viewing on the Go," however, dropping the DVD or Blu-ray item does increase scale reliability; thus this item was deleted from the scale, resulting in a four-item scale (α=.552). Also supporting the decision to drop this item is the fact that it measures the degree of overall viewing *on a television set* the respondent does using a DVD or Blu-ray player, and thus does not conceptually fit with the other items. More specifically, while the laptop computer, tablet computer and smartphone are all portable platforms, watching on a television set via a DVD or Blu-ray player by nature cannot be used to "view on the go." Lastly, the "Traditional Shifting" scale (two items) has a moderate level of internal consistency (α=.513), thus making this the scale with the lowest reported alpha value. However, because the reliability coefficient is a function of the number of items in the scale, this lower value of Cronbach's alpha for "Traditional Shifting" could partially be a function of the scale only being composed of two items.

Table 5. Zero-order and partial correlations among viewing styles

	$r_{\text{Zero-Order}}$				r_{Partial}			
	1.	2.	3.	4.	1.	2.	3.	4.
1. Traditional viewing	_____	-.251***	.238***	-.403***	_____	-.208***	.236***	-.378***
2. Serious streaming	_____	_____	.043	.312***	_____	_____	.055	.259***
3. Traditional shifting	_____	_____	_____	-.053	_____	_____	_____	-.046
4. Viewing on the go	_____	_____	_____	_____	_____	_____	_____	_____

Note. Partial correlational analyses controlled for age, gender (male), race (White), race (Black), education, residence (urban), political ideology ***p<.001

Finally, in order to examine the direction and strength of the relationships among viewing styles, both zero-order and partial correlational analyses (controlling for covariates of race,

gender, education, age, residence, political ideology) were conducted. Overall, controlling for covariates in the analyses does not change the direction or level of significance of the associations. Specifically, as shown above in Table 5, the results for both the zero-order and partial correlations indicate that traditional viewing is highly correlated with all three viewing styles ($p<.001$).

Further, traditional viewing is strongly, negatively associated with serious streaming (r=-.251, r(partial)=-.208), and shares an even stronger negative correlation with viewing on the go (r=-.403, r(partial)=-.378). Conversely, traditional viewing is significantly, positively correlated with traditional shifting (r=.238, r(partial)=.236). Traditional shifting is positively, although not significantly, correlated, with serious streaming (r=.043, p=.330; r(partial)=.055, p=.125), and negatively, non-significantly associated with viewing on the go (r=-.053, p=.232; r(partial)=-.046, p=.306). Lastly, the analyses reveal a strong, positive correlation between the viewing on the go and serious streaming viewing styles (r=.312, r(partial)=.259; $p<.001$).

Forms of Viewing and Overall Exposure

Today's television viewer has greater control over the viewing experience than ever before. New technology allows viewers to watch what they want, when they want, and where they want, making television viewing today a vastly different experience than decades past when viewers were bound to the medium in terms of time (the network schedule) and place (usually the living room). While new platforms, time-shifting devices, and services offer the audience greater convenience and control, this does not necessarily mean that traditional forms of viewing are no longer dominant, or that viewers uniformly use new technologies when watching television. This study explores the relationship between the demographic characteristics of

viewers and their use of new and traditional television viewing platforms, devices, and services, addressing the following research question:

> Research Question 4: What is the relationship between sample demographics and overall viewing, degree of viewing done on new and traditional platforms, new and traditional forms of television set viewing, live and forms of time-shifted viewing, viewing styles, and forms of viewing diversity?

In order to answer Research Question 4, bivariate correlational analyses are carried out. The results of the correlational analyses are presented in Table 6. Looking first at the binary-coded gender (male) variable, the analyses reveal that gender is significantly, positively correlated with the following: degree of overall viewing done on a laptop computer (r=.105, p<.05), desktop computer (r=.104, p<.05), and smartphone (r=.132, p<.01), degree of overall viewing on a television set done using a streaming media device (r=.114, p<.05), degree of overall viewing done free online (r=.093, p<.05), viewing on the go style of viewing (r=.125, p<.01), and platform (r=.160, p<.001) and television set viewing diversity (r=.126, p<.01). Interestingly, none of the significant associations for this variable are negative.

The direction of these correlations indicates that being male is associated with higher relative exposure on laptop computers, desktop computers, and smartphones; higher relative exposure using a streaming media devices; higher relative free online viewing, higher scores on the viewing on the go style scale, and higher diversity in platform exposure and television set viewing devices. These results indicate a clear and consistent pattern of associations from the gender correlational analyses: all significant associations are for non-traditional forms of television viewing and all of these significant correlations are positive. Thus, for males, viewing is not only non-traditional, but also driven and defined by new television technology.

The bivariate correlational analyses reveal that the binary-coded residence (urban) variable is significantly, positively correlated with degree of viewing done on a desktop computer (r=.129, p<.01) and degree of free online viewing (r=.104, p<.05). Conversely, this variable is significantly, negatively correlated with time-shifting diversity (r=-.106, p<.05), traditional viewing style (r=-.087, p<.05), and viewing on a traditional television platform (r=-.099, p<.05). These correlations indicate that living in an urban locale is related to a greater degree of viewing on a desktop and viewing free online, while not residing in an urban environment is related to greater diversity in time-shifting, greater degrees of viewing on a traditional television platform, and scoring highly on the traditional viewing style scale.

For political ideology, the analyses reveal that this variable is significantly, positively correlated with degree of television set viewing done through a cable or satellite provider (r=.111, p<.05) and DVD/Blu-ray device (r=.111, p<.05), the traditional viewing style (r=.103, p<.05), and diversity in ways of viewing on a television set (r=.091, p<.05). Thus, the more politically conservative the viewer, the higher they score on the traditional viewing style scale, the more of their overall television set viewing they do through a cable or satellite provider and using a Blu-ray or DVD player.

Additionally, those who report higher degrees of political conservativism are also more diverse in the devices they use when viewing on a television set. Conversely, political ideology is negatively correlated with the serious streaming (r=-.130, p<.01) and viewing on the go (r=-.095, p<.05) styles of viewing, free online viewing (r=-.111, p<.05), SVOD (r=-.240, p<.001), streaming through a gaming console (r=-.111, p<.05), and desktop viewing (r=-.117, p<.01).

Table 6. Bivariate correlations among demographic variables and overall viewing, degree of viewing across platform, television set viewing, live and time-shifted viewing, viewing styles, and forms of viewing diversity

		Gender (Male)	Education	Residence (Urban)	Politics	Age	Race			
							White	Black	Asian	Hispanic
Television	Overall Exposure	-.058	-.043	-.043	-.005	.140**	.036	.076	-.12**	-.033
Platform	Laptop	.105*	.059	.044	-.064	-.24***	-.12**	.079	.10*	-.026
	Desktop	.104*	-.087	.129**	-.117**	-.19***	-.13**	.032	.11*	.041
	Tablet	-.011	.108*	-.032	-.004	-.074	-.12**	.076	.070	.015
	Smartphone	.132**	.020	.031	-.005	-.25***	-.092*	.055	.026	.058
	Television	-.008	-.009	-.099*	.047	.18***	.012	.059	-.106*	.040
TV set viewing	Gaming console	.051	-.023	-.006	-.111*	-.25***	-.12**	.050	.039	.087*
	Streaming device	.114*	-.008	-.053	-.023	-.064	-.011	.044	-.034	.016
	Smart TV	-.034	-.037	-.008	.051	-.016	.001	.017	.038	-.050
	DVD or Blu-ray	.040	.035	.022	.111*	-.022	-.013	.012	.006	.011
	Traditional cable	.030	.076	-.059	.111*	.18***	.012	.018	-.026	-.025
Live and time-shifted viewing	Broadcast live	.058	.090*	-.048	.078	.25***	-.061	.111*	-.050	.060
	DVR/Tivo	.017	.022	-.065	.060	.046	.063	-.037	.012	-.080
	On Demand	-.021	.047	-.066	.007	-.012	.002	.098*	-.052	-.025
	SVOD	.003	-.046	.009	-.24***	-.28***	-.034	-.040	.007	.105*
	Free online	.093*	-.12**	.104*	-.111*	-.26***	.16***	.125**	.091*	.032
Viewing styles	Traditional	.033	.068	-.087*	.103*	.25***	-.012	.075	-.074	.026
	Serious streaming	.052	-.043	-.022	-.130**	-.24***	-.060	.023	.016	.064
	Traditional shifting	.0002	.040	-.080	.045	.025	.044	.027	-.020	-.068
	Viewing on the go	.125**	.010	.067	-.095*	-.32***	.19***	.133**	.12**	.026
Diversity	Platform	.16***	.082	.062	-.058	-.26***	-.21***	.096*	.094*	.096*
	Time-shifting	-.027	.061	-.106*	-.002	.034	.063	-.024	-.024	-.032
	TV set viewing	.126**	.067	-.053	.091*	-.070	-.049	.005	.045	.041
	Genre	-.029	.018	-.006	.000	.064	-.033	.084	-.030	.007

*p<.05, **p<.010, ***p<.001

Therefore, the more politically liberal the viewer, the more the viewer engages in serious streaming and viewing on the go and the greater the amount of their overall television set viewing they report doing streaming through a gaming console. Additionally, the more politically liberal the viewer identifies as, the greater the proportion of their total viewing they report doing on a desktop computer and time-shifted free online.

Age is the demographic variable that is significantly correlated with the greatest number of variables. In fact, in addition to its significant, positive association with overall exposure (r=.140, p<.01), age is significantly correlated with at least one form of platform exposure, way of viewing on a television set, live viewing, form of time-shifted viewing, viewing style, and form of viewing diversity. More specifically, age is significantly, positively correlated with degree of viewing done on a traditional television platform (r=.180, p<.001), degree of viewing on a television set through a traditional cable or satellite provider (r=.180, p<.001), degree of viewing done live, at the time it is scheduled (r=.250, p<.001), as well as degree of engagement in the traditional style of viewing (r=.250, p<.001).

Clearly, the older the viewer, the more traditional that viewer, as demonstrated by their choice of platform (traditional television), mode of television set viewing (through a traditional cable or satellite provider), live (as opposed to time-shifted) viewing, and style of viewing (traditional viewing style). The results for age reflect those found across the Nielsen population. Specifically, traditional media use and overall viewing is greater among older people, and new device usage is more common among younger audience members (Nielsen, March 2016).

While age is significantly, positively correlated with the five variables listed above, this demographic variable is significantly, negatively correlated with far more of the television viewing variables measured in this study. More specifically, age is significantly, negatively

correlated with degree of viewing done on three of the four non-traditional platforms measured in this study: degree of overall viewing done on a laptop computer (r=-.240, p<.001), desktop computer (r=-.190, p<.001), and smartphone (r=-.250, p<.001). The proportion of overall viewing on a television set streamed through a gaming console (r=-.250, p<.001) is also significantly, negatively correlated with age.

Degree of overall viewing time-shifted through an SVOD service (r=-.280, p<.001) and viewed free online (r=-.260, p<.001) are also negatively correlated with age. Lastly, identification with the serious streaming (r=-.240, p<.001) and viewing on the go (r=-.320, p<.001) styles and diversity in platform exposure (r=-.260, p<.001) are significantly, negatively correlated with age. Clearly, the younger the viewer, the more non-traditional the viewer, as evidenced by their platform use (laptop, desktop, and smartphone), mode of television set viewing (streaming through a gaming console), time-shifting (SVOD and free online viewing), styles of viewing (serious streaming and viewing on the go), and diverse use of television viewing platforms.

The analyses reveal that level of education is correlated with the smallest number of television viewing environment variables. Of the five categories of new and traditional forms of television viewing (platform exposure, television set viewing, live and time-shifted viewing, viewing styles, and viewing diversity), education is only correlated with variables from two of these categories: platform exposure (tablet) and live and time-shifted viewing (broadcast and free online). More specifically, degree of viewing done on a tablet (r=.108, p<.05) and degree viewed traditionally live, at the time scheduled for broadcast (r=.090, p<.05) are significantly, positively correlated with education level, while degree of free online viewing is significantly, negatively correlated with education level (r=-.120, p<.01). Therefore, watching live and time-

shifted (free online) are associated with education in opposite directions, with greater free online viewing associated with being less educated, and viewing live associated with being more educated.

While this directional pattern suggests that new and traditional forms of exposure may be inversely related to education level, the finding that greater overall viewing on a non-traditional device (tablet) is also associated with being more highly educated contradicts this proposition. Clearly, unlike gender, age, and political ideology, education does not play an important role in explaining how traditional and non-traditional viewing varies among viewers in this sample.

The final set of correlational analyses examines the relationships among racial groups and overall viewing, degree of viewing done on new and traditional platforms, new and traditional forms of television set viewing, live and forms of time-shifted viewing, styles of viewing, and forms of viewing diversity. The analyses reveal that the only racial group significantly associated with overall exposure is Asian (r=-.120, p<.01); the negative correlation indicates that Asian viewers watch less television. In terms of platform exposure, degree of viewing done on a laptop and degree of viewing done on a desktop are both significantly correlated with identifying as Asian and White.

While degrees of viewing done on both the laptop (r=-.120, p<.01), and desktop (r=-.130, p<.01) platforms are significantly, negatively correlated with identifying as White, degree of laptop (r=.100, p<.05), and desktop (r=.110, p<.05) exposure is significantly, positively correlated with identifying as Asian. The binary-coded White variable is also significantly, negatively correlated with degree of viewing on the other two non-traditional platforms: the tablet computer (r=-.120, p<.01) and smartphone (r=-.092, p<.05).

While not correlated with relative exposure on either of these non-traditional platforms, the Asian race variable is significantly, negatively correlated with degree of viewing on the traditional television platform (r=-.106, p<.05). Next, only one form of television set viewing is significantly correlated with race. More specifically, degree of television set viewing streamed through a gaming console is positively correlated with the binary-coded Hispanic race variable (r=.087, p<.05), and negatively correlated with the White race variable (r=-.120, p<.01).

Next, degree of overall viewing that is watched traditionally, live at the time scheduled for broadcast (r=.111, p<.05) and time-shifted On Demand through a cable or satellite provider (r=.098, p<.05) are both significantly, positively correlated with the binary-coded Black race variable. The Hispanic racial categorical variable is significantly, positively correlated with degree of overall viewing time-shifted through an SVOD service (r=.105, p<.05). For the final form of time-shifted viewing—degree of free online viewing—the analyses determine that it is significantly, positively associated with three of the four race variables: White (r=.160, p<.01), Black (r=.125, p<.01), and Asian (r=.091, p<.05). Additionally, identifying with the same three racial groups—White (r=.190, p<.001), Black (r=.133, p<.01), and Asian (r=.120, p<.01) —is significantly, positively associated with the viewing on the go viewing style.

Lastly, platform diversity is the only form of viewing diversity that is significantly correlated with race. Just as it is the only form of diversity significantly correlated with race, it is the only television variable measured in this study that is significantly correlated with all racial categories. More specifically, while identifying as White (r=-.210, p<.001) is negatively correlated with the number of platforms used to watch television, all three minority racial groups—Black (r=.096, p<.05), Asian (r=.094, p<.05), and Hispanic (r=.096, p<.05) —are significantly, positively correlated with diversity in platform exposure.

Considering how platform diversity is measured (each platform is binary-coded with the original "none" of my viewing response option assigned the value “0,” and all other response options recoded as “1,” and an index was created from the summation the binary-coded items), and that the negative, significant correlations between the White race variable and all four non-traditional platforms indicates that many White viewers do "none" of their viewing on these platforms, it is unsurprising that they are found to be low in platform diversity. Conversely, the positive correlations among the minority race variables and non-traditional platforms indicates that these viewers report using these platforms when viewing television, which accounts for the significantly higher degrees of platform diversity for these viewers.

Overall, several general patterns emerge from the correlational analyses involving race. First, in this sample, identifying as Asian is associated with low television viewing, a result consistent with Nielsen (2016, September) statistics, with Asian viewers watching less television than other racial groups. In this sample, when watching television, Asian participants report viewing in non-traditional ways. Asian viewers in this sample are characterized as non-traditional because they report doing proportionally higher levels of their overall viewing on non-traditional platforms (laptop, desktop) and lower levels on a traditional television platform. This non-traditional designation for Asian viewers is also supported by the positive associations found for time-shifting (free online), viewing style (viewing on the go) and viewing diversity (platform).

Next, Hispanic viewers are also generally non-traditional when watching television, in terms of mode of television set viewing (streaming through a gaming console), time-shifting (SVOD), and viewing diversity (platform). The most striking correlational pattern for White viewers is their minimal relative use of non-traditional platforms (laptop, desktop) when

watching television, which is also reflected in their lack of diversity in platform exposure. For Black viewers, however, it is harder to define any underlying pattern that characterizes the results of the correlational analyses.

Just as reported by Nielsen (2016, September), Black viewers in this sample report watching more television overall than White, Asian or Hispanic viewers. The correlational analyses here determined that this positive association with overall viewing is not significant. As a group, Black viewers in this study report higher degrees of non-traditional (time-shifted On Demand through a cable or satellite provider and free online, viewing on the go, platform diversity) forms of viewing. However, unlike Asian and Hispanic viewers, Black viewers also report a high degree of a traditional form of exposure; more specifically, traditional live viewing, which is significantly, positively associated with this racial category. Due to these findings, it would be erroneous to also characterize Black viewers in this sample as non-traditional.

While the preceding discussion reveals that the levels of use of various platforms, devices, and forms of viewing are related to several demographic factors (especially age, political ideology, gender, and identifying as White), there are forms of viewing that are not related to any of the demographic variables measured here. Specifically, viewing on a Smart TV, time-shifting using a DVR/Tivo, the traditional shifting viewing style, and genre diversity are not significantly associated with the demographic variables. While these analyses reveal the varying degrees and directions of associations among new and traditional forms of exposure and the various demographic characteristics measured in this study, in order to understand how these forms of viewing impact the cultivation process, overall viewing must be analyzed along with these variables.

Thus, in addition to exploring the relationships between demographic characteristics and overall viewing, degree of viewing done on new and traditional platforms, new and traditional forms of television set viewing, live and forms of time-shifted viewing, viewing styles, and forms of viewing diversity, this study next addresses the following research question regarding the relationships between the primary independent variable of interest—overall television exposure—and the new and traditional forms of viewing listed above:

> Research Question 5: What is the relationship between overall viewing and degree of viewing done on new and traditional platforms, new and traditional forms of television set viewing, live and forms of time-shifted viewing, viewing styles, and forms of viewing diversity?

As described in the "Research Questions and Planned Analyses" section of Chapter 3, two statistical procedures are used to address this question: correlational analyses (zero-order and partial) and analyses of variance (ANOVAs). The partial correlational analyses control for gender (male), political ideology, education, residence (urban), and two dummy-coded race variables (White and Black). The results of the correlational analyses are presented in Table 7.

Looking first at platform exposure, the correlational analyses reveal that overall television exposure is only significantly correlated with degree of viewing on two platforms: degree of viewing done on a laptop computer, and degree of viewing done on a traditional television. More specifically, in both the partial and zero-order correlational analyses, viewing on a traditional television platform is significantly, positively correlated with overall viewing (r=.304, p<.001; r(partial)=.280, p<.001). Laptop viewing, on the other hand, is significantly, negatively associated with overall exposure (r=-.105, p<.05), and this correlation is only significant for the zero-order analysis (when covariates are not controlled for).

Table 7. Zero-order and partial correlations among overall viewing and degree of viewing across platform, television set viewing, live and time-shifted viewing, viewing styles, and viewing diversity

		Overall Television Viewing	
		$r_{\text{Zero-Order}}$	r_{Partial}
Platform	Laptop	-.104*	-.074
	Desktop	-.054	-.029
	Tablet	.068	.084
	Smartphone	.041	.080
	Television	.304***	.280***
TV set viewing	Gaming console	.047	.082
	Streaming media device	.043	.046
	Smart TV	.118**	.125**
	DVD or Blu-ray	.131**	.144***
	Traditional cable or satellite	.169***	.154***
Live and time shifted viewing	Broadcast live	.245***	.225***
	DVR/Tivo	.152***	.154***
	On Demand	.12**	.116**
	SVOD	-.006	.030
	Free online	.005	.037
Viewing styles	Traditional viewing	.298***	.277***
	Serious streaming	.070	.102*
	Traditional shifting	.168***	.167***
	Viewing on the go	-.009	.037
Diversity	Platform	.066	.114*
	Time-shifting	.149***	.150***
	TV set viewing	.145***	.171***
	Genre	.325***	.318***

Note. Partial correlational analyses controlled for age, gender (male), race (White), race (Black), education, residence (urban), political ideology *p<.05, **p<.010, ***p<.001

The positive association between overall exposure and degree of viewing on a traditional television indicates that the greater the number of hours that respondents report viewing, the greater the proportion of that time viewers report watching on this platform. The inverse is found for the relationship between overall exposure and laptop viewing; more specifically, the

more time viewers spend watching television, the lower the proportion of overall viewing respondents report doing on a laptop computer.

Next, for viewing on a television set, in both the zero-order and partial correlation analyses, degree of viewing using three different devices/modes of access are found to be significantly, positively associated with amount of overall exposure: streaming through a Smart TV (r=.118, p<.01; r(partial)=.125, p<.01), using a DVD/Blu-ray player (r=.131, p<.01; r(partial)=.144, p<.001), and through a traditional cable or satellite provider (r=.169, p<.001).

Just as is found for the associations between overall exposure and the traditional forms of platform (on a television set) and television set (through a traditional cable or satellite provider) viewing, traditional live viewing is highly, significantly, positively correlated with overall exposure (r=.245, p<.001; r(partial)=.225, p<.001). Both time-shifting using a DVR or Tivo (r=.152, p<.001; r(partial)=.154, p<.001) and through cable or satellite On Demand (r=.120, p<.01; r(partial)=.116, p<.01) are also significantly, positively correlated with overall viewing. Thus, the more television that viewers report watching, the greater the proportion of that viewing they report watching live, time-shifted using a DVR or Tivo, or viewed On Demand through their cable or satellite provider.

Considering that the correlational analyses result in significant, positive associations among overall exposure and the degree of viewing for the traditional forms of platform, television set viewing, and live viewing (the 3 items comprising the traditional viewing style scale), it is unsurprising that there is also a highly significant, positive correlation between overall viewing and the traditional viewing style (r=.298, p<.001; r(partial)=.277, p<.001). The same is also found for the relationship between traditional shifting and overall exposure (r=.168, p<.001; r(partial)=.167, p<.001), which is also unsurprising considering that the items

comprising this scale also are significantly, positively correlated with overall exposure (DVR/Tivo and cable or satellite On Demand viewing).

Looking next at the serious streaming style of viewing, as shown in Table 7, only when covariates are controlled for in the partial correlational analyses does a significant, positive association between overall exposure and the serious streaming viewing style emerge (r(partial)=.102, p<.05). This indicates that one or more of the demographic covariates must be suppressing the relationship between overall exposure and serious streaming When looking at the correlations for all items comprising this scale, controlling for covariates (refer to r(partial) values presented in Table 7 for gaming console, streaming media device, Smart TV, and SVOD) in the analyses for all scale items always results in stronger associations than those found in the zero-order correlational analyses; this same pattern is also found in one of the forms of viewing diversity.

More specifically, the partial correlational analyses, but not zero-order, results in a significant, positive association between overall viewing and platform diversity (r(partial)=.114, p<.05). For all other forms of viewing diversity—time-shifting (r=.149, p<.001; r(partial)=.150, p<.001), television set viewing (r=.145, p<.001; r(partial)=.171, p<.001), and genre (r=.325, p<.001; r(partial)=.318, p<.001)—both zero-order and partial correlational analyses result in highly significant, positive associations with overall exposure. Thus, heavier viewers are more likely to use more platforms, watch a greater number of genres, are more likely to time-shift and use more television set viewing devices, but they are specifically not using certain forms of time-shifting (i.e., SVOD and free online viewing) and certain platforms (i.e., especially the laptop computer.

In the correlational analyses discussed above, overall viewing is measured as a continuous variable and the results offer information regarding the linear relationship between overall exposure and the new and traditional forms of exposure measured in this study. However, measuring these variables continuously assumes that these variables are all normally distributed and linearly related (which is not the case). Measuring overall exposure categorically, and analyzing how degree of new and traditional forms of exposure vary across levels of exposure can "illustrate the nature and shape of the relationship . . . in ways that correlational analyses cannot reveal" (Shanahan & Morgan, 1999, p. 77). For example, any relationships between overall exposure and the new and traditional forms of exposure measured in this study that are non-linear or curvilinear would be obscured in correlational analyses.

Thus, in addition to the correlational analyses, analyses of variance (ANOVAs) are also conducted to further explore these relationships. ANOVAs were conducted on both observed means and adjusted marginal means (controlling for covariates of age, gender (dummy-coded as male), political ideology, education, residence (dummy-coded as urban), and race (using the two dummy-coded race variables of White and Black)) across levels of overall viewing for all of the variables referenced in the research question above (i.e., degree of viewing on new and traditional platforms, viewing styles, forms of viewing diversity). Both sets of means, the results of the univariate tests (F-values), and the LSD pairwise comparisons of the means for light and heavy viewers are reported side-by-side in Table 8. As these analyses are 1) not being used to test specific hypotheses, 2) are exploratory in nature and, 3) are investigating previously unchartered territory, a less rigorous criterion of significance is acceptable (Schumm, 2012; Schumm et al., 2013; Warner, 2012). Therefore, for the analyses that follow, the alpha value is set to $p<.10$ (as opposed to the more commonly used $p<.05$).

Referring first to degree of overall exposure done on new and traditional platforms, there is a significant main effect of level of television exposure on proportional viewing on all platforms except the desktop computer ($F(2)=.73$, p=.483; $F_{Adj}(2)=1.34$, p=.242); thus, this discussion will focus on the four other platforms. As shown here, for the non-traditional platforms, the observed means for light viewers are slightly higher than the adjusted means, while the adjusted means are slightly higher among heavy viewers.

The opposite pattern, however, is found for degree of viewing done on the traditional television platform. While there are the aforementioned slight differences in the observed and adjusted means, the distributional patterns of relative use for each of these platforms across level of exposure persist. For laptop use, relative use is slightly lower for light (M=1.83; $M_{Adj.}$=1.81) viewers than medium (M=1.89; $M_{Adj.}$=1.86) viewers, and laptop viewing is much greater among medium viewers than heavy (M=1.60; $M_{Adj.}$=1.64) viewers.

This general distributional pattern characterizes the distributions for tablet and smartphone use; except that for these platforms, the difference in mean exposure between light to medium viewers is more dramatic, and the difference from medium to heavy viewing is less dramatic, with the mean values greater for heavy viewers than for light viewers for these two platforms. The distributional pattern across light and heavy viewers for laptop viewing is particularly interesting because it is the only platform or device that light viewers do a significantly higher proportion of their overall viewing on than their heavy viewing counterparts, and this may be due to the nature of this sample.

With the majority of MTurk workers completing their tasks on a laptop computer (Leeper, 2015), perhaps heavy viewers have a strong preference for viewing entertainment programming on a screen that they do not use for work purposes. Light viewers, on the other

hand, who do little viewing to begin with, and are not particularly committed to viewing hours of content per day, may not make the effort to switch from one screen to another like their heavy viewing counterparts. Medium viewers, on the other hand, may fall somewhere in between the two extremes, in that they are committed enough to content to watch several hours per day, but are more concerned about convenience than an optimal viewing experience.

Further, if light viewers may not switch screens because they simply do not care about watching television much to begin with, it makes sense that they would be similarly not inclined to watch on even smaller mobile devices as much as their heavy viewing counterparts. While heavy viewers would choose to view on the best screen when available, because they are committed viewers, if they are not at home, they are dedicated enough viewers that they would watch on mobile devices if it is the only option available. Again, it makes sense for medium viewers to report the highest proportional levels of viewing on tablets and smartphones as well if they value convenience over choosing the best screen.

While heavy viewers may only watch on these devices when it is the only available option, medium viewers seem not particularly to have a viewing preference. Thus, medium viewers do greater proportions of their viewing on laptops, tablets and smartphones than either light or heavy viewers (reflected in the curvilinear distributions), but as is evident in the results discussed next, they do less of their overall viewing on a traditional television set than heavy viewers.

Next, for relative amount of viewing done on the traditional television platform, light (M=2.78; M_{Adj}=2.81) viewers do proportionally less of their overall viewing on a television than medium viewers (M=3.19; M_{Adj}=3.20), and medium viewers do less of their overall viewing on a television than heavy (M=3.49; M_{Adj}=3.45) viewers. All three groups of viewers do more of

their viewing on the traditional platform than other of the new media platforms, which indicates that while heavy viewers clearly are predominantly television platform viewers, even light viewers do a considerable proportion of their overall viewing on this traditional platform. This reflects Nielsen's findings that "viewers have more options today, but when looking at platforms in a comparative fashion, it's clear that consumers choose the television as the primary vehicle for content" (2017, April, p. 2). Clearly, the results for viewing on a traditional platform in this study align with the conclusions regarding traditional platform viewing for the greater United States television viewing population.

As shown in the ANOVA results displayed in Table 8, there is a significant effect of level of television exposure on relative degree of each form of television set viewing—gaming console (F=2.90, p<.10; $F_{Adj.}$=3.04, p<.10), Smart TV (F=3.77, p<.05; $F_{Adj.}$=4.18, p<.05), DVD/Blu-ray (F=2.70, p<.10; $F_{Adj.}$=3.23, p<.10), traditional cable or satellite provider (F=6.12, p<.01; $F_{Adj.}$=4.72, p<.01) —except using a streaming media device.

For all non-traditional forms of television set viewing, observed means are slightly lower than marginal means among heavy viewers, while the opposite is found for relative amount of television set viewing through traditional cable or satellite providers among heavy viewers. In regards to patterns of distribution, for degree of viewing through a gaming console, mean values peak among medium (M=1.64; M_{Adj}=1.59) overall television viewers. When analyses do control for covariates, there is a negligibly higher mean (M_{Adj}=1.60) among heavy viewers than medium viewers (M_{Adj}=1.59). In both sets of ANOVAs, however, it is found that heavy viewers do proportionally more of their viewing on the gaming console than light viewers (p<.10).

Table 8. Analysis of variance (ANOVA) of relative use of different viewing platforms, television set viewing, live and time-shifted viewing, viewing styles, and forms of diversity across level of television exposure based on observed and adjusted means

		M			ANOVA	Post-hoc	$M_{Adjusted}$			ANOVA	Post-hoc
		TV exposure level			F	(M_H-M_L)	TV exposure level			$F_{Adjusted}$	$(M_H-M_L)_{Adjusted}$
		L	M	H			L	M	H		
Platform	Laptop	1.83	1.89	1.60	5.03***	-.23**	1.81	1.86	1.64	2.92*	-.17*
	Desktop	1.68	1.56	1.63	.73	-.04	1.66	1.53	1.68	1.34	.02
	Tablet	1.25	1.49	1.39	6.03***	.13*	1.25	1.48	1.40	5.79***	.15**
	Smartphone	1.36	1.52	1.39	3.30**	.03	1.34	1.50	1.43	2.80*	.08
	Television	2.78	3.19	3.49	22.60****	.72****	2.81	3.20	3.45	17.73****	.64****
TV set viewing	Gaming console	1.41	1.64	1.54	2.90*	.14*	1.39	1.59	1.60	3.04**	.20**
	Streaming device	1.65	1.82	1.81	1.55	.16	1.65	1.80	1.83	1.35	.17
	Smart TV	1.39	1.43	1.63	3.77**	.24**	1.38	1.43	1.64	4.18**	.26***
	DVD/Blu-ray	1.42	1.55	1.56	2.70*	.14**	1.41	1.55	1.57	3.23*	.16**
	Traditional cable/sat.	2.15	2.42	2.61	6.12***	.46****	2.17	2.45	2.56	4.72***	.39***
Live and time-shifted viewing	Broadcast live	2.15	2.22	2.61	11.84****	.46****	2.19	2.23	2.56	8.48****	.37****
	DVR/Tivo	1.54	1.86	2.06	12.22****	.52****	1.53	1.87	2.06	12.68****	.53****
	On Demand	1.40	1.66	1.71	8.11****	.31****	1.41	1.65	1.71	7.34****	.31****
	SVOD	2.24	2.48	2.35	1.97	.11	2.22	2.42	2.43	2.23	.21*
	Free online	2.08	2.16	2.11	.30	.03	2.06	2.11	2.17	.57	.11
Viewing styles	Traditional viewing	2.36	2.61	2.90	19.04****	.55****	2.39	2.63	2.86	14.44****	.47****
	Serious streaming	1.67	1.84	1.83	3.78**	.16**	1.66	1.81	1.87	4.98***	.21***
	Traditional shifting	1.47	1.76	1.89	15.27****	.41****	1.47	1.76	1.89	15.12****	.42****
	Viewing on the go	1.63	1.76	1.62	4.15**	.01	1.62	1.74	1.66	2.72*	.04
Diversity	Platform	2.24	2.73	2.49	7.04****	.25*	2.22	2.68	2.57	7.75****	.35***
	Time-shifting	1.56	2.07	2.17	15.15****	.58****	1.59	2.08	2.18	15.23****	.59****
	TV set viewing	1.78	2.34	2.32	10.87****	.54****	1.75	2.33	2.36	12.56****	.61****
	Genre	7.60	10.08	10.52	38.36****	2.92****	7.61	10.08	10.50	35.92****	2.89****

Note. Analyses controlled for the following variables: age, gender (male), race, education, residence (urban), political ideology. *p<.10, **p<.05, ***p<.010, ****p<.001

Unlike degree of viewing through a gaming console, while proportional viewing through a streaming media device is higher for heavy than light viewers, this difference is not statistically significant. This non-significant finding is notable because there are so few instances in which heavy viewers do not significantly differ from light viewers in their proportional viewing across platforms, devices, live and time-shifted viewing, viewing styles, and forms of viewing diversity. For DVD/Blu-ray viewing, light viewers report doing significantly less of their viewing using this device than both heavy viewers (M_H-M_L=.14; M_H-$M_{L\text{Adj}}$=.16, p<.05), while medium (M=1.55; M_{Adj}=1.55) and heavy viewers (M=1.56; M_{Adj}=1.57) report almost identical proportional viewing when covariates are and are not controlled for in the analyses.

Unlike the gaming console, streaming media device, and DVD/Blu-ray player, the nature of the distribution of degree of viewing on a Smart TV is clearly linear with or without controlling for covariates, with each group of viewers reporting higher values than their lower viewing counterparts, with heavy viewers reporting significantly higher levels of viewing on a Smart TV than light viewers (M_H-M_L=.24, p<.05; $_{Adj}M_H$-M_L=.26, p<.01).

Next, similar to the findings presented previously for platform viewing, viewers report doing more of their overall viewing in traditional (television set viewing through a cable or satellite provider) than in non-traditional ways. However, the mean degrees of viewing through a traditional cable or satellite provider for all levels of viewing is lower than those for traditional platform viewing. The distribution is clearly linear, with light viewers (M=2.15; M_{Adj}=2.17) reporting the lowest degree of traditional cable or satellite viewing and heavy viewers reporting the highest (M=2.61; M_{Adj}=2.56).

The analyses for degree of viewing done traditionally live and time-shifted in various ways reveala that for degree of traditional live broadcast viewing, DVR/Tivo viewing, and cable

or satellite On Demand viewing, there are incrementally higher scores across light (traditional live (M=2.15; M_{Adj}=2.19); DVR/Tivo (M=1.54; M_{Adj}=1.53) On Demand (M=1.40; M_{Adj}=1.41)) medium (traditional live (M=2.22; M_{Adj}=2.23); DVR/Tivo (M=1.86; M_{Adj}=1.87) On Demand (M=1.66; M_{Adj}=1.65)) and heavy (traditional live (M=2.61; M_{Adj}=2.56); DVR/Tivo (M=2.06; M_{Adj}=2.06) On Demand (M=1.71; M_{Adj}=1.71)) levels of viewing, all of which demonstrate highly significant main effects of level of viewing (p<.001) and differences between light and heavy viewers (p<.001) when covariates are and are not controlled for in the analyses.

While the significance of the effect of level of viewing is just as apparent for On Demand viewing as DVR/Tivo and live broadcast viewing, it is important to note that even among heavy viewers, the degree of viewing time-shifted through Cable or Satellite On Demand is far lower than any other form of time-shifting. Thus, while all viewers do relatively little of their viewing time-shifted On Demand, heavy viewers don't do quite as little of their overall viewing in this way as their lighter viewing counterparts.

For degree of SVOD and free online viewing, however, the results are quite different. First, for both of these forms of time-shifting, there is not a significant main effect of level of viewing in any of the analyses. Further, when covariates are not controlled for in the analyses, there is virtually no difference in the proportion of overall viewing time-shifted free online for light and heavy viewers (M_H-M_L=.03), and the difference is also small and non-significant when controlling for covariates (M_H-M_{LAdj}=.11); for SVOD, the difference between light and heavy viewers is only significant when covariates are controlled for in the analysis (M_H-M_L=.11; M_H-$M_{LAdj.}$=.21, p<.10).

Another notable finding from these time-shifting analyses is that unlike the results for platform and television set viewing, degree of viewing traditionally (i.e., live broadcast) is no

longer the way that light viewers report doing the greatest degree of their overall viewing. Instead, light viewers report doing a slightly greater degree of their viewing time-shifted through an SVOD provider (M=2.24; M_{Adj}=2.22) than broadcast live (M=2.15; M_{Adj}=2.19). Additionally, light viewers also report doing similar, albeit slightly lower, levels of free online viewing (M=2.08; M_{Adj}=2.06) as those reported for SVOD and live viewing.

Next, the analyses conducted for viewing styles reveal that across all levels of exposure, scores on the traditional viewing scale are the highest. This is unsurprising, as it mirrors the findings for two of the traditional forms of viewing comprising this scale (traditional television platform viewing and traditional cable or satellite television set viewing). The shape of the distribution—linear, with higher means across light (M=2.36; M_{Adj}=2.39), medium (M=2.61; M_{Adj}=2.63), and heavy (M=2.90; M_{Adj}=2.86) viewing—also mirror the distributions of all three traditional forms of viewing comprising this scale (live broadcast viewing, traditional television platform viewing and traditional cable or satellite television set viewing). Further, as shown in Table 8, the results of the ANOVA indicate that level of exposure has a highly significant effect on (both observed and adjusted) mean traditional viewing style scores (F=19.04, p<.001; $F_{Adj.}$=14.44, p<.001).

Next, similar to traditional viewing, mean scores on the traditional shifting style scale also demonstrate an incremental linear pattern across light (M=1.47; M_{Adj}=1.47), medium (M=1.76; M_{Adj}=1.76), and heavy (M=1.89; M_{Adj}=1.89) levels of overall exposure; the same distributional pattern is also found for the two forms of time-shifting comprising this scale (DVR/Tivo and cable or Satellite On Demand). And, level of exposure has a highly significant effect on traditional shifting (F=15.27, p<.001; $F_{Adj.}$= 15.12, p<.001).

The results for the serious streaming viewing style are more complex. First, adjusting for covariates impacts the distribution of mean scores on this viewing style scale across levels of exposure, and thus the size of the main effects and the associated *p*-values differ across sets of analyses. However, this is not unexpected considering that the earlier analyses for SVOD time-shifted viewing (one of the items comprising the "serious streaming" scale) produce similar results. More specifically, as shown in Table 8, while both the observed and marginal means increase across light (M=1.67; M_{Adj}=1.66) and medium (M=1.84; M_{Adj}=1.811) levels of exposure, when analyses adjusted for covariates, the highest mean value for this viewing style is reported at heavy levels of television exposure (M_{Adj}=1.87). These mean values remain relatively steady at heavy levels of exposure as well.

While the ANOVAs conducted on both the observed and adjusted serious streaming means result in significant main effects of level of exposure, the effect is more highly significant when covariates are adjusted for in the analysis (F=3.78, p<.05; $F_{Adj.}$=4.98, p<.01). This same difference in magnitude is found for the cultivation differentials, with the difference for the adjusted means being more statistically significant than that when variables are not controlled for in the analyses (M_{Heavy}-M_{Light}=.16, p<.05; $_{Adj.}M_{Heavy}$-M_{Light}=.21, p<.01). The underlying complexity of serious streaming is also tied to the magnitude of the differences across light and heavy viewers for the items comprising this scale. Specifically, while degree of viewing done on a Smart TV and on a gaming console is significantly higher among heavy viewers than light viewers for all analyses, for degree of viewing done on a streaming media device, these differences are not significant.

Unlike the other viewing styles, in which the items comprising each scale are very similar in the significance of the effect of level of viewing, and the distributional patterns across viewing

levels, the distributional patterns of scores across level of viewing and the magnitude of the mean differences between light and heavy viewers vary considerably among the devices and SVOD viewing that comprise this scale. This makes it harder to predict how serious streaming may impact the cultivation process.

Next, the shape and pattern of the distribution of mean scores on the viewing on the go scale across level of exposure is very similar to those found for two of the portable platforms comprising this scale (tablet computer and smartphone). More specifically, there is a curvilinear distributional pattern in which means were higher at medium viewing (M=1.76; M_{Adj}=1.74) levels than at light (M=1.63; M_{Adj}=1.62) or heavy (M=1.62; M_{Adj}=1.66) levels of viewing. According to Table 8, across all viewing styles, heavy viewers score the lowest for viewing on the go. There is a significant main effect of level of overall exposure on viewing on the go; this effect is slightly more significant when covariates are not controlled for in the analysis (F=4.15, p<.05; $F_{Adj.}$=2.72, p<.10).

Finally, the analyses for forms of viewing diversity reveal that for platform diversity, the average number of platforms participants reported viewing are lower among light (M=2.24; M_{Adj}=2.22) than medium viewers (M=2.73; M_{Adj}=2.68), and lower for heavy viewers (M=2.49; M_{Adj}=2.57) than medium viewers. There is a significant main effect of level of overall exposure on platform diversity, and this effect is highly significant with and without controlling for covariates (F=7.04, p<.001; $F_{Adj.}$=7.75, p<.001). Considering that platform diversity is significantly correlated with several of the demographic control variables, as well as the finding that the magnitude of its association with overall exposure is more significant in the partial than the zero-order correlational analyses, the fact that controlling for covariates in the ANOVA results in a more significant effect is not surprising. It appears, therefore, that (at least) one of

the demographic covariates is a suppressor variable, which enhances the correlation between overall viewing and the dependent variable (Pandey & Elliott, 2010; Thompson & Levine, 1997).

For diversity in time-shifting, controlling for covariates in the analyses results in no measurable difference in either the distribution for the average number of forms of time-shifting used across levels of television exposure, the significance of the main effect of television exposure on time-shifting diversity, nor the size or significance of the cultivation differential. Specifically, each set of analyses reveal that time-shifting diversity is higher across successive levels of viewing, from light (M=1.56; M_{Adj}=1.59) to medium (M=2.07; M_{Adj}=2.08) levels of exposure, and then from medium to heavy exposure (M=2.17; M_{Adj}=2.18). The analyses further demonstrate that the cultivation differentials (M_{Heavy}-M_{Light}=.58, p<.001; $_{Adj.}M_{Heavy}$-M_{Light} =.59, p<.001) and main effects of television exposure on this form of viewing diversity are highly significant (F=15.15, p<.001; $F_{Adj.}$=15.23, p<.001).

Next, the results of the analyses of both the observed and adjusted means for television set viewing diversity also reveal a highly significant main effect of level of exposure (F=10.87, p<.001; $F_{Adj.}$=12.56, p<.001). As shown in Table 8, there is a pronounced difference in both the observed and adjusted television set viewing diversity means, with medium viewers (M=2.34; M_{Adj}=2.33) reporting higher diversity than light (M=1.78; M_{Adj}=1.75) viewers. Controlling for covariates does appear to very slightly impact the distributional pattern, as evidenced by the observed and marginal means at heavy levels of exposure. More specifically, when controlling for covariates in the general linear model, there is a slightly higher degree of diversity at heavy (M_{Adj}=2.36) than at medium (M_{Adj}=2.33) exposure levels, while there is a slightly lower degree among heavy (M=2.32) than medium (M=2.34) viewers when covariates are not included in the model. While these slight differences result in both a slightly larger cultivation differential and a

slightly higher F-statistic for the adjusted ($_{Adj.}M_{Heavy}$-M_{Light} =.61, p<.001; $F_{Adj.}$=12.56, p<.001) than the observed (M_{Heavy}-M_{Light}=.54, p<.001; F=10.87, p<.001) television set viewing diversity means, the significance levels for all results are commensurate (all p<.001).

Lastly, the pattern of results of the ANOVAs for genre diversity mirror those found in the time-shifting diversity analyses. More specifically, controlling for covariates in the analyses has virtually no impact on either the distribution for the average number of genres viewed used across levels of exposure, the main effect of exposure on genre diversity, nor the magnitude of the cultivation differential. As displayed in Table 8, for both the observed and adjusted genre diversity means, there were incrementally higher values from light (M=7.60; M_{Adj}=7.61) to medium (M=10.08; M_{Adj}=10.08) levels of exposure, and then again across medium to heavy (M=10.52; M_{Adj}=10.58) exposure levels. The cultivation differentials (M_{Heavy}-M_{Light}=2.92, p<.001; $_{Adj.}M_{Heavy}$-M_{Light} =2.89, p<.001) and main effects of television exposure on genre diversity are all highly significant (F=38.36, p<.001; $F_{Adj.}$=35.93, p<.001).

Overall, these analyses clearly indicate that heavy viewers are far more traditional than light viewers, which is indicated by their substantially higher degrees of traditional platform, television set viewing, live viewing, and scores on the traditional viewing scale. Greater exposure to traditional content is theoretically the most likely to enhance cultivation effects. Further, similar to how the VCR enhanced cultivation effects for heavy viewers in Morgan and Shanahan's (1991) study, the DVR/Tivo should impact the cultivation process in similar ways. Additionally, the analyses show that heavy viewers generally engage to a significantly higher degree in more diverse viewing across platforms, devices, time-shifting and genre exposure, as well as proportionally higher levels of viewing on most of the specific platforms and devices than light viewers.

There are exceptions, however, most notably in relation to the forms of exposure that are postulated at the end of Chapter 3 as most likely to facilitate exposure to alternative portrayals and messages that may counter those found in mainstream television content. For degree of viewing on a laptop, light viewers actually report higher levels than heavy viewers; while light viewers do not report doing higher proportions of viewing than heavy viewers through a streaming media device, time-shifted free online or through an SVOD provider, proportional viewing among light viewers via these new media technologies either does not significantly differ from that of heavy viewers (as is the case with the streaming media device on free online viewing) or exceeds their proportional viewing in a traditional manner (as is the case with SVOD and traditional live viewing). While none of these new forms of viewing only offer viewers content that is different than traditional broadcast television (for instance, SVOD offers network programming and a viewer can watch traditional content on a laptop), the devices and services themselves necessitate selective viewing, and are more likely to offer more niche and unconventional content. Because light viewers are selective by nature, it is unsurprising that they do relatively high proportions of their viewing in these ways. While heavy viewers appear to be doing relatively less of their overall viewing in these ways, among heavy viewers who do engage in high levels of online, laptop, SVOD, and streaming media device viewing, the magnitude of the relationship between overall viewing and cultivation outcomes may be weakened or even reversed.

While the analyses thus far explore the relationships among the various forms of new and traditional forms of viewing, overall television exposure, and the sample demographics, the primary purpose of this study is to explore how all of these forms and styles of viewing impacts the cultivation process. In order to accomplish this primary objective, this study analyzed 1) the

relationships between overall exposure and the cultivation outcomes, and 2) the degree to which new and traditional forms of television viewing moderate these relationships.

Classic Cultivation Analysis: The Impact of Overall Exposure

Prior to exploring how various aspects of the television viewing environment may have potentially impacted the cultivation process, this study addressed the following research questions:

> Research Question 6: What is the relationship between overall exposure and first and second order cultivation outcomes?
>
> Research Question 6a: Are there significant associations among amount of television viewing and cultivation outcomes?
>
> Research Question 6b: Are there significant differences in cultivation outcomes across levels of exposure?

In order to answer these questions, statistical analyses were conducted to determine the strength of the relationship between the primary independent variable—overall television exposure—and each of the cultivation outcomes (the five first order estimates and three second order outcomes). In order to determine the strength of these relationships (Research Question 6a), zero-order correlational analyses (no control variable) and partial correlational analyses (controlling for gender, age, race, education, area of residence, and political ideology) were carried out.

As stated previously, measuring overall exposure categorically, and analyzing how degree of new and traditional forms of exposure vary across levels of exposure can "illustrate the nature and shape of the relationship . . . in ways that correlational analyses cannot reveal"

(Shanahan & Morgan, 1999, p. 77). Thus, in addition to the correlational analyses, in order to address Research Question 6b, analyses of variance were conducted to test for statistically significant differences in the mean scores of each of the first and second order outcomes across light, medium and heavy levels of television exposure. The results of the partial and zero-order correlational analyses are presented in Table 9 below.

The results indicate that, whether covariates are controlled for or left out of the analyses, television viewing is only significantly associated with two of the first order outcomes: violence estimates (r=.167, r(partial)=.165; p<.001) and law enforcement estimates (r=.151, r(partial)=.144; p<.001). This positive correlation indicates that the more television a viewer watched, the more likely the viewer is to estimate that "10 in 100 people are involved in violence per week" and that "5 percent of all working people work in law enforcement or criminal investigation" (the societal-level estimates that are consistent with the television world).

Table 9. Zero-order and partial correlations among overall television viewing and cultivation outcomes

	Overall Television Viewing	
	$r_{\text{Zero-Order}}$	r_{Partial}
Violence estimates	.167****	.165****
Law enforcement estimates	.151****	.144****
Violent crime estimates	.038	.046
Murder-victim relationship estimates	.009	.031
Mentally ill perpetrator estimates	-.003	.001
Sexism	.021	.048
Mean world	.027	.050
Moderate political ideology	.025	.037

Note. Analyses controlled for the following variables: age, gender (male), race (Black), race (White), education, residence (urban), political ideology. Analysis for moderate political ideology did not control for political ideology
****p<.001

Other than these two demographic estimates, none of the correlational analyses result in significant associations between television viewing and the remaining first and second order cultivation outcomes. In order to further explore the relationships among television viewing and the cultivation outcomes, analyses of variance were conducted using the general linear model to determine if there are significant differences in cultivation outcomes across levels of exposure (Research Question 6b).

This procedure allows for the comparison of means across light, medium and heavy viewing while controlling for covariates (gender, age, race, education, area of residence, and political ideology) by computing estimated marginal means which are predicted values of the dependent variable for each level of exposure at the mean values of the covariates.
The analyses of variance (ANOVAs) were conducted on observed (no controls) and estimated marginal means (controlling for covariates) for each of the cultivation outcomes across level of viewing. These observed and adjusted means, the results of the ANOVAs (*F*-values) based on these means, and the cultivation differentials are presented in Table 9.

As displayed in the table, there is a significant difference in the estimated marginal means across level of television exposure for violence estimates and law enforcement estimates.
While these results are consistent with the correlational analyses, in which television exposure is only significantly, positively associated with violence and law enforcement estimates, in order to explore how each of the cultivation outcomes vary specifically between light and heavy levels of television exposure, pairwise comparisons probing the cultivation differentials (the adjusted marginal mean difference between light and heavy viewing) for each cultivation outcome were conducted. The cultivation differentials indicate that heavy viewers report higher mean than light viewers for all first and second order cultivation outcomes.

Table 10. Analysis of variance of cultivation outcomes across level of television exposure based on observed and adjusted means

	M			ANOVA	Cultivation Differential	$M_{Adjusted}$			ANOVA	Cultivation Differential
	TV exposure level			F	(M_H-M_L)	TV exposure level			$F_{Adjusted}$	$(M_H-M_L)_{Adjusted}$
	L	M	H			L	M	H		
Violence estimates	.231	.299	.402	6.03***	.171****	.236	.295	.401	5.68***	.165***
Law enforcement estimates	.318	.455	.444	4.16**	.126**	.324	.453	.440	3.50**	.115**
Violent crime estimates	.237	.258	.260	.147	.023	.235	.256	.265	.220	.030
Murder-victim relationship estimates	.104	.084	.095	.202	-.009	.098	.082	.103	.245	.004
Mentally ill perpetrator estimates	.306	.347	.308	.147	.001	.308	.340	.313	.235	.006
Sexism	2.41	2.50	2.54	.803	.119	2.41	2.51	2.55	1.54	.134*
Mean world	.441	.463	.434	.204	-.007	.432	.454	.451	.134	.019
Moderate political ideology	.173	.204	.231	.870	.058	.170	.200	.238	1.17	.068

Note. Analyses controlled for the following variables: overall television viewing, age, gender (male), race (Black), race (White), education, residence (urban), political ideology. For moderate political ideology, the analysis did not control for political ideology, and did control for race (Asian) *p<.10, **p<.05, ***p<.010, ****p<.001

As expected, the very small differentials for murder-victim relationship and violence estimates are non-significant, nor are the modest differentials for violent crime estimates and mean world views. Finally, also as expected, the cultivation differentials for violence (M_{Heavy}-M_{Light}=.171, p<.001; $_{Adj.}M_{Heavy}$-M_{Light}=.165, p<.001) and law enforcement estimates (M_{Heavy}-M_{Light}=.126, p<.05; $_{Adj.}M_{Heavy}$-M_{Light}=.115, p<.05) are significant.

While the main effects of television exposure on either sexism or moderate political ideology are not significant, the cultivation differential for sexism ($_{Adj.}M_{Heavy}$-M_{Light}=.134, p<.10) is statistically significant (when covariates are controlled for in the analysis). This finding suggest that television exposure may be more strongly related to this cultivation outcome than is originally suggested by the correlational analyses.

The results reviewed above indicate that analyses in this study should examine not only the overall effect of television exposure, but should also specifically focus on investigating the cultivation differential (the difference in the outcome variable between heavy and light viewing). As will be demonstrated in the sections that follow, the examination of variations across different levels of exposure variables inform the statistical analytic approach used in this study's exploration of the impact of new and traditional forms of television viewing on the cultivation process.

Traditional and New Forms of Exposure and the Cultivation Process

As stated previously, the primary objective of this study is to analyze how new and traditional forms of television exposure impact the cultivation process. This study explores how the following new and traditional ways of viewing moderated the relationship between overall exposure and first order societal-level estimates and second order attitude and belief outcomes:

degree of overall viewing done on new and traditional platforms; degree of overall television set viewing done using new and traditional devices/modes of accessing content; relative amount of content viewed traditionally live and time-shifted in various ways, degree of reported engagement in different viewing styles, and diversity in platform use, television set viewing, time-shifting and genre exposure. Before detailing the results of the moderation analyses, the results of the analyses addressing the following research question are described first:

> Research Question 7: Independent of overall exposure, what is the relationship between traditional and new forms of exposure and the cultivation outcomes?

The relationships among the aforementioned traditional and new forms of exposure and the cultivation outcomes are briefly discussed below. In order to analyze these relationships, the new and traditional forms of exposure measured in this study (i.e., platforms, television set viewing, viewing styles, etc.) are treated as independent variables.

Then, partial correlational analyses were conducted among these variables and each cultivation outcome while controlling for overall television viewing and demographic covariates. The results of the partial correlational analyses are presented in Table 11. Degree of viewing on both of the highly portable tablet (r(partial)=.095; p<.05) and smartphone (r(partial)=.104; p<.05) platforms are positively, significantly associated with sexism, indicating that the more of their overall viewing that participants report doing on these platforms, the more sexist their attitudes. Degree of viewing done on a smartphone is also significantly, positively correlated with moderate political ideology (r(partial)=.077; p<.10); participants who report that they do relatively more of their viewing on a smartphone are more likely to describe themselves as "middle of the road" in their political orientation.

Table 11. Partial correlations among cultivation outcomes and degree of platform viewing, television set viewing, live and time-shifted viewing, viewing style, and viewing diversity

		First order estimates					Second order outcomes		
		Violence	Law enforcement	Violent crime	Murder-victim relationship	Mentally ill perpetrators	Sexism	Mean world	Moderate political ideology
Platform	Laptop	.047	.020	-.041	-.068	.033	.041	-.031	-.002
	Desktop	-.078*	-.054	-.079*	-.062	.044	.020	.129***	-.066
	Tablet	-.002	.027	.036	.083*	.054	.095**	-.002	.024
	Smartphone	.030	.001	.002	.047	.039	.104**	-.010	.077*
	Television	-.029	.014	.029	.076*	-.012	-.005	-.117***	.024
TV set viewing	Gaming console	-.007	.026	-.096**	.057	-.010	-.013	-.012	.046
	Streaming media device	.014	.060	.004	.026	.046	.045	-.171****	.005
	Smart TV	.056	.067	.070	.094**	-.006	.025	-.047	.071
	DVD/Blu-ray	-.009	-.022	.041	.025	.025	-.053	.061	.051
	Traditional cable or satellite	-.024	.012	.035	.010	-.027	.098**	.011	-.049
Live and time-shifted viewing	Broadcast live	-.061	.024	.096**	-.042	-.007	.025	.015	-.009
	DVR/Tivo	.002	.032	-.086*	.026	.009	.027	-.089**	-.022
	On Demand	.006	-.015	.034	.066	.039	.029	-.037	.029
	SVOD	.004	.013	-.080*	-.016	-.005	.039	-.010	-.105**
	Free online	-.048	.005	-.084*	-.019	.000	.024	.071	.043
Viewing styles	Traditional viewing	.047	.021	.066	.021	-.021	.058	-.038	-.019
	Serious streaming	.024	.061	-.040	.056	.011	.038	-.094**	-.002
	Traditional shifting	.004	.014	-.041	.053	.027	.034	-.081*	.000
	Viewing on the go	.007	.020	-.040	.002	.004	.093**	.016	.052
Diversity	Platform	-.047	-.041	-.033	-.054	.042	.073	-.020	.009
	Time-shifting	.029	.017	-.023	.046	-.010	.037	-.095**	-.063
	TV set viewing	.023	.050	.021	.051	.010	.034	-.073	.070
	Genre	-.009	.047	.045	.045	.071	.068	-.011	.014

Note. Analyses controlled for the following variables: overall television viewing, age, gender (male), race (Black), race (White), education, residence (urban), political ideology. For moderate political ideology, the analysis did not control for political ideology, and did control for race (Asian) *p<.10, **p<.05, ***p<.010, ****p<.001

For ways of viewing on a television set, of the five variables measured, the partial correlational analyses reveal that only degree of viewing on a television set with a DVD or Blu-ray device is not significantly associated with any of the cultivation outcomes. Each of the four other ways of viewing on a television set are associated with one cultivation outcome; all of these associations are with different outcomes.

First, viewing using a gaming console is significantly, negatively associated with first order estimates of violent crime (r(partial)=-.096; p<.05), indicating that the greater the degree of overall television set viewing that is streamed through a gaming console, the greater the likelihood that the estimate reported is commensurate with the rate of violent crime in society (not in the world of television). Next, reflecting the findings for degree of overall viewing done a traditional television, viewing using a streaming media device is highly, significantly, negatively associated with mean world views (r(partial)=-.171; p<.001). Thus, the more that viewers use the streaming media device when they watch content on a television set, the more positive and trusting their view of society.

Mirroring the results of the partial correlational analyses for smartphone and tablet viewing reported earlier, degree of television set viewing on a Smart TV is significantly, positively associated with estimates of murder-victim relationships (r(partial)=.094; p<.05), indicating that the greater the amount of overall television set viewing on a Smart TV, the greater the likelihood of reporting that "most murders take place between strangers."

For the traditional way of viewing on a television set—through a traditional cable or satellite provider—the analyses reveal that greater proportions of television set viewing done in this manner is significantly associated with more sexist attitudes, as demonstrated by the positive

association between this variable and the second order cultivation outcome of sexism (r(partial)=.098; p<.05).

Turning to the results for live and time-shifted viewing, the analyses reveal that live viewing and three forms of time-shifting are significantly associated with first order estimates of violent crime. While degree of overall viewing done traditionally (live at the scheduled broadcast time) is associated with a greater likelihood of providing the cultivation and television-consistent over-estimate of violent crime (r(partial)=.096; p<.05), the forms of time-shifting are inversely related to this cultivation outcome. More specifically, the greater the degree of overall viewing that is time-shifted through a DVR or Tivo (r(partial)=-.086; p<.10), using an SVOD service (r(partial)=-.080; p<.10), or viewed free online (r(partial)=-.084; p<.10), the greater the likelihood of providing the real world estimate of violent crime in society.

Time-shifting through a DVR or Tivo is also significantly, negatively associated with the second order cultivation outcome of mean world (r(partial)=-.089; p<.05), indicating that the greater the proportion of overall viewing that participants time-shift using a DVR or Tivo, the more positive their world view. In addition to its negative association with first order estimates of violent crime, SVOD viewing is also significantly, negatively associated with the second order outcome of moderate political ideology (r(partial)=-.106; p<.05). Thus, the more of the overall television viewing that a participant reports doing through an SVOD service, the less likely that he or she identifies as politically moderate.

Next, the final sets of partial correlational analyses examines the relationships between cultivation outcomes and styles and diversity of viewing. As shown in Table 11, traditional viewing is not significantly associated with any of the cultivation outcomes. However, the other three viewing styles are significantly correlated with second order cultivation outcomes. More

specifically, both serious streaming (r(partial)=-.094, p<.05) and traditional shifting (r(partial)=-.081, p<.10) are negatively correlated with mean world, with viewers who score highly on both of these viewing style scales reporting more trusting and favorable views of society.

Viewing on the go, on the other hand, is significantly, positively correlated with the second order cultivation outcome of sexism (r(partial)=.093, p<.05), with those who score high on the viewing on the go scale reporting more sexist attitudes. Time-shifting is the only form of viewing diversity that is significantly associated with a cultivation outcome. Specifically, time-shifting diversity is negatively correlated with mean world views (r(partial)=-.095; p<.05), indicating that the more forms of time-shifting viewers use when watching television, the more positive and trusting their outlook on society.

Overall, the partial correlational analyses reveal that there are several significant associations among cultivation outcomes and the forms and styles of television viewing measured in this study. Of all cultivation outcomes in this study, these analyses reveal that mean world has the greatest number and variety of significant correlations, including two platforms (desktop computer and traditional television), one television set viewing device (streaming media device), one form of time-shifting (DVR or Tivo), two viewing styles (serious streaming and traditional shifting) and one form of viewing diversity (time-shifting). Further, these correlations re primarily negative, indicating that greater proportions of viewing done in these ways cultivate positive, not negative, world views. The significant correlations among the various forms of time-shifting, gaming console use and first order estimates of violent crime also indicate that greater proportions of viewing done in these ways do not cultivate television-consistent estimates.

Finally, while previous analyses reveal that overall television viewing is positively, highly significantly associated with first order estimates of violence (r=.167, r(partial)=.165; p<.001), when controlling for overall viewing and other covariates, the only variable significantly associated with this cultivation outcome is desktop viewing, and this association is tenuously significant (p<.10). Further, as reviewed in the "Classic Cultivation Analysis" section, the only other cultivation outcome that shared a significant association with overall exposure is first order estimates of law enforcement; like first order estimates of violence, this association is positive and highly significant (r=.151, r(partial)=.144; p<.001). As presented in Table 11, when controlling for overall viewing and other covariates, not one of the platforms, forms of television set viewing, live and time-shifted viewing, viewing styles, or forms of viewing diversity is significantly associated with this cultivation outcome. Taken together, the evidence suggests that of all the exposure and viewing variables measured in this study, television viewing is the strongest, most significant independent predictor of these cultivation outcomes.

The results presented in Table 11, and the accompanying discussion of these results, presents an overview of the relationships between cultivation outcomes and exposure across platforms, television set viewing devices, forms of time-shifting, viewing styles and forms of diversity when analyzed independently of overall television viewing. The main purpose of this study, however, is to explore how the interactions among these variables and overall television viewing impacts the cultivation process. Starting with degree of overall viewing done on new and traditional platforms, the rest of this chapter explores how new and traditional ways of viewing moderate the relationship between overall exposure and first order societal-level estimates and second order attitude and belief cultivation outcomes.

Platform Exposure: Impact on the Cultivation Process

In today's media environment, viewers have a variety of platforms from which to choose when watching television. In this study, degree of overall exposure on five different platforms were measured: laptop computer, desktop computer, tablet, smartphone, and traditional television. While more than half of viewers report doing "most" of their overall viewing on the traditional television platform (51.9%), more than half of viewers also report doing at least some of their overall viewing on a laptop computer (52.8%).

Of all the platforms measured, the tablet is the platform used least when watching television, with approximately 70 percent of participants reporting that they do "none" of their overall viewing on this platform. More than 60 percent of participants report doing "none" of their overall viewing on either a desktop computer (60.7%) or smartphone (63.9%); conversely, under ten percent of participants do "none" of their overall viewing on a traditional television (9.8%). While the traditional television is clearly the dominant platform viewers in this study used when watching television, the data does indicate that new platforms are also used to view television. Thus, this study analyzes the impact of differential platform use on cultivation outcomes in order to address the following research question:

> Research Question 8: How does the relative amount of exposure done on traditional and new media platforms impact the cultivation process?

As described in Chapter 3, in order to answer this research question, the SPSS PROCESS macro Model 1 (Hayes, 2012; 2015) was used to determine if there is a significant interaction effect of the independent and moderator variable on the given cultivation outcome (dependent variable) while controlling for covariates. In order to avoid multicollinearity, PROCESS

automatically mean-centers independent and moderator variables involved in the interaction analysis. Model 1 examines the interaction by using 1,000 bootstrap samples to estimate the conditional effects of amount of television exposure on the cultivation outcome (e.g., violence estimates, sexism).

PROCESS Model 1 offers three techniques/approaches to further probe significant interactions in conditional effect analyses, all of which are used in this study: the "pick-a-point" approach, the "plot" option, and the Johnson-Neyman technique. First, using the "pick-a-point" approach, PROCESS calculates the regression coefficients and significance for the simple slopes of the independent variable (overall exposure) on each dependent variable (cultivation outcome) at relatively low (one standard deviation below the mean), average (mean) and high (one standard deviation above the mean) levels of the moderating variable.

Next, by selecting the "plot" option for Model 1, PROCESS calculates values of the dependent variable (cultivation outcome) at varying levels of the independent and moderating variable. Specifically, nine values are calculated for all combinations of the three levels of the independent variable (light, medium, and heavy viewing) and the three levels of the moderating variable specified in the pick-a-point calculation (the mean and one standard deviation below and above the mean). The mean values computed for the respective cultivation outcome are then plotted along the y-axis across the three levels of the independent variable (light, medium and heavy viewing) on the x-axis as a function of the three levels of the moderating variable (represented by separate lines).

The final method used to probe the interactions is the Johnson-Neyman technique. As described earlier, this technique calculates the exact point(s) of the moderator at which the relationship between overall exposure and the given dependent cultivation outcome is

significant. The value of the proportion of the region of significance corresponds to a specific region of the proportional distribution of the moderator (i.e., how much of participants' viewing (none/some/quite a bit/most) is done on the platform, device, through live and time-shifted viewing).

Table 12. Unstandardized regression coefficients of platform x television exposure interactions for all cultivation outcomes

	b (platform x television exposure) interactions				
	Laptop x TV exposure	Desktop x TV exposure	Tablet x TV exposure	Smartphone x TV exposure	Television x TV exposure
Violence estimates	-.104**	-.002	-.104	.006	.051
Law enforcement estimates	-.006	-.042	-.018	-.023	-.016
Violent crime estimates	-.058	-.023	-.057	.063	-.014
Murder-victim relationship estimates	-.133	.082	.188**	.197*	-.093*
Mentally ill perpetrators estimates	-.059	-.028	.064	.049	-.063*
Sexism	.005	.008	.027	-.008	-.008
Mean world	-.018*	-.012	-.014	.003	.006
Moderate political ideology	.048	.030	-.052	.041	-.022

Note. Analyses controlled for the following variables: age, gender (male), race (Black), race (White), education, residence (urban), political ideology. For moderate political ideology, the analysis did not control for political ideology *p<.10, **p<.05, ***p<.010, ****p<.001

Separate regression analyses were conducted with each of the five platforms serving as moderating variables, with each of the eight outcomes (five first order societal-level estimates and three attitude and belief second-order outcomes) serving as dependent variables (i.e., a total of 40 analyses), and overall television exposure serving as the independent variable in the regression model. In order to assess the impact of platform use on the cultivation process, the relative degree of the total time the respondent uses each platform when watching television,

movies, and other video content was tested as a moderator of the relationship between the primary independent variable of television exposure and the cultivation outcome.

The results of the regression analyses are discussed next, organized by platform. The unstandardized regression coefficients of platform x television exposure interactions for all first and second order cultivation outcomes are reported in Table 12. This discussion will focus on how the interactions among television exposure and relative use of each of the different platforms predict the cultivation of first and second order outcomes.

Laptop Computer

The analyses reveal that for the first order outcome of violence estimates, the interaction between degree of laptop exposure and the independent variable of overall television exposure (b=-.104, p<.05) significantly predicts this cultivation outcome. As stated above, the PROCESS Model 1 Macro provides three techniques to further probe this interaction, all of which were employed in the moderation analyses: the "pick-a-point" approach, the plot option, and the Johnson-Neyman technique.

Using the "pick-a-point" approach, PROCESS calculates the regression coefficients and significance for the effect of the independent variable of overall exposure on cultivation consistent estimates of violence at the following three levels of the moderating variable: one standard deviation below the mean (low laptop viewing), the mean (medium laptop viewing), and one standard deviation above the mean (high laptop viewing).

The pick-a-point analyses reveal that for viewers who report low laptop viewing (falling within one standard deviation below the mean), the relationship between television viewing and the cultivation-consistent estimate is positive and significant (b=.207, p<.001); this positive relationship is also significant at medium (the mean value) levels of laptop viewing (b=.126,

p<.01). However, for high laptop viewers (falling within one standard deviation above the mean), the relationship between television viewing and the cultivation-consistent estimate is no longer significant (b=.034, p=.602).

These analyses demonstrate the direction and significance of the conditional effects, and a visualization of the interaction aids in the interpretation. By selecting the "plot" option for Model 1, PROCESS calculates values of the dependent variable; in this case, the proportion of cultivation-consistent estimates of violence at varying levels of the independent and moderating variables. Specifically, nine values are calculated for all combinations of the three levels of the independent variable (light, medium, and heavy viewing) and three levels of the moderating variable (low, medium and high laptop viewing). The proportional means of violence estimates across levels of both television exposure and laptop viewing are plotted in Figure 1.

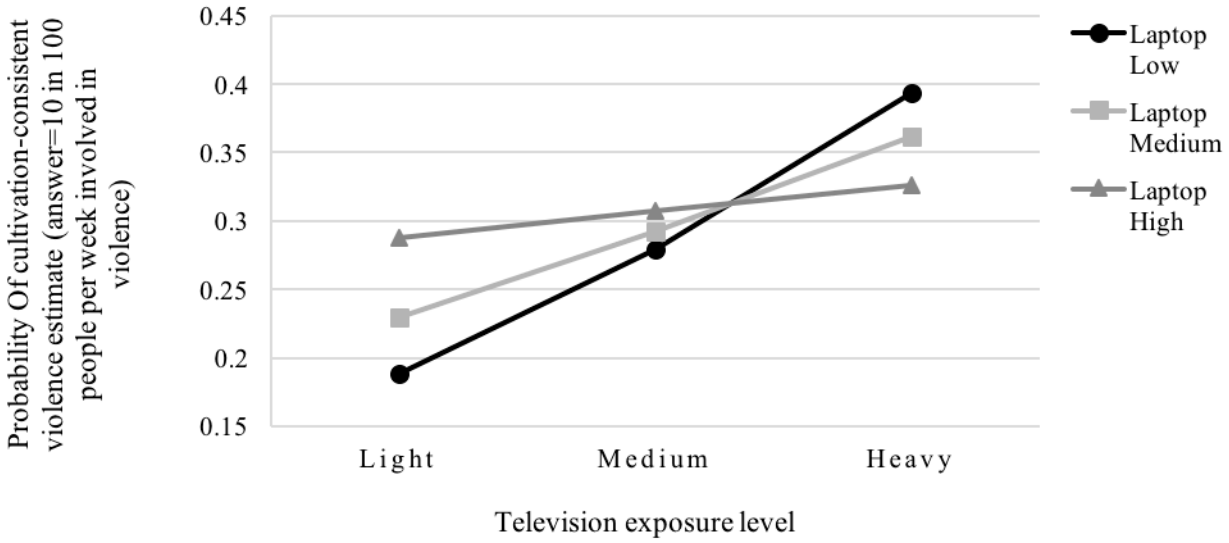

Figure 1. Interaction between television exposure level and degree of laptop viewing on first order violence estimates

In this interaction plot, light laptop viewing enhances the cultivation effect, as demonstrated by the pronounced difference in the probability of cultivation-consistent violence estimates between light and heavy overall exposure (M_{Heavy}-M_{Light}=.211) at this laptop viewing

level. This difference is more substantial than the difference in cultivation-consistent violence estimates between heavy and light viewers at high levels of laptop viewing (M_{Heavy}-M_{Light}=.037). The cultivation differential at low laptop viewing is also larger than the difference among light and heavy viewers when laptop viewing is not accounted for in the regression model (M_{Heavy}-M_{Light} =.165). Therefore, while the likelihood of cultivation-consistent estimates of violence is higher for heavy than light viewers regardless of laptop viewing level, higher laptop viewing weakens the magnitude of the cultivation effect.

The final method used to probe the interactions is the Johnson-Neyman technique. As described earlier, this technique calculates the exact point of the moderator at which the relationship between overall exposure and the given cultivation outcome is significant. The value of the proportion of the region of significance corresponds to a specific region of the proportional distribution of the moderator (i.e., how much of participants' viewing (none/some/quite a bit/most) is done on the platform, device, through time-shifting). While the pick-a-point approach indicates that relatively low levels of laptop viewing enhance the magnitude of the association between overall viewing and cultivation-consistent estimates of violence, the Johnson-Neyman technique more precisely reveals that this relationship is significant for those who report doing "none" or "some" of their overall viewing on a laptop computer (the lower 82.32% of the distribution of laptop viewing), and not significant for those who do "quite a bit" or "most" of their viewing on this platform.

More specifically, doing no laptop viewing enhances the magnitude of the already highly significant, positive relationship between overall exposure and cultivation-consistent estimates of violence, while doing "some" viewing on a laptop maintains the significant relationship, but the relationship is not quite as strong (p<.05). There is virtually no relationship between overall

exposure and the cultivation outcome for viewers who do "quite a bit" of their viewing on a laptop, and for the 6.5 percent of the sample who do "most" of their viewing on a laptop, overall exposure is no longer a positive predictor of violence estimates, with the proportion of heavy viewers (25%) reporting cultivation-consistent estimates of law enforcement lower than that reported by light viewers (36.8%). These values at the highest level of laptop viewing explain the leveling off in the cultivation outcome at high levels of laptop viewing among heavy viewers portrayed in Figure 1.

Taken together, this means that light and heavy viewers who do "quite a bit" or "most" of their viewing on a laptop (20.8% of light viewers and 9.8% of heavy viewers) are using this platform in distinct ways, demonstrated by the fact the cultivation is enhanced for light viewers and attenuated for heavy viewers. As postulated earlier in this chapter, due to the nature of this sample, some light viewers may simply not care enough about the quality of the viewing experience, and rather than switching screens they could just be watching content that is available on television on their computer, while heavy viewers who do such a high proportion of their viewing on a laptop may be watching niche content that is not similar to what is on traditional television. Another reason why they may be replacing traditional platform viewing with laptop viewing is that their viewing preferences are so specific and others in their household do not share these interests, so they are using their laptop out of necessity. Whatever the specific reason may be, in this sample, high levels of proportional laptop viewing moderates the relationship between overall viewing and first order estimates of violence, specifically weakening the cultivation effect for heavy viewers.

Degree of laptop viewing, however, is not a significant moderator for any of the other four first order estimates or the second order outcomes of sexism and moderate political

ideology. The analyses do reveal, however, that laptop viewing predicts perceptions of the world as a mean and distrustful place (i.e., mean world) through its significant interaction with the independent variable of overall television exposure (b=-.018, p<.10). This significant interaction indicates that, at varying levels of platform use (low, medium, and high use), different patterns in the relationship between the independent variable and dependent measure emerge.

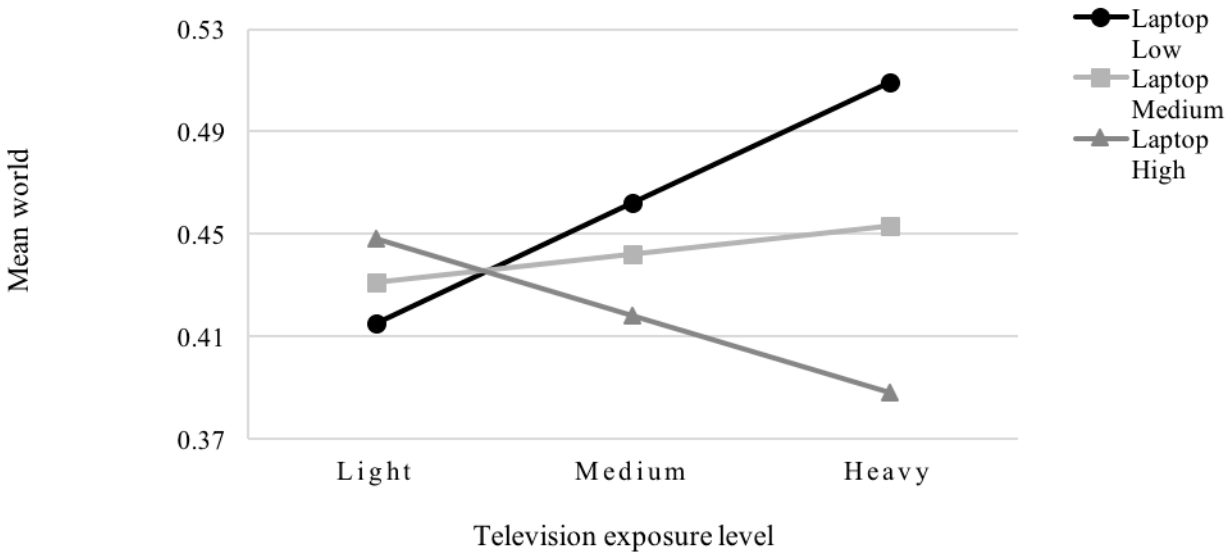

Figure 2. Interaction between television exposure level and degree of laptop viewing on second order mean world outcome

Specifically, for viewers who report low laptop viewing (falling within one standard deviation below the mean), the relationship between television viewing and mean world is positive and significant (b=.018, p<.05); this relationship is positive but not significant at medium (mean values) of laptop viewing (b=.004, p=.580). However, for high laptop viewers (falling within one standard deviation above the mean), the relationship between television viewing and mean world view is not only non-significant (b=-.012, p=.369), it is also negative.

Therefore, these regression coefficients indicate that light laptop viewing strengthens the positive relationship between television viewing and mean world, and heavy laptop viewing may slightly reverse the direction of this relationship. While the regression coefficients demonstrate

the direction and significance of the conditional effects, plotting the mean scores for mean world across level of television exposure at each level of the moderator clearly delineates this interaction.

As depicted above in Figure 2, light laptop viewing enhances the cultivation effect, with heavy viewers who do little of their viewing on laptops reporting the highest mean world score (*M*=.509). In fact, this score is higher than the mean score for heavy viewers without laptop viewing in the regression model (*M*=.451). On the other hand, high levels of laptop viewing inversely predict the cultivation of mean world views, with heavy viewers who do most of their viewing on a laptop reporting the lowest mean world score (*M*=.388). Further, this score is even lower than the mean score for light viewers without laptop viewing in the regression model (*M*=.432).

The Johnson-Neyman technique reveals that the region of the distribution of proportional laptop viewing for which the relationship between overall viewing and mean world views is significant is for the proportion reporting doing "none" of their viewing on a laptop (47.15%). Similar to the findings for the impact of laptop viewing on cultivation-consistent estimates of violence, it is clear that the degree of viewing that a viewer does on their laptop differentially impacts the cultivation effect among heavy viewers.

For mean world views, however, doing any of your viewing on a laptop (as opposed to just "quite a bit" or "most") weakens the cultivation effect for mean world views among heavy viewers, while doing "none" of their viewing this way strengthens the effect. Perhaps heavy viewers who do "none" of their viewing on a laptop have limited access to non-traditional content, and the majority of their content is comprised of traditional broadcast or cable programs that reinforces this worldview. When considered in light of the fact that high proportional

viewing on a laptop attenuates cultivation-consistent estimates of violence among heavy viewers in the previous interaction analysis, it appears that heavy viewers who engage in relatively high proportional laptop viewing may in fact be exposing themselves to content that veers away from the portrayals and messages depicted in mainstream television programming, or at the very least limiting their exposure to the world of mainstream television .

Desktop Computer

As detailed above, through its interaction with overall television exposure, degree of viewing on a laptop computer predicts the first order outcome of violence estimates and the second order outcome of mean world. The degree of overall viewing done on a desktop computer, on the other hand, is not a significant moderator of any of the cultivation outcomes measured in this study. However, the mobile tablet platform, as described next, does significantly moderate the relationship between overall exposure and one of the cultivation outcomes.

Tablet Computer

The next set of regression analyses examine the impact of degree of viewing on a tablet computer on cultivation outcomes. Unlike the laptop computer, viewing on a tablet computer does not significantly moderate the relationships between overall exposure and violence estimates or overall exposure and the second order outcome of mean world views. Instead, the regression analyses reveal that the interaction between relative amount of viewing done on a tablet and overall television viewing significantly predicts first order murder-victim relationship estimates (b=.188, p<.05). This indicates that viewing on this platform moderates the relationship between amount of television viewing and the likelihood of providing the television and cultivation-consistent response that "most murders take place between strangers."

Specifically, for viewers who report less than average tablet viewing, amount of exposure is a non-significant, negative predictor of the cultivation-consistent outcome (b=-.041, p=.606). However, it is at high levels of tablet viewing there is a significant, positive association between overall exposure and the outcome variable (b=.149, p<.10). For these viewers, then, overall exposure is a positive and significant predictor of the cultivation-consistent response that "most murders take place between strangers."

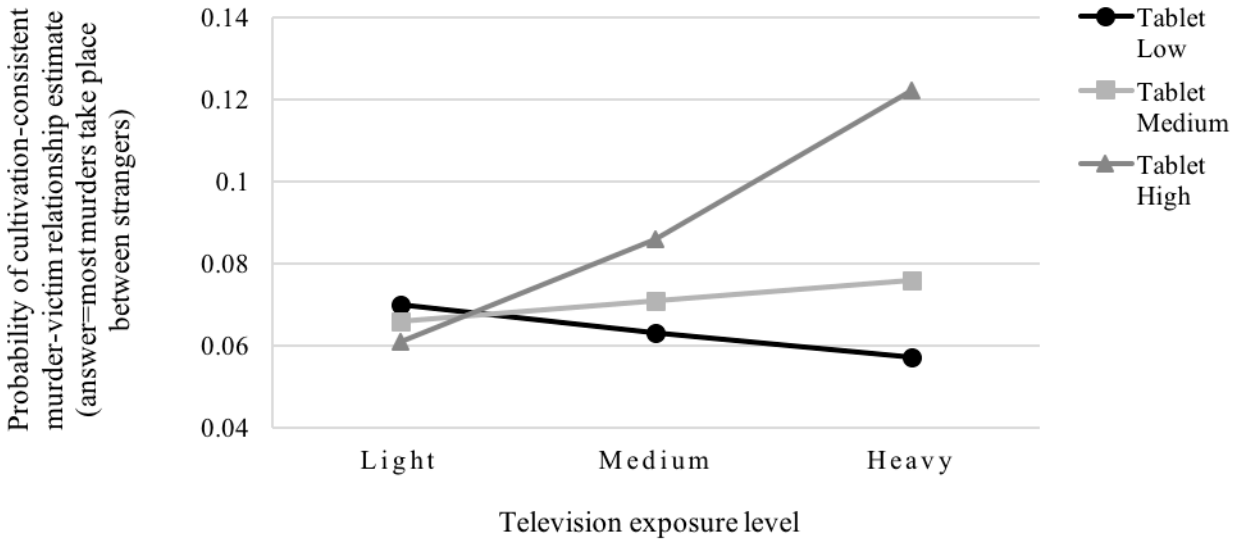

Figure 3. Interaction between television exposure level and degree of tablet viewing on first order murder-victim relationship estimates

This interaction is further explored by plotting the proportional means of the cultivation-consistent murder-victim relationship estimates by level of degree of laptop viewing across levels of television exposure. As shown in Figure 3, for murder-victim relationship estimates, high levels of tablet viewing enhance the cultivation effect. While there is virtually no difference between heavy and light viewers for this cultivation outcome when tablet viewing is not included in the regression model (M_{Heavy}-M_{Light}=.004), there is a pronounced difference in the probability

of cultivation-consistent estimates between light and heavy exposure for high tablet viewing (M_{Heavy}-M_{Light}=.060).

The opposite is true for low tablet viewing levels, in which cultivation-consistent murder-victim relationship estimates are higher at light than at heavy levels of television exposure (M_{Light}-M_{Heavy}=.011). The divergence in the proportion of cultivation-consistent estimates across low (M=.057) and high (M=.122) levels of tablet viewing is most pronounced for heavy viewers, indicating that while cultivation outcomes may not differ as a function of level of tablet for light viewers, the opposite is true of heavy viewers.

The Johnson-Neyman technique reveals that the region of the distribution of proportional tablet viewing for which the relationship between overall viewing and murder-victim relationship estimates is significant is for the proportion reporting doing any of their viewing on a tablet (29.85%). Approximately 80 percent of light and heavy viewers who do any of their viewing on a tablet report that they are specifically doing "some" of their viewing this way, and the remaining light viewers who report any tablet viewing (n=7) do "quite a bit" of their viewing. As no light viewers do "most" of their viewing on a tablet, there are no values for the cultivation outcome for light viewers at this level of the moderator, and thus no cultivation differential can be meaningfully computed for the highest level of the moderator. However, when looking at the other levels of the moderator, it is clear that this cultivation outcome varies substantially across light and heavy viewers as a function of tablet viewing.

Most notably, while approximately ten percent of light viewers who report doing "none" of their viewing on a tablet report cultivation-consistent estimates of murder-victim relationships, among those who report doing "some" of their viewing on a tablet (n=30), not one light viewer reports the cultivation-consistent estimate. Conversely, while approximately six percent of heavy

viewers who do "none" of their viewing on a tablet report the cultivation-consistent estimate, approximately ten percent of those who do "some" of their viewing on a tablet report the cultivation-consistent estimate. The cultivation differential at this level of tablet viewing is significant, and there is clear evidence of moderation.

Looking at platform use among heavy viewers who report doing "some" of their viewing on a tablet, more than 90 percent report that they also view on a traditional television. This indicates that they are supplementing, not replacing, their traditional platform viewing with tablet viewing, and thus are not limiting their viewing to this new media platform. Additionally, tablet viewing is largely situational, with viewers watching on this screen because they are on-the-go and this platform is convenient (Nielsen, 2015, April). Thus, heavy viewers who use the tablet to supplement their television viewing are most likely using a tablet to view a clip or program when, due to situational factors, this screen is more convenient; they aren't using the tablet to heavily consume only niche or alternative content.

Smartphone

Notably, similar to the tablet computer, the regression analyses reveal that for the other highly portable viewing platform—the smartphone—the only first order outcome for which the inclusion of degree of smartphone viewing significantly enhances the explanatory power of the predictive model is also for the murder-victim relationship estimates. Further mirroring the results of the tablet analyses is the fact that the interaction of the degree of smartphone viewing and overall television exposure is significant (b=.197, p<.10). The patterns of the conditional effects of television exposure on the dependent measure are also similar to those found for the tablet computer. Specifically, amount of exposure is a negative, non-significant predictor of the

cultivation-consistent outcome (*b*=-.096, p=.317) for viewers who report less than average smartphone viewing.

Further, at high levels of smartphone viewing, the results again mirror those found for the tablet, with overall exposure positively predicting the cultivation-consistent answer. Just as the moderation analysis reveals for tablet use, in the case of the smartphone, the magnitude of the relationship between television exposure and the cultivation-consistent outcome is strongest for heavy smartphone viewers (*b*=.109, p=.211), but it is not significant. The patterns of conditional effects for murder-victim relationship estimates across television exposure level at levels of degree of smartphone viewing is visually depicted in Figure 4.

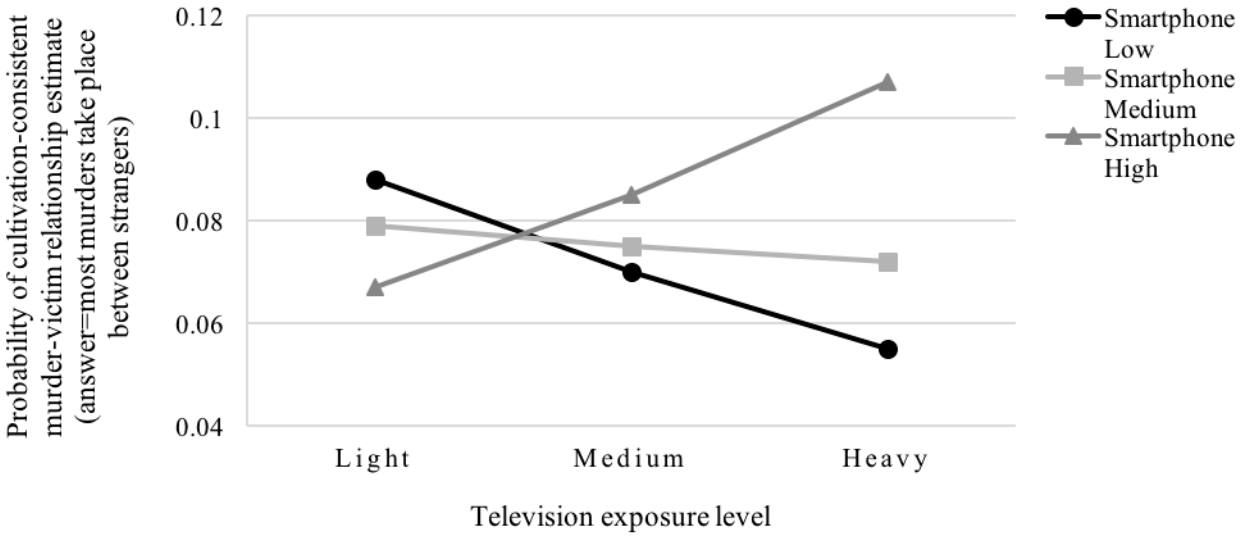

Figure 4. Interaction between television exposure level and degree of smartphone viewing on first order murder-victim relationship

When looking at the proportional differences for murder-victim relationship estimates across exposure levels and degree of overall viewing on a smartphone, the same patterns emerge. The only difference between these two platforms is the magnitude of the effects. Specifically, this refers to the finding that the cultivation differential for the probability of cultivation-consistent estimates between light and heavy exposure for high smartphone viewing (M_{Heavy}-

M_{Light}=.042) is smaller than for high tablet viewing (M_{Heavy}-M_{Light}=.060). Similarly, the proportional difference in murder-victim relationship estimates between low and high levels of

Again, mirroring the interaction for tablet viewing plotted in Figure 3, the divergence in the proportion of cultivation-consistent estimates across low (*M*=.054) and high (*M*=.107) levels of smartphone viewing is clearly displayed in Figure 4 (although, again, these proportional differences are statistically insignificant). It is particularly important to probe this interaction further because the pick-a-point procedure does not indicate the relative level of smartphone viewing that significantly moderates the cultivation effect. Further, when the distribution is of the moderating variable is highly skewed, the value at which the conditional effect is significant is often outside the range of plus or minus one standard deviation from the mean (Spiller et al., 2013). The distribution of proportional viewing is highly skewed, and the Johnson-Neyman procedure reveals that for viewers who do "quite a bit" or "most" of their viewing on a smartphone (only reported by 5.31% of the sample), overall viewing significantly predicts cultivation-consistent estimates of murder-victim relationships.

While this pattern is similar to that found for tablet viewing in the previous analysis, the evidence that smartphone viewing significantly moderates the cultivation effect is far less compelling. Specifically, because the region of significance represents such a small proportion of the sample, it is possible that evidence of statistical significance is due to influential outliers that are affecting the regression equation. In order to investigate this further, Cook's distance values are calculated, with cases whose values are greater than one indicating that this case affects the regression equation by being an outlier on *y* and on the set of the predictors (Stevens, 1984). The regression is then conducted again with the influential case(s) deleted, and if the significance level changes, this is further evidence that the significant results of the interaction

are due to the influential case(s), and do not constitute substantive conclusions regarding the effect of the interaction (Lawrence, 1995).

Cooks distance values were calculated, and one case was subsequently excluded from the analysis. The specific outlier case is a viewer who reports 15.86 hours of daily viewing, and reports only using one platform to view television on; the smartphone is the single platform, and he reports doing "most" of his viewing on a smartphone. When excluding this case from the moderation analysis, the interaction is no longer significant, there are no significant conditional effects, nor is there any region of significance. Further, while it is plausible that the viewer may watch the number of hours reported, it is highly unlikely that the viewer is doing all of this viewing only on a smartphone, taking into account, for instance, battery life. Taking all of this into account, there is no valid evidence that smartphone viewing significantly moderates the cultivation process.

Traditional Television

In addition to analyzing how new media platforms may differentially impact the cultivation of first order estimates and second order beliefs and attitudes, this study also examines how degree of viewing done on the traditional platform—a television set—predicts cultivation outcomes. The results of these analyses indicate that the amount of overall viewing done on a traditional television platform does significantly impact the cultivation process.

First, similar to the findings of the tablet and smartphone analyses, traditional platform viewing significantly moderates the cultivation of first order murder-victim relationship estimates (b=-.093, p<.10). However, unlike the results of the conditional effects analyses for the tablet, the relationship between television exposure and the cultivation-consistent outcome is positive for light traditional television platform viewing (b=.119, p=.140), and is negative and

non-significant at the highest degree of viewing done on a traditional television set (*b*=-.055, p=.508).

These results indicate that for viewers whose traditional television platform exposure is proportionally low (falling within a standard deviation below the mean), overall viewing predicts higher proportions of television-world estimates ("most murders take place between strangers"). As is clearly pictured in Figure 5, an additional difference between the results of these conditional effect analyses and those resulting from tablet viewing, is that in the case of the traditional television platform, the greatest difference among low and high platform use is among light viewers, as opposed to among heavy viewers. Thus, while level of tablet viewing significantly impacted the cultivation of these first order estimates for heavy viewers, level of traditional platform viewing appears to differentially impact these estimates among light viewers.

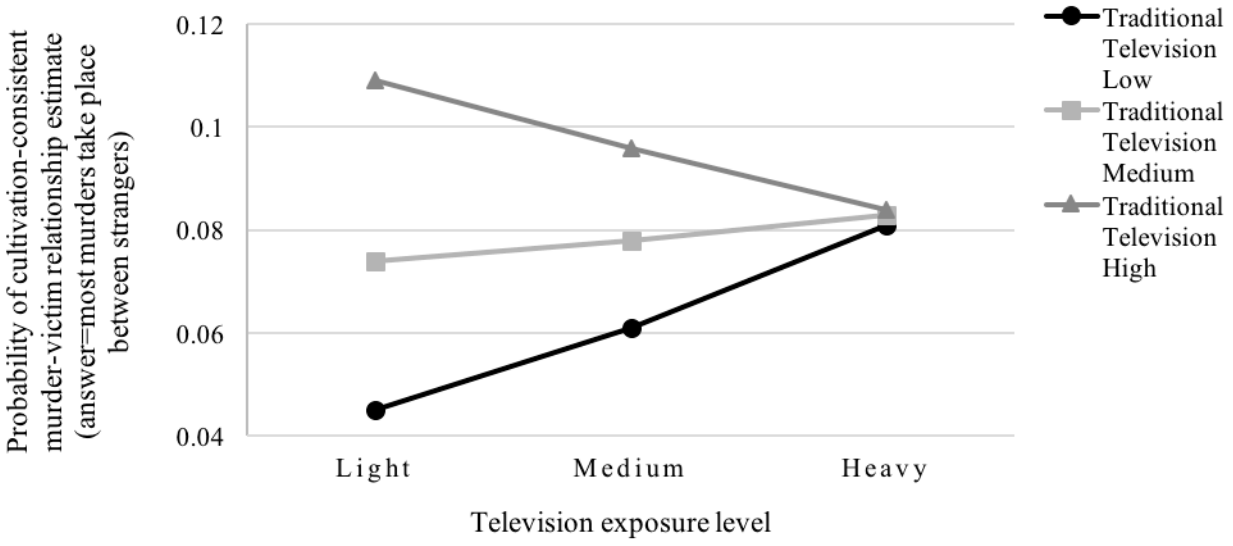

Figure 5. Interaction between television exposure level and degree of traditional television viewing on murder-victim relationship estimate

As shown in Figure 5, among light viewers, the proportion of cultivation-consistent estimates are much higher for those who report high levels of traditional television viewing than

for those who report low levels of viewing. In fact, light viewers who do a high degree of viewing on a traditional television report the highest proportion of cultivation-consistent estimates (*M*=.109), which is higher than the proportional mean for heavy viewing (*M*=.103) when traditional television viewing is not accounted for in the regression model. The proportion of cultivation-consistent outcomes for relatively lower levels of traditional platform viewing among heavy viewers, however, are markedly lower than among light viewers. The convergence in cultivation-consistent estimates among heavy viewers across low and high levels of traditional platform viewing indicates that level of traditional platform viewing differentially impacts the cultivation of these estimates among light, but not heavy viewers.

However, because the conditional effects resulting from the pick-a-point procedure are not significant, it is important to determine the Johnson-Neyman region of significance because the level of the moderator for which the relationship between overall exposure and the cultivation outcome is significant is outside the range of one standard deviation below or above the mean. The findings indicate that the relationship between overall exposure and first order murder-victim relationship estimates is significant for those who do "none" of their viewing on a traditional television set (constituting 9.8% of the total sample).

Because this region of significance is small, similar to smartphone viewing, this distribution was examined for possible influential outliers. In addition to revealing that nearly one-third of these viewers actually report that they do not watch television at all, Cook's distance values were calculated and one case was identified as a potential influential outlier. The specific outlier case again is the viewer who reports using only one platform to do "most" of his 15.86 hours of average daily viewing: the smartphone.

When this single case is excluded from the regression analysis, the interaction effect is completely non-significant (b=-.001, p=.991). The results from the regression analysis of the impact of degree of viewing on the traditional television platform for mentally ill perpetrators estimates are almost identical to those found for the cultivation of murder-victim relationship estimates. This significant interaction effect (*b*=-.063, *p*<.10) is plotted in Figure 6 above, and at first glance, it appears that relatively low levels of traditional platform viewing reduce the cultivation effect.

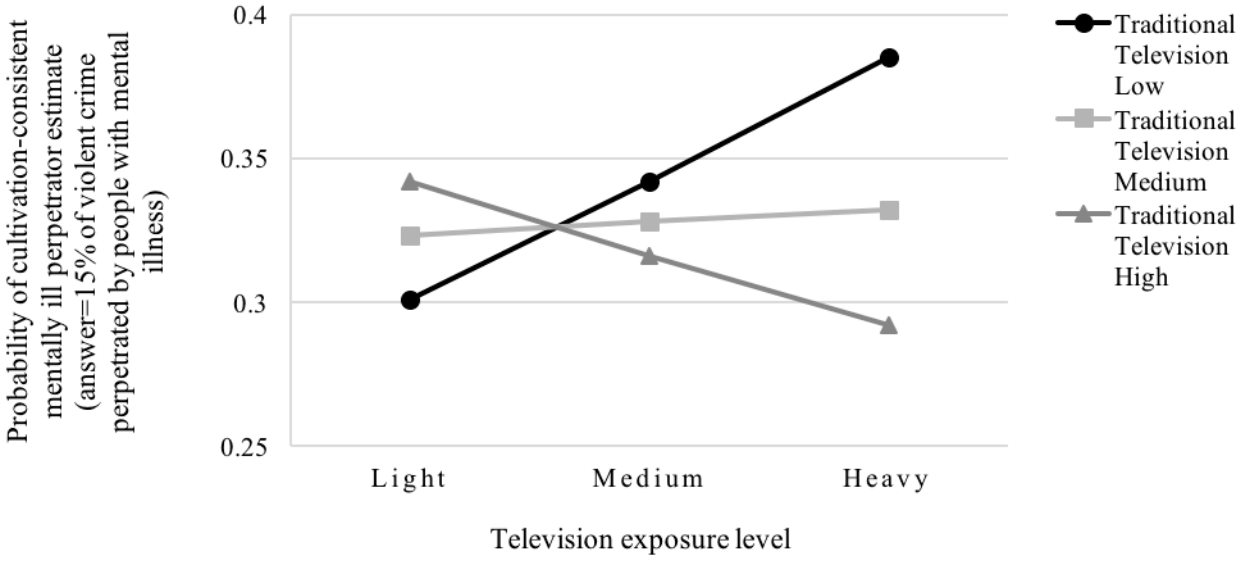

Figure 6. Interaction between television exposure level and degree of traditional television viewing on mentally ill perpetrator estimate

More specifically, as shown here, the proportional mean of cultivation-consistent estimates at heavy viewing levels reaches its peak (*M*=.385) for low levels of traditional platform viewing. Compared to the proportional means of cultivation-consistent estimates of mentally-ill perpetrators of violence reported for heavy (*M*=.313) viewers when level of traditional television viewing is not included in the regression model, it appears that the cultivation effect is enhanced when degree of platform viewing is low.

However, this conditional effect is not statistically significant, and even more interestingly, the Johnson-Neyman technique reveals that there is no region of significance of the observed values of the moderator for which the relationship between overall exposure and mentally ill perpetrator estimates is significant. Further, Cook's distance values were calculated, and after excluding one influential outlier from the analysis, the interaction is no longer significant. Because the initial results of the interaction analyses are distorted by the influential case, as indicated by the outlier analyses and the subsequent regression results, there is no substantive or valid statistical evidence that traditional television viewing does significantly moderate the cultivation process.

Summarizing the Impact of Platform Exposure

Overall, following extensive probing of the analyses, there is only evidence to conclude that laptop viewing and tablet viewing significantly impact the cultivation process, although the only substantive evidence of this impact is three significant interactions among the forty regression analyses that were conducted. Despite the obvious limitations to interpretation, however, the significant results do indicate that while the degree to which light viewers view on new media platforms may not moderate cultivation among light viewers, among heavy viewers, the degree to which a viewer does (or does not) watch television on non-traditional platforms impacts the cultivation process.

More specifically, while light viewers do relatively more of their viewing on the laptop computer than heavy viewers, because television contributes less to their estimates and beliefs about the world to begin with, if they are exposing themselves to different and alternate forms of content on their laptop, it would not substantially impact their reported cultivation outcomes.

For heavy viewers, however, higher proportional laptop viewing attenuates the cultivation of estimates of violence and mean world views, while low or no exposure enhances cultivation.

It appears, then, that heavy viewers who engage in relatively high proportional laptop viewing may in fact be exposing themselves to content that veers away from the portrayals and messages depicted in mainstream television programming. Or, they are using the laptop to be more selective in the content they are viewing, and are narrowing their exposure to only certain types and content or programming, and thus are limiting their exposure to broader representations of the television world. Regardless of the content, however, heavy viewers who report the highest levels of laptop viewing are limiting the amount of time they spend watching television; these heavy viewers report viewing more than 45 minutes less television on an average day than heavy viewers who do not watch television on a laptop.

Even those who do "some" of their viewing on a laptop report viewing less television overall than those who do "none" of their viewing on a laptop. Thus, whether it is limiting their amount of television viewing overall, limiting their exposure to the pervasive system of messages that characterize the traditional broadcast and cable television world, or if they are in fact consuming content that differs significantly from the mainstream content is not clear; however, it is clear that when heavy viewers' platform exposure is characterized by high laptop viewing (and therefore relatively lower traditional platform viewing), these viewers are less likely to report cultivation-consistent estimates and beliefs.

While there is evidence that there are in fact viewers who are using the laptop to view proportionally more of their overall television instead of on the traditional television platform, there is not evidence that viewers are doing the same with the tablet computer. In fact, only four viewers in the entire sample report doing "most" of their viewing on a tablet. Therefore, because

tablet viewing is used proportionally less of the time to view content, heavy viewers are most likely supplementing their traditional platform exposure with tablet viewing, rather than replacing traditional exposure. This is further evidenced by the fact that among the few heavy viewers who do "quite a bit" or "most" of their viewing on a tablet, over 90 percent also do "quite a bit" or "most" of their viewing on a traditional television.

This demonstrates that when viewers are using new forms of exposure to supplement their more traditional viewing, cultivation may be maintained or even enhanced because they are not using this new media platform to limit their traditional exposure or as the primary source of content consumption. More likely, because heavy viewers are committed television content consumers, they are dedicated enough viewers that they would watch on a tablet computer if it is the only option available. Therefore, heavy viewers may be using the tablet platform to increase their consumption; this is supported by the fact that heavy viewers who report the highest levels of tablet viewing spend approximately 90 minutes more watching television on an average day than the heavy viewers who do not view on a tablet; heavy viewers who do "some" of their viewing on a tablet also report average daily viewing that exceeds heavy viewers who do no tablet viewing.

Overall, while there is evidence of moderation involving platform use, the evidence is very limited, which indicates that the most substantive conclusion regarding the impact of new and traditional forms of platform exposure on the cultivation process that can be made is that platform exposure does not have a great deal of impact on cultivation. Because proportional viewing on a laptop computer is distributed more normally than the highly skewed distributions of the smaller portable devices, the analyses yield more meaningful and substantive evidence as different levels of viewing are not solely comprised of extreme values.

While these analyses do not offer compelling evidence of moderation, the evidence does suggest that the impact of platform use on the cultivation process is a function of the degree to which the platforms are used to supplement or limit overall exposure and exposure to portrayals that do not reflect the world of broadcast or cable television. In conjunction with the results of the analyses that follow, the platform exposure analyses contribute our understanding of how new and traditional forms of exposure impact the cultivation process.

Television Set Viewing: Impact on Cultivation

When viewers today watch television on an actual television set, they are not all using the same device, nor are they accessing content in the same way. For instance, while many viewers are accessing content on their television set traditionally, through cable or satellite providers (or even over-the-air), others are streaming content onto a television set from their gaming console or streaming media device. Others may be watching on an Internet-connected Smart TV, and some may be using their DVD or Blu-ray device that is hooked up to their television set to view their favorite programs and content. Thus, this study also examines how different ways of viewing on an actual television set impacts the cultivation process, in order to address the next exploratory research question:

> Research Question 9: When viewing on a television set, how does degree of overall viewing done using traditional and new devices/modes of access impact the cultivation process?

In this study, and in the United States, a traditional cable or satellite provider is the most common form of television set viewing; however, while this form of traditional viewing is still the most common way of accessing content on a television set, in this study, it is not as dominant

as the traditional television is across all television viewing platforms. Approximately 70 percent of viewers report doing none of their overall television viewing through both the gaming console and Smart TV, while a little over half of the sample report that they do not use a streaming media device or DVD/Blu-ray player when watching television.

Finally, approximately 30 percent of viewers report doing most of their overall television set viewing traditionally through a cable or satellite provider, one-tenth of the sample use a streaming media device, approximately 6 percent of the sample report doing most of their overall television set viewing through a gaming console or on a Smart TV, and only six out of the 509 participants report doing most of their television set viewing streaming through a DVD or Blu-ray player.

Using the same approach as that employed in the regression analyses involving degree of exposure across new and traditional platforms, this study examines whether differences in cultivation outcomes exist in relation to the way that viewers are watching on an actual television set (using new devices to watch content on a television set such as gaming console, streaming media device, Smart TV, Blu-ray or DVD player, or accessing through a traditional cable or satellite television provider).

Specifically, these analyses look at how the relative use of these devices/methods, as described above, impact the cultivation process; the discussion below focuses on how the interactions among television exposure and relative use of these five ways of viewing on a television set cultivate first order societal estimates and second order attitudes and beliefs. The unstandardized regression coefficients of television set viewing x television exposure interactions for all first and second order cultivation outcomes are reported in Table 13.

Table 13. Unstandardized regression coefficients of television set viewing x television exposure interactions for all cultivation outcomes

	b (television set viewing x television exposure) interactions				
	Gaming console x TV exposure	Streaming media device x TV exposure	Smart TV x TV exposure	DVD/ Blu-ray x TV exposure	Traditional cable or satellite x TV exposure
Violence estimates	.016	.002	.003	.076	.060**
Law enforcement estimates	-.025	.009	-.069*	.012	.007
Violent crime estimates	.009	-.051	-.040	-.003	.017
Murder-victim relationship estimates	-.069	-.001	.043	.219**	-.020
Mentally ill perpetrators estimates	-.010	-.069	-.055	.070	-.039
Sexism	.006	.016	.027	-.022	-.006
Mean world	-.002	-.011*	-.006	.003	.013**
Moderate political ideology	.096**	.049	.063	.015	-.045

Note. Analyses controlled for the following variables: age, gender (male), race (Black), race (White), education, residence (urban), political ideology. For moderate political ideology, the analysis did not control for political ideology *p<.10, **p<.05, ***p<.010, ****p<.001

Gaming Console

While the degree of overall television set viewing streamed through a gaming console does not significantly moderate the relationship between overall exposure and any of the first order estimates, the regression analyses reveal that degree of viewing through a gaming console significantly enhances the power of the predictive model for one of the second order outcomes—moderate political ideology. Specifically, the interaction between degree of viewing on a gaming console and overall television exposure is a significant predictor of this second order outcome (b=.096, p<.05).

For television viewers who report low (b=-.019, p=.713) gaming console viewing, the relationship between television viewing and moderate political ideology is negative and non-

significant, indicating that for these viewers, greater overall exposure is very weakly associated with a lower likelihood of this outcome. Inversely, for viewers whose gaming console viewing exceeds the mean, the relationship between television viewing is positive (b=.117, p<.10) and significant; thereby indicating that for viewers who do most of their viewing on a gaming console, heavier overall exposure is associated with a greater likelihood of identifying as politically moderate.

To further explore this interaction, presented in Figure 7, proportional means of viewers categorized as reporting a moderate political ideology are plotted across levels of television exposure as a function of gaming console viewing level.

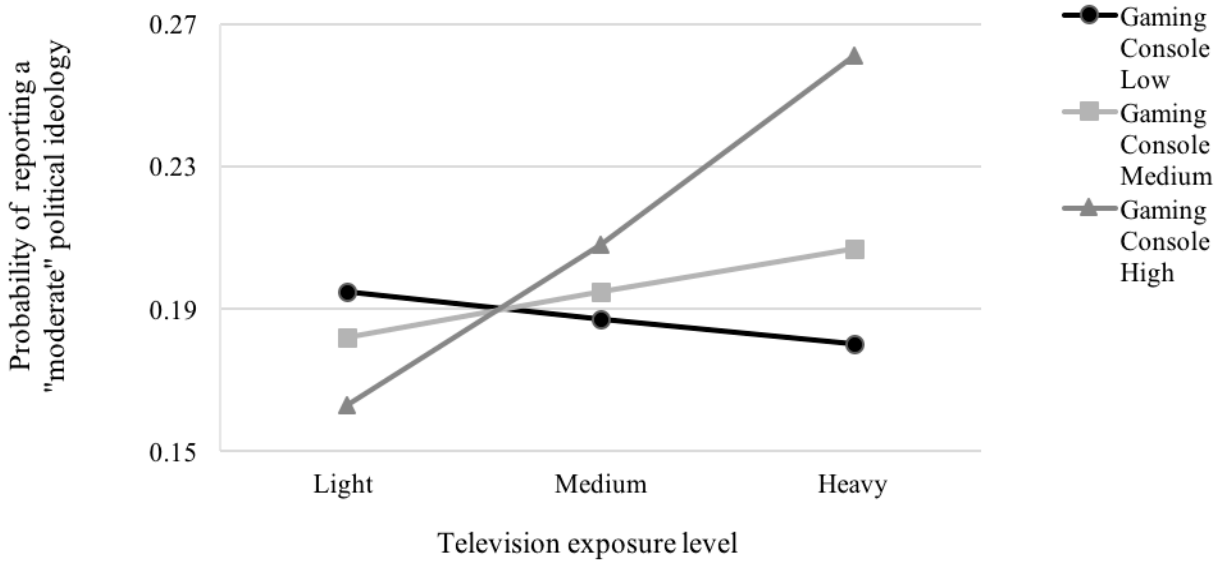

Figure 7. Interaction between television exposure level and degree of gaming console viewing on second order "moderate" political ideology outcome

As shown here, a high degree of viewing on a gaming console enhances the cultivation effect, as there is the largest difference between light and heavy viewers' reported identification with moderate political ideology at this level of gaming console use. Specifically, light viewers who do most of their viewing on their gaming console report the lowest politically moderate attitudes

(M=.163), and heavy viewers who do most of their viewing on a gaming console were the most moderate politically (M=.261). This cultivation differential is significant (M_{Heavy}-M_{Light}=.098, p<.10), and is larger than the cultivation differential when gaming console viewing is not in the regression model (M_{Heavy}-M_{Light}=.068).

The Johnson-Neyman region of significance further specifies this interaction, revealing that it is for those reporting that they do "quite a bit" or "most" of their television set viewing through a gaming console (14.34% of the sample) that overall exposure is significantly associated with politically moderate ideology. Further, while level of gaming console viewing does not significantly impact the relationship between overall exposure and the cultivation outcome among light viewers, the proportion of viewers reporting a politically moderate ideology does differ substantially as a function of gaming console viewing. Thus, this indicates that gaming console viewing significantly enhances the cultivation effect for the 14.2 percent of heavy viewers who report doing "quite a bit" or "most" of their television set viewing through a gaming console.

One possible explanation as to why viewing on a gaming console enhances politically moderate attitudes is not necessarily that these viewers are exposed to alternative portrayals, but rather their ownership of a gaming console indicates that they also spend a considerable amount of time playing video games, and their media diet limits the amount of time they spend consuming news and political commentary. Perhaps, then, it is not what they are viewing on television that impacts their politically middle-of-the-road mind-set, but rather the amount of time they spend engaging in media use unrelated to the political or social climate that leads them to be less polarized in their ideological identification.

Identifying as politically moderate in this study does not indicate that one is a registered independent as opposed to a democrat or a republican. Even among independents, approximately 87 percent do lean towards either a liberal or conservative ideology (Pew Research Center, 2015); thus, particularly in the political climate, reporting no ideological leanings is uncommon even among those who don't identify with a specific political party. Additionally, at the time this survey was conducted (March-April of 2016), the presidential race was dominating the news cycle, and viewership for cable news was experiencing a massive increase from the previous year. Specifically, Fox News viewership increased by 36 percent from the previous year, MSNBC's viewership increased by 87 percent, and CNN increased by 77 percent.

Further, according to Nielsen, not only did total viewership for these networks increase, viewers were also increasing the amount of time they spend consuming television news; most notably there was a marked jump in the minutes of weekly viewing for cable news channels such as MSNBC and Fox News, with total cable news viewing time increasing more than 37 percent from 2012 (2017, April).

And, because these channels are not available to stream live through a gaming console, nor are national broadcast or cable news (2016, March), heavy viewers who do much of their overall viewing using this device have less access to political news programming. Because of the nature of correlational research, it is not possible to infer causality and determine whether heavy gaming console viewers always identified as politically moderate, or if viewers did identify as somewhat liberal or conservative, but their reduced exposure to broadcast and cable news due to their high gaming console viewing made them less politically polarized and more moderate.

Streaming Media Device

The second new media device used to watch content on a television set is streaming through a streaming media device. The regression analyses demonstrate that only one cultivation outcome is significantly impacted by degree of streaming media device viewing. Specifically, the regression analyses reveal that the interaction between overall television exposure and degree of streaming media device use significantly predicts mean world views (b=-.011, p<.10). The pattern of conditional effects demonstrates that at higher levels of streaming media device use, the magnitude of the relationship between overall viewing and mean world views is weaker. Specifically, for low streaming media device use, the relationship between overall exposure and mean world is significant and positive (b=.016, p<.10); this means that for these streaming media device viewers, heavier overall exposure is significantly associated with greater degrees of mistrust. For high levels of streaming media device use, the association between overall exposure is non-significant and negative (b=-.003, p=.733); this indicates that for at high levels of streaming media device use, heavy overall television exposure is weakly related to more positive and trusting world views.

Exploring this interaction further, mean world scores are plotted across television exposure and streaming media device viewing (displayed in Figure 8). As evidenced by the statistically significant difference in mean world views, for which mean world is higher for heavy viewers than light viewers among these low device users (M_{Heavy}-M_{Light}=.083), low streaming media device usage enhances the cultivation effect. This value exceeds the non-statistically significant cultivation differential for mean world views when streaming media device use is not included in the analysis (M_{Heavy}-M_{Light}=.019).

The Johnson-Neyman region of significance further specifies that the precise level of streaming media device use that moderates the relationship between overall exposure and mean world views is for the proportion of viewers who do "none" of their viewing this way (56.78% of the sample). This indicates that, similar to the findings for laptop viewing's moderation of mean world views, doing any of their viewing using this new media technology weakens the cultivation effect for mean world views among heavy viewers, while doing "none" of their viewing this way strengthens the effect.

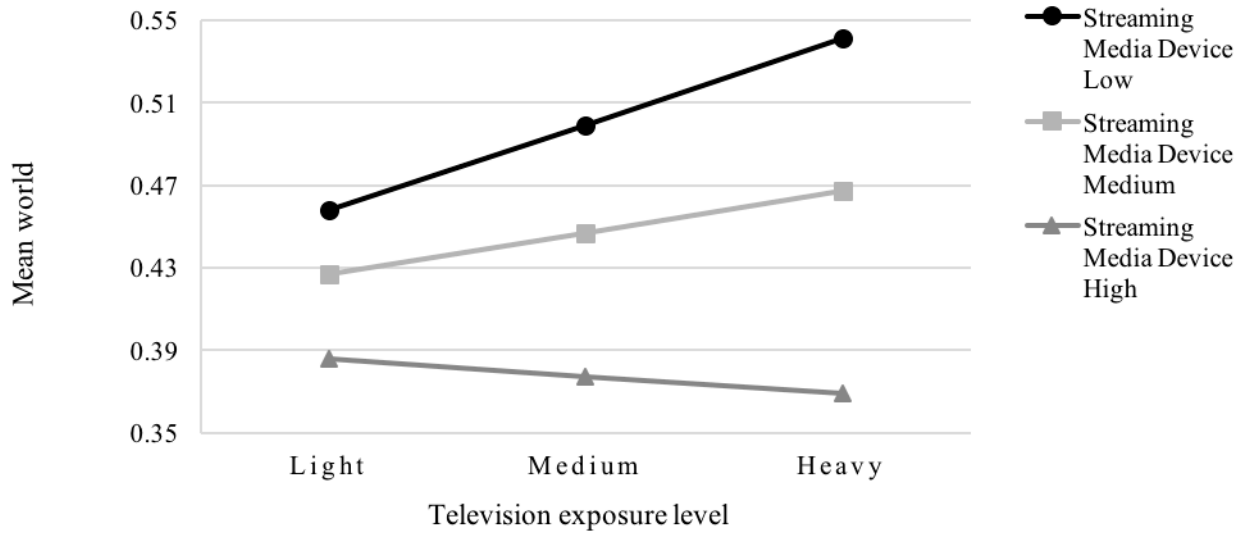

Figure 8. Interaction between television exposure level and degree of streaming media device viewing on second order mean world outcome

Perhaps heavy viewers who do "none" of their viewing through a streaming media device are not exposing themselves to new forms of content that differ from those on mainstream television, and the majority of their viewing is more traditional in nature, fostering and reinforcing mistrust of the world around them. Conversely, heavy viewers who do relatively higher levels of their viewing through a streaming media device are viewing content that does differ from mainstream portrayals or their high use may simply be limiting their exposure to the world of traditional television. Similar to laptop viewing, heavy viewers who do "none" of their

viewing on this device view more television daily than those who report higher levels of streaming media device viewing. Thus, whether or not viewers are in fact limiting their exposure to mainstream portrayals of the television world because they are watching content that differs from traditional content is unclear; however, it is clear that engaging in streaming media device viewing does limit the amount of time the heavy viewer spends watching television overall on an average day.

Smart TV

Next, regression analyses were conducted to determine whether relative amount of overall television set viewing done on an Internet-connected Smart TV significantly moderates the relationship between overall television exposure and first and second order cultivation outcomes. The regression analyses reveal that viewing on this device does significantly moderate the relationship between overall viewing and first order law enforcement estimates (b=-.069, p<.10). The pattern of conditional effects of this interaction is further probed using the pick-a-point procedure, and the results demonstrate that at low (b=.150, p<.001) degrees of overall viewing done on a Smart TV, heavy exposure is a strong predictor of the cultivation-consistent law-enforcement estimate. However, while still predictive of this outcome at high levels of Smart TV viewing, the association between the independent variable of exposure and this first order outcome is no longer significant (b=.056, p=.245).

In Figure 9, the proportion of cultivation-consistent estimates of this first order outcome is plotted across television exposure level and degree of smart TV viewing in order to provide a clearer picture of the pick-a-point results. As shown here, low Smart TV viewing enhances the cultivation effect, as evidenced by the significantly higher probability of cultivation-consistent estimates of law enforcement at heavy than at light levels of overall exposure (M_{Heavy}-

M_{Light}=.180) at this Smart TV viewing level. This difference is more substantial than the difference in cultivation-consistent law enforcement estimates between heavy and light viewers at high levels of Smart TV viewing (M_{Heavy}-M_{Light}=.071). The plot also shows that among light viewers, the cultivation outcome varies substantially as a function of degree of overall viewing done on a Smart TV (M_{High}-M_{Low}=.118), while the cultivation outcome does not appear to differ according to the level of viewing on this new media technology, as evidenced by the negligible difference in these estimates among heavy viewers (M_{High}-M_{Low}=.009).

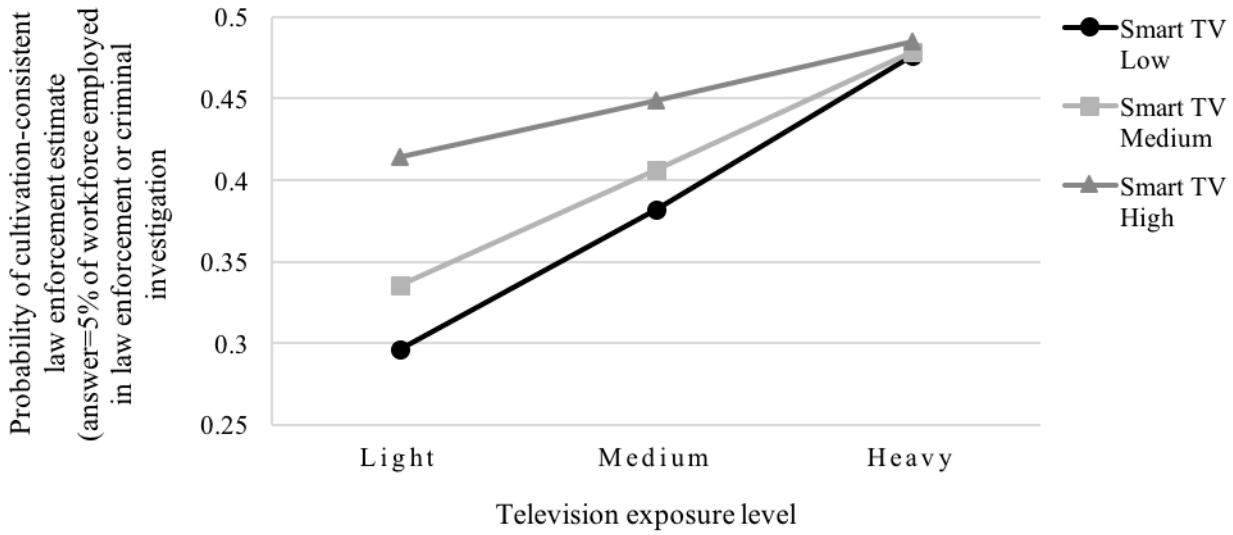

Figure 9. Interaction between television exposure level and degree of smart TV viewing on first order law enforcement estimates

Next, the Johnson-Neyman procedure identified that the region of significance for this moderating variable is the proportion (86.84% of the sample) corresponding with viewers who report that they do "none" or "some" of their overall television set viewing on a Smart TV. In the regression analysis, as well as the correlational and ANOVAs discussed earlier in this chapter, overall television viewing is significantly related to this first order cultivation outcome. In the regression model, overall exposure is already a highly significant, positive independent predictor of law enforcement estimates (p<.01). Thus, in order to conclude that Smart TV

viewing does in fact enhance the magnitude of the cultivation effect, the value of Smart TV viewing at which the relationship between overall exposure and law enforcement estimates passes this threshold of significance must be specified.

The Johnson-Neyman results indicate that when "none" of their viewing is done on a Smart TV, the cultivation effect is even stronger ($p<.001$). Then, when viewers do "some" of their viewing on a Smart TV, heavy viewing is still a significant predictor of cultivation-consistent estimates, but the relationship between overall exposure and the cultivation outcome is not as strong as it is without the moderating variable ($p<.05$). For viewers who do "quite a bit" of their viewing on a Smart TV, this relationship is still positive, but is no longer statistically significantly, and finally, for the 6.1 percent of the sample who do "most" of their viewing on a Smart TV, overall exposure is no longer a positive predictor of law-enforcement estimates, with the proportion of heavy viewers reporting cultivation-consistent estimates of law enforcement slightly lower than that reported by light viewers. While the proportion of viewers who do "most" of their viewing on a Smart TV is very small, the fact that the proportion of these heavy viewers (55.6%) reporting cultivation-consistent estimates is slightly lower than for light viewers (60%) is reflected in the convergence in the proportion of cultivation-consistent law enforcement estimates reported across low and high Smart TV viewing at heavy levels of overall exposure depicted in the interaction plot.

All of this information together reveals that Smart TV viewing significantly moderates the cultivation of these first order estimates. For heavy viewers, doing no viewing at all on a Smart TV enhances cultivation, while doing "most" of their viewing on a Smart TV reduces the cultivation effect. This aligns almost identically to the results of the significant moderation analyses involving the moderating impact of laptop viewing on first order estimates of violence.

For both of these outcomes, overall exposure is a significant, positive independent predictor; and when no viewing is done on either the laptop or Smart TV, this significant relationship is enhanced.

Among those who do "some" of their viewing on these devices, the significant, positive relationship is maintained, but is not quite as strong. Doing "quite a bit" of viewing on these devices attenuates this relationship, and overall viewing is no longer a significant predictor of the cultivation outcome, but the association is still positive. Finally, among who do "most" of their viewing on a laptop or Smart TV, overall exposure is no longer a positive predictor of the respective first order cultivation outcomes.

While not identical, the general pattern of conditional effects for both of these new forms of exposure (weakening cultivation at high levels, enhancing at low levels) also reflect that of the moderation analysis for the impact of streaming media device use on mean world views. This indicates that when heavy viewers use these new media to, at most, supplement their more traditional viewing, they are likely exposing themselves to content that does not deviate from what they watch most of the time. However, when heavy viewers are doing the majority of their viewing using these new technologies and replacing traditional with new forms of exposure, they are more likely to be consuming new and different forms of content whose messages and portrayals contrast those of the mainstream television world and/or limiting the amount of time they are exposed to the broadcast and cable television messages.

DVD/Blu-ray Device

The final non-traditional way of viewing content on a television set analyzed here is streaming through a DVD or Blu-ray device. The regression analyses reveal that the interaction between degree of viewing done using a Blu-ray or DVD player and overall television viewing

significantly predicts first order murder-victim relationship estimates (*b*=.219, *p*<.05). The pick-a-point analysis of this interaction further reveals that when the proportion of overall viewing on a Blu-ray or DVD player is low, the relationship between overall viewing and the dependent measure is negative (*b*=-.123, p=.184). This negative association indicates that for this group of Blu-ray and DVD viewers, heavy television exposure is associated with a greater likelihood of providing the real world estimate that "most murders take place between people who know each other."

Conversely, for viewers reporting higher relative use of the Blu-ray and DVD player, the relationship between overall television viewing and the first order outcome reversed direction, with heavy television exposure instead associated with a greater likelihood of providing the television and cultivation-consistent estimate that "most murders take place between strangers." Additionally, as indicated by the p-value, the magnitude of this relationship is commensurate with the non-significant p-value at low levels of the moderator (*b*=.125, p=.127).

In Figure 10, the proportions of cultivation-consistent murder-victim relationship estimates are plotted across levels of overall exposure and degree of DVD/Blu-ray television set viewing. As shown here, there is a clear crossover interaction effect on proportion of cultivation-consistent estimates of murder-victim relationships across levels of exposure as a function of degree of DVD/Blu-ray viewing.

This crossover interaction indicates that high levels of DVD/Blu-ray viewing enhances cultivation, as demonstrated by the difference in the proportion of cultivation-consistent estimates across light (*M*=.053) and heavy (*M*=.096) levels of exposure. Low levels of viewing on the device, on the other hand, inversely predicted cultivation, with the proportion of

cultivation-consistent murder-victim relationship estimates lower at heavy (*M*=.052) than at light (*M*=.092) levels of television exposure.

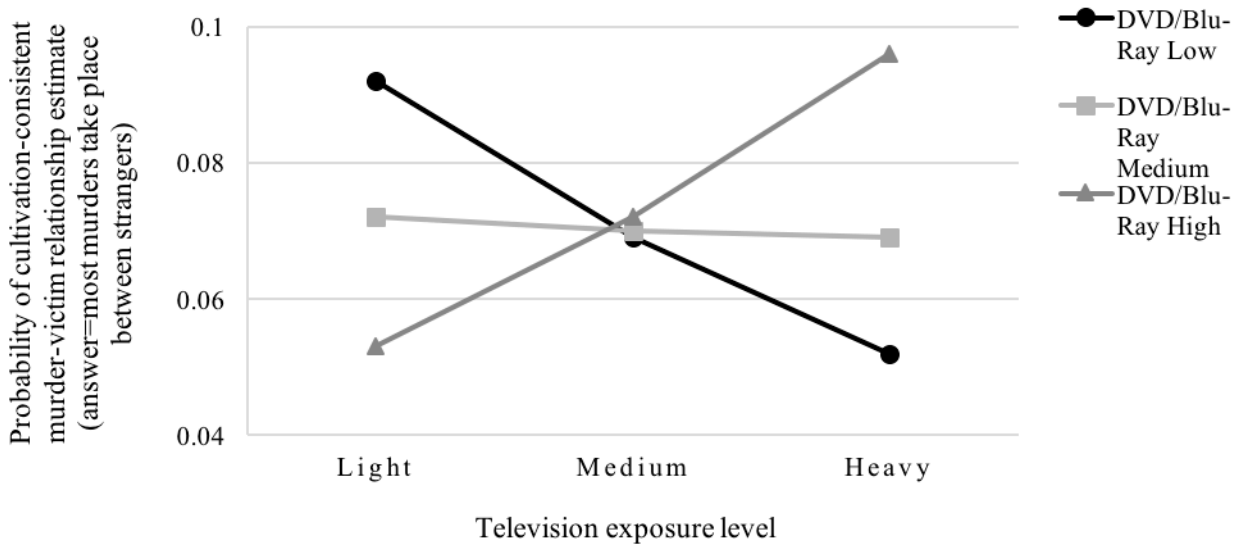

Figure 10. Interaction between television exposure level and degree of viewing on DVD/Blu-Ray on first order murder-victim relationship estimates

The Johnson-Neyman approach further probes this interaction, revealing that this relationship is significant for the proportion of viewers (5.70% of the sample) who report doing "quite a bit" or "most" of their television set viewing using this device. Interestingly, no light viewers report doing "most" of their viewing on this device, and with no values reported for the cultivation outcome for light viewers at this level of the moderator, no meaningful cultivation differential can be computed.

Among the light (n=8) and heavy (n=8) viewers who report doing "quite a bit" of their viewing using this device, 12.5 percent of light viewers report the cultivation-consistent estimates, while 37.5 percent of heavy viewers report this estimate that "most murders take place between strangers." While this significant interaction and conditional effect is certainly narrowly applicable to a very specific subset of viewers, unlike the smartphone and traditional

television platform analyses, Cook's distance values determined that none of these outliers are influential, and thus no cases are excluded from the analysis.

Therefore, while television is not a significant predictor of this cultivation outcome, and there is virtually no difference in the cultivation-consistent estimates of murder-victim relationships when the moderating variable is not included in the regression model (M_{Heavy}-M_{Light}=.004), the cultivation outcome does vary as a function of level of DVD/Blu-ray viewing. More specifically, among the small group of viewers who report proportionally high viewing on a television set through this device, overall exposure is a significant positive predictor of cultivation outcomes. These results are very similar to the findings for tablet viewing in a multitude of ways. First, just as there are very few heavy viewers who do "quite a bit" or "most" of their viewing on a tablet viewing, only approximately six percent of heavy viewers report doing this amount of viewing on a DVD or Blu-ray player.

This indicates that rather than replacing traditional exposure, DVD or Blu-ray use supplements this exposure. Additionally, just as heavy viewers who do high levels of tablet viewing watch more television overall than those who do not view on a tablet, heavy viewers who do "quite a bit" or "most" of their viewing through a DVD or Blu-ray player report watching on average one hour more per day than those who do not view on a television set using this device. Together, this suggests that heavy viewers who use the device to supplement their television viewing are most likely increasing their overall consumption with the DVD or Blu-ray player, not heavily consuming only niche or alternative content. Thus, if viewers are using this device to augment, as opposed to replace, traditional forms of exposure, using this device should maintain or enhance the cultivation effect.

Traditional Cable or Satellite Provider (Over-the-Air)

Degree of traditional viewing on a television set (i.e., through a cable or satellite provider) significantly moderates the relationship between one first order and one second order outcome. For first order estimates of violence, the interaction between overall television viewing and degree of traditional cable or satellite viewing results in a significant effect (b=.060, p<.05). More specifically, for viewers who report that little of their overall viewing is done using a television hooked up to traditional cable or satellite provider, the relationship between overall exposure and the cultivation outcome is positive and nonsignificant (b=.063, p=.252).

However, the magnitude of the strength of this relationship is dramatically greater for viewers who report that average (b=.138, p<.001) or high amounts (b=.212, p<.001) of their overall viewing is done using a television hooked up through a traditional cable or satellite provider. Thus, the greater the proportion of overall viewing watched on a television hooked up through a traditional cable or satellite provider, the greater the likelihood that the heavy viewers provide the television and cultivation-consistent estimates of violence.

In order to further explore this interaction, the proportion of cultivation-consistent estimates are plotted across level of television exposure and traditional cable and satellite viewing. As shown in Figure 11, regardless of the degree of overall viewing on a television set through a cable or satellite connection, there are a greater proportion of cultivation-consistent estimates of violence reported at heavy than at light levels of television exposure. However, while this proportional difference is present across levels of cable and satellite viewing, the size of this cultivation differential, and the associated magnitude of the effect varies across low and high degrees of cable and satellite use.

In comparison to the cultivation differential for cultivation-consistent estimates of violence when cable and satellite viewing is not included in the regression model (M_{Heavy}-M_{Light}=.165), the cultivation differential is greater at high levels of cable and satellite use (M_{Heavy}-M_{Light}=.213). Conversely, the proportional difference between heavy and light viewers at low levels of cable or satellite viewing is much smaller (M_{Heavy}-M_{Light}=.069) than both of the cultivation differentials reported above; this relatively small difference in cultivation-consistent estimates across light and heavy overall exposure no longer constitutes a statistically significant cultivation effect.

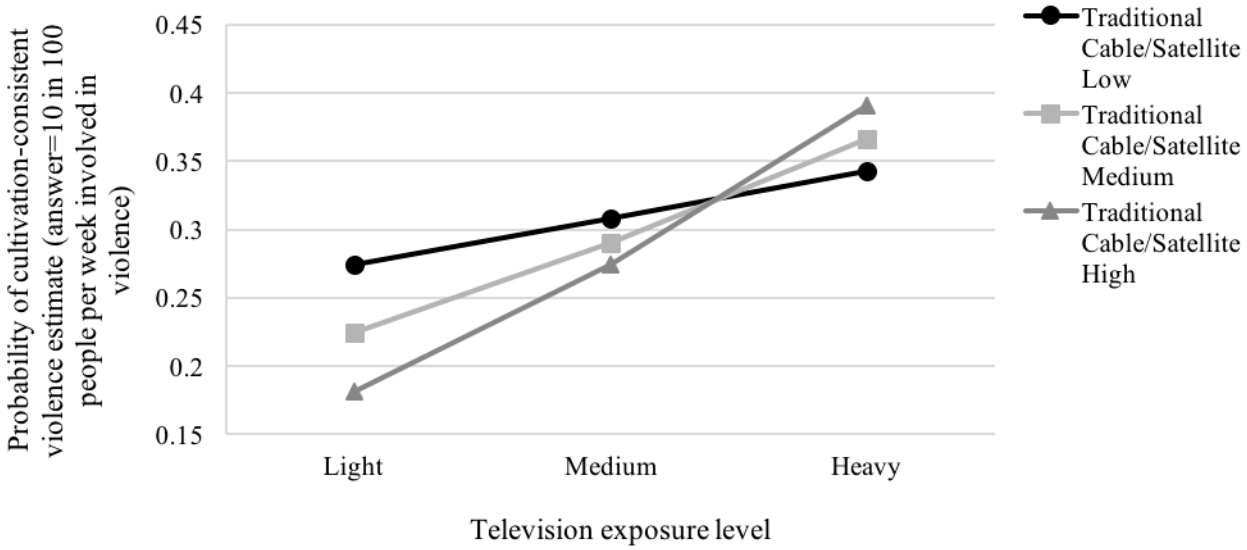

Figure 11. Interaction between television exposure level and degree of traditional cable/satellite viewing on first order violence estimate

Next, the Johnson-Neyman region of significance precisely determines that overall exposure significantly predicts first order estimates of violence for viewers who report doing any their television set viewing through a traditional cable or satellite provider (65.03% of the sample). Further, higher levels of traditional cable viewing ("quite a bit" or "most") enhance cultivation, while doing no television set viewing through a traditional cable or satellite provider attenuates cultivation.

Taken together, the results of the interaction analysis indicate that high levels of cable and satellite viewing enhance the already highly significant cultivation effect, as demonstrated by the comparatively greater increase in cultivation-consistent estimates from light to heavy viewing among this subgroup of viewers than among light and heavy viewers overall. However, among those who do none of their viewing on a television set using cable and satellite, the significance of this effect is negated. Therefore, this moderating variable has a considerable impact on the cultivation of first order estimates of violence.

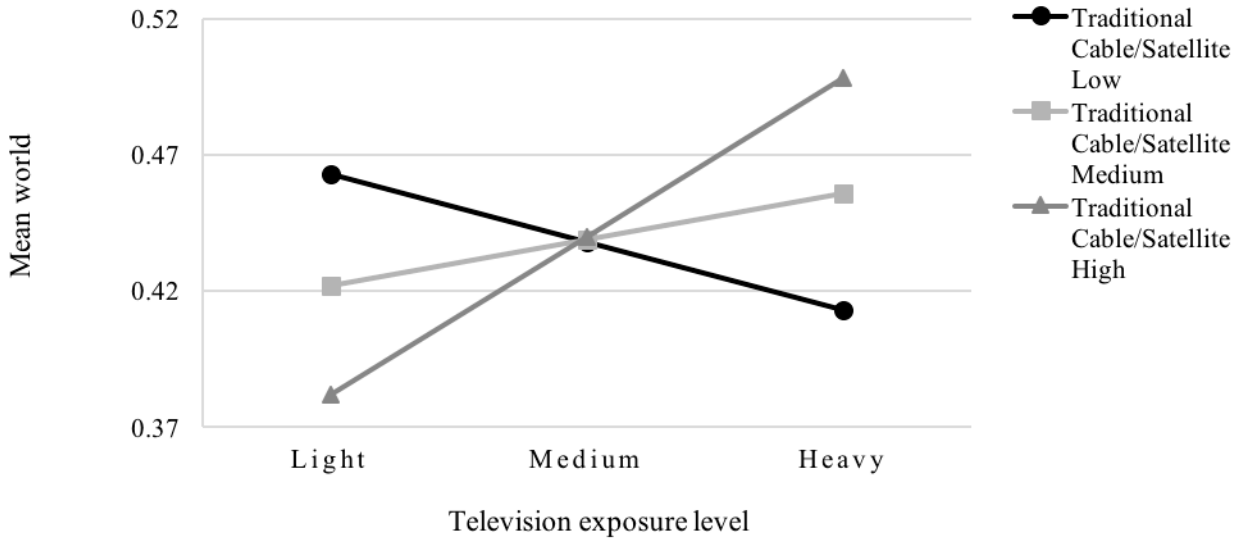

Figure 12. Interaction between television exposure level and degree of traditional cable/satellite viewing on second order mean world outcome

Next, the regression analyses reveal that the interaction between television and degree of traditional cable or satellite television viewing significantly predicts mean world views (b=.013, p<.05). Specifically, for viewers who do little of their overall television set viewing through a cable or satellite provider, the relationship between overall viewing and mean world is negative and non-significant (b=-.010, p=.361). For these viewers, then, heavy exposure predicts—albeit, weakly—a more positive and trusting worldview. At high levels of traditional cable or satellite

use, however, overall viewing is significantly, positively associated with mean world views (b=.023, p<.05). This result indicates that, for these viewers, heavy exposure is strongly predictive of interpersonal mistrust and negative world views.

This difference (M_{Heavy}-M_{Light}=.116) is much larger than the cultivation differential for mean world when level of traditional cable or satellite viewing is not included in the regression model (M_{Heavy}-M_{Light}=.019). Additionally, as indicated by the crossover interaction, the cultivation outcome among both light and heavy viewers differs substantially as a function of viewing level. The Johnson-Neyman procedure further defines the precise nature of conditional effects. More specifically, the cultivation of mean world views is enhanced for those viewers who do "quite a bit" or "most" of their television set viewing through a traditional cable or satellite provider (45.19% of the sample).

For those who do "some" of their television set viewing this way, overall exposure is still positively associated with a mean world view, but this relationship is not significant (reflecting the relationship between overall exposure and mean world views when the moderator is not included in the regression model). However, for those viewers who do none of their television set viewing traditionally through a cable or satellite provider, the direction of this relationship changes, and overall viewing (non-significantly) predicts a more trusting world view.

Summarizing the Impact of Television Set Viewing

Overall, six significant interactions resulted from the forty regression analyses conducted to examine the impact of television set viewing on the cultivation process. The various procedures used to further probe the six significant interactions reveal that there is evidence that all forms of television set viewing impact the cultivation process. While the platform regression analyses reveal that only two forms of platform exposure impact the cultivation process, the

analyses presented in this section reveal that relative degrees of using each of the five devices to view content on a television set—gaming console, streaming media device, Smart TV, Blu-ray or DVD player, and through a traditional cable or satellite television provider—impact the relationship between amount of overall television exposure and first and second order cultivation outcomes. Further, the procedures used to further probe these moderation analyses enhance our understanding of how new and traditional forms of exposure intervene in the cultivation process.

First, the pattern of conditional effects for both laptop and Smart TV viewing (high levels attenuating cultivation, low levels enhancing cultivation) demonstrate that when heavy viewers use these new media to, at most, supplement their more traditional viewing, they are likely exposing themselves to content that does not deviate from what they watch most of the time. However, when heavy viewers are doing the majority of their viewing using these new technologies and replacing traditional with new forms of exposure, they are more likely to be consuming new and different forms of content whose messages and portrayals contrast those of the mainstream television world and/or limiting the amount of time they are exposed to the broadcast and cable television messages.

Interestingly, among heavy viewers, high levels of viewing on a television set through a gaming console enhances the cultivation of a politically moderate ideology. While this is the only way of viewing on a television set that significantly impacts the cultivation of this second order outcome through its significant interaction with overall exposure, at high levels of all new ways of television set viewing, overall exposure positively predicts a politically moderate ideology; the opposite is true of viewing on a television set through a cable or satellite provider. This supports the position that news ways of television set viewing limit exposure to traditional

broadcast and cable television news or channels, thereby potentially fostering more moderate political viewpoints and general interest in political news.

Next, the moderation analysis for DVD or Blu-ray television set viewing mirrors the results for the impact of tablet viewing on the cultivation of murder-victim relationship estimates. Together, these suggest that heavy viewers who use these devices to supplement their television viewing are most likely increasing their overall consumption by viewing on these devices, not heavily consuming only niche or alternative content. Thus, when heavy viewers augment their traditional and overall viewing, as opposed to replace or reduce this exposure, using these new media devices may enhance cultivation.

The analyses for mean world views offer a direct comparison between the moderating effects of non-traditional (streaming media device) and traditional (cable or satellite provider) ways of viewing on a television set, and from this comparison, opposite patterns of conditional effects emerge. Specifically, in the case of the streaming media device, high levels of use reduce the cultivation effect, while low levels of traditional cable or satellite viewing attenuate the cultivation of this second order outcome. Conversely, higher levels of traditional cable or satellite viewing enhance the cultivation of mean world views, while low levels of streaming media device use enhance cultivation.

Unfortunately, although the differential impact of new and traditional exposure on this cultivation outcome is clear, these interaction effects on mean world views offer the only direct comparison of how traditional and new ways of watching on a television set moderate the process of cultivation. Further, of the sixteen total regression analyses conducted for the traditional forms of viewing thus far (traditional television platform viewing and television set

viewing through a cable or satellite provider), only two of these analyses provide substantive evidence of statistical moderation.

Specifically, in addition to mean world views, traditional cable or satellite viewing also significantly moderates the relationship between overall exposure and first order violence estimates, and while this result does not allow for direct comparison with other forms of television set viewing, the pattern of conditional effects for this traditional form of exposure can be compared to those found for another new form of television viewing: laptop platform viewing. Mirroring the results for mean world views discussed above, relatively lower traditional cable or satellite viewing attenuates the cultivation of violence estimates, while higher levels of traditional cable or satellite viewing enhance the cultivation effect. Conversely, higher levels of laptop viewing reduce the magnitude of the relationship between overall exposure and estimates of violence, while lower levels of laptop viewing strengthen the cultivation of this first order outcome. Together, these results provide evidence that, at least for these cultivation outcomes, traditional and new forms of exposure may differentially impact the cultivation process.

Live and Time-Shifted Viewing: Impact on Cultivation

In today's television environment, viewers are not limited to watching television broadcast live at the time scheduled. In addition to this traditional form of viewing, audience members can engage in various forms of time-shifting, allowing them to view content on their own schedule. For instance, viewers can use their DVR or Tivo to record their favorite programs and watch at their convenience, or pay for subscription video on demand (SVOD) service like Netflix so that they can access and view content whenever they want. Thus, in addition to

analyzing the differential impact of new and traditional platforms and ways of viewing on a television set, this study also examines how traditional live viewing and different forms of time-shifting contribute to the cultivation process, and addresses the following research question:

> Research Question 10: How does the degree of overall exposure viewed traditionally (live) and non-traditionally (through forms of time-shifting) impact the cultivation process?

In this study, while a greater proportion of participants (80.4%) report doing at least "some" of their overall viewing traditionally (i.e., live broadcast) than non-traditionally through any form of time-shifting (DVR/Tivo=49.1%; Cable or Satellite On Demand=44%; SVOD=71.7%; Free Online=70.5%), traditional live viewing is not the dominant way in which participants in this study report doing "most" of their overall viewing. Rather, more than 20 percent of participants report that "most" of their overall viewing is done through a SVOD service such as Netflix or Hulu Plus, compared to the approximately 15 percent who do "most" of their viewing traditionally (broadcast live).

The pronounced use of SVOD among viewers in this sample is not surprising considering that half of the sample is between 18-34 years-old, an age group with whom SVOD use is prevalent; according to Nielsen, nearly 70 percent of 18-34 year-olds in their composite sample have at least one SVOD service (Nielsen, January 2016). A slightly lower percentage of participants report doing "most" of their viewing free online (12.6%). Slightly less than ten percent (9.2%) do "most" of their viewing time-shifted using a DVR or Tivo, and only approximately three percent do "most" of their viewing On Demand through a cable or satellite provider.

Table 14. Unstandardized regression coefficients of live and time-shifted viewing x television exposure interactions for all cultivation outcomes

	b (live and time-shifted viewing x television exposure) interactions				
	Live broadcast x TV exposure	DVR or Tivo x TV exposure	On Demand x TV exposure	SVOD x TV exposure	Free online x TV exposure
Violence estimates	.047	.027	.019	.019	-.025
Law enforcement estimates	.0004	.008	-.081	.012	.020
Violent crime estimates	.003	.009	-.131**	-.028	-.023
Murder-victim relationship estimates	-.080	.106*	.023	.009	.060
Mentally ill perpetrators estimates	-.002	-.039	-.085	-.075**	-.011
Sexism	-.015	.004	.017	.008	.004
Mean world	.013*	-.010	-.010	-.007	-.012
Moderate political ideology	-.028	.067	.075	.060	-.001

Note. Analyses controlled for the following variables: age, gender (male), race (Black), race (White), education, residence (urban), political ideology. For moderate political ideology, the analysis did not control for political ideology *p<.10, **p<.05, ***p<.010, ****p<.001

Using the same approach to exploring the impact of new and traditional platforms and ways of viewing on a television set on the cultivation process, this study conducted regression analyses to assess whether differences in cultivation outcomes exist in relation to the degree of overall viewing that participants report watching traditionally live or time-shifted in the four ways reviewed above (DVR/Tivo, On Demand through a cable or satellite provider, SVOD, free online). Specifically, the discussion below focuses on how the interactions among television exposure and relative amount of overall television viewed live or time-shifted cultivate first order societal estimates and second order attitudes and beliefs. The unstandardized regression

coefficients of television set viewing x television exposure interactions for all first and second order cultivation outcomes are reported in Table 14.

Traditional Live Broadcast

While traditional live viewing does not moderate the cultivation of first order estimates, the regression analyses reveal that the interaction between overall television exposure and degree of exposure viewed live significantly predicts the second order outcome of mean world views (b=.013, p<.10). More specifically, for viewers who do little of their overall viewing live, the relationship between exposure and mean world is negative and non-significant (b=-.007, p=.565), while for viewers who most frequently watch live, the association between exposure and mean world is positive and significant (b=.017, p<.10). Thus, for these viewers who report high levels of traditional live viewing, greater exposure is associated with greater fear and mistrust in the world.

The plot of mean world views across television exposure level and degree of live viewing depicted in Figure 13 typifies a crossover interaction in that the effect of relative degree of live viewing on mean world views is opposite, depending on level of exposure (and vice versa). There are slight differences in mean world scores for high and low levels of live viewing at light (M_{Low}-M_{High}=.052) and heavy (M_{High}-M_{Low}=.072) levels of television exposure. And, there is actually lower reported mean world views across light (M=.452) and heavy (M=.415) television viewing for viewers who do little of their viewing live, thereby not only weakening, but actually reversing the direction of the effect.

Conversely, high degrees of live viewing enhance the cultivation effect, with the cultivation differential for mean world views significantly (p<.10) greater at heavy (M=.487) that at light (M=.400) levels of viewing. This difference is much larger (M_{Heavy}-M_{Light}=.087) than the

cultivation differential for mean world views when level of live viewing is not included in the regression model (M_{Heavy}-M_{Light}=.019).

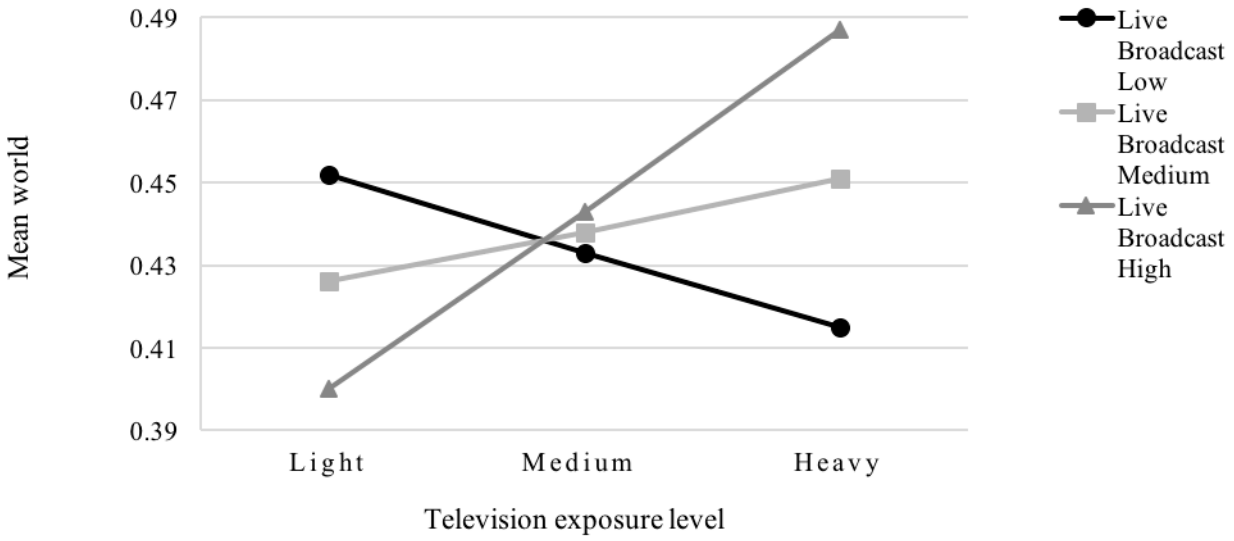

Figure 13. Interaction between television exposure level and degree of live broadcast viewing on second order mean world outcome

The Johnson-Neyman region of significance further defines that it is among viewers who do "most" of their viewing traditionally broadcast live (14.93% of the sample) that overall viewing significantly predicts mean world views. Thus, when heavy viewers are not watching live, and are most likely engaging in relatively higher levels of at least one form of time-shifting, they are more likely to report more trusting and positive views of the world around them, whereas when they are doing proportionally higher degree of their viewing traditionally live, they view the world as a meaner and mistrustful place.

This interaction and pattern of conditional effects, in which a high degree of traditional live viewing enhances the cultivation of mean world views is very similar to that found for television set viewing through a traditional cable or satellite provider (refer to Figure 12). While high levels of both of these traditional forms of viewing enhance the cultivation of mean world

views, high degrees of new forms of television viewing (on a laptop computer and on a television set through a streaming media device) significantly diminish the cultivation effect. These findings provide further evidence that traditional and new forms of television viewing differentially impact the cultivation of mean world views.

DVR/Tivo

The first form of time-shifting analyzed in this study is the use of a DVR/Tivo. These digital recording devices allow viewers to record content to a digital hard drive, and watch at a time most convenient for them. The regression analyses reveal that the interaction between overall exposure and the proportion of overall viewing using a DVR or Tivo significantly predicts first order murder-victim relationship estimates (b=.106, p<.10).

Specifically, when time-shifting using a DVR or Tivo is proportionally low, the association between overall television viewing and first order estimates is non-significant and negative (b=-.043, p=.612). Conversely, when viewers report proportionally higher levels of DVR or Tivo time-shifting, the association between overall viewing and the cultivation outcome is positive and significant (b=.148, p<.10). These viewers are thus significantly more likely to provide the television and cultivation-consistent response that "most murders take place between strangers" than viewers who do low or relatively average levels of DVR/Tivo shifting.

In order to further explore the role of degree of DVR/Tivo viewing in the cultivation of first order murder-victim relationship estimates, the interaction is plotted in Figure 14. While there is virtually no difference in the proportion of cultivation-consistent estimates of murder-victim relationships across light and heavy levels of exposure when level of DVR/Tivo viewing is not included in the regression model (M_{Heavy}-M_{Light} =.004), as displayed here, the interaction of

television exposure and degree of viewing time-shifted using a DVR/Tivo does impact this first order cultivation outcome.

In this crossover interaction, the proportion of cultivation-consistent estimates (M_{Heavy}-M_{Light}=.053) is significantly higher among heavy than light viewers for those who reported high degrees of time-shifting on a DVR or Tivo, and slightly lower among heavy (M=.063) than light (M=.077) viewers who do little of their viewing in this time-shifted manner. Thus, DVR/Tivo use enhances the cultivation effect at high levels of relative usage when viewing television. More specifically, the Johnson-Neyman region of significance indicates more precisely that doing "quite a bit" or "most" of their viewing time-shifted using a DVR or Tivo (23.38% of the sample) significantly enhances the cultivation effect, such that the proportion of cultivation-consistent murder-victim relationship estimates is greatest for heavy viewers reporting these high levels of time-shifted DVR/Tivo use.

Looking at the sample more specifically for viewers falling within this region of significance, among light viewers who do "quite a bit" or "most" of their viewing time-shifted through a DVR or Tivo, only 3.85 percent report the cultivation-consistent response that "most murders happen between strangers," while 16.67 percent of heavy viewers who report these levels of DVR and Tivo time-shifting report this cultivation outcome. This is nearly four times the proportion of cultivation-consistent responses among heavy viewers who do "none" of their viewing time-shifted through a DVR or Tivo (4.23%).

More than 90 percent of the heavy viewers who report doing "quite a bit" or "most" of their viewing time-shifted through a DVR or Tivo use this technology to supplement their live viewing, not to replace this traditional form of viewing. Although DVR/Tivo is a relatively new television technology, it differs from other forms of time-shifting such as SVOD or free online

viewing in that it simply records broadcast or cable television content to be watched at a more convenient time, as opposed to offering content not available through a cable or satellite provider. Because this form of time-shifting allows viewers to watch what they normally would, just at their convenience, high use among heavy viewers should enhance cultivation.

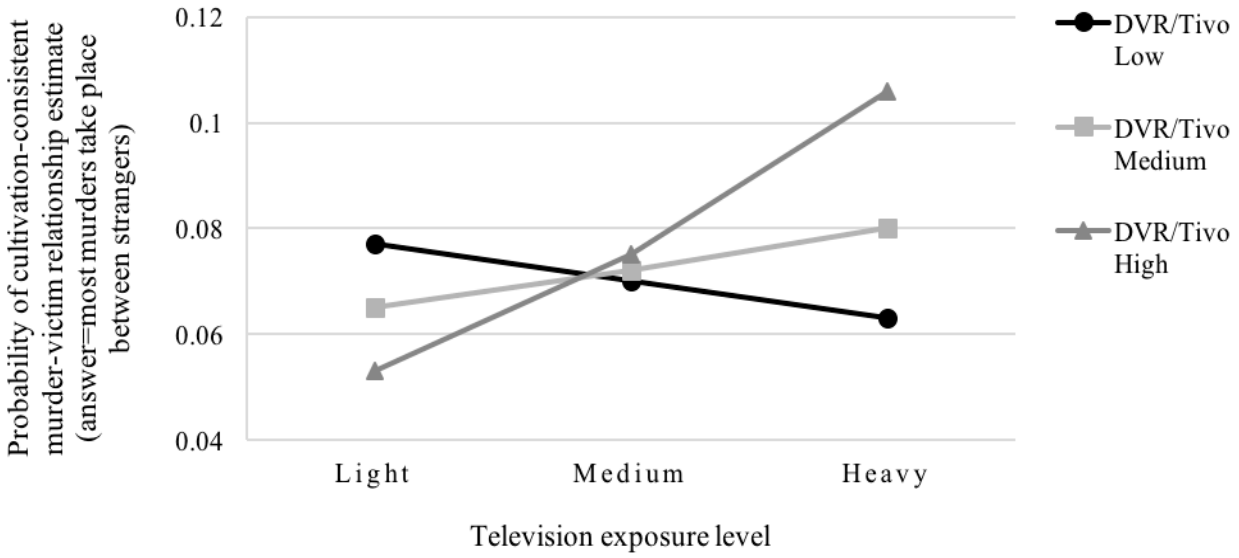

Figure 14. Interaction between television exposure level and degree of DVR/Tivo viewing on first order murder-victim relationship estimates

The finding that DVR use enhances cultivation for heavy viewers echoes the results of Morgan and Shanahan's (1991) study of the impact of VCR use on the cultivation process, in which they conclude, "VCRs cultivate 'television type' conceptions mainly among those who are heavy viewers . . . this suggests that traditional messages can be transmitted in non-traditional ways with decidedly traditional results" (pp. 153-154). Although their study was conducted more than twenty-five years earlier, DVR is a similar technology to the VCR, and thus it is unsurprising that the results of this study reflect Morgan and Shanahan's study.

Cable/Satellite On Demand

The regression analyses involving degree of overall exposure viewed time-shifted through cable or satellite On Demand reveal that this form of time-shifting only significantly moderates one of the cultivation outcomes—first order violent crime estimates (b=-.131, p<.05). More specifically, the pick-a-point procedure indicates that at low levels of time-shifting using cable or satellite On Demand, there is a significant, positive association between overall viewing and providing the cultivation-consistent response of violent crime estimates (b=.103, p<.05). Conversely, for high time-shifted cable or satellite On Demand viewers, there is a negative, but non-significant relationship between overall viewing and violent crime estimates, indicating that at high levels of this form of time-shifted viewing, the likelihood of providing the real-world estimate of violent crime is lower (b=-.076, p=.274).

Further probing this interaction, as shown in Figure 15, the proportion of viewers reporting cultivation-consistent estimates of violent crime is plotted across levels of television exposure and time-shifted On Demand viewing. As shown in the figure, the proportion of cultivation-consistent estimates of violence is lower at light (M=.186) than at heavy (M=.280) levels of exposure for those who do little of their viewing time-shifted through cable or satellite On Demand. Conversely, the proportion of cultivation-consistent estimates is higher at light (M=.296) than heavy (M=.222) levels of viewing for high degrees of this form of time-shifting. There is a slight convergence in the proportion of cultivation-consistent estimates among low and high On Demand time-shifters at heavy levels of overall exposure.

Specifically, as shown in the interaction plot, the gap in the proportion of cultivation-consistent estimates between low and high On Demand time-shifters is much smaller for heavy viewers (M_{Low}-M_{High}=.058) than for light viewers (M_{High}-M_{Low}=.110), indicating that the

cultivation outcome varies as a function of On Demand viewing level more significantly among light than heavy viewers.

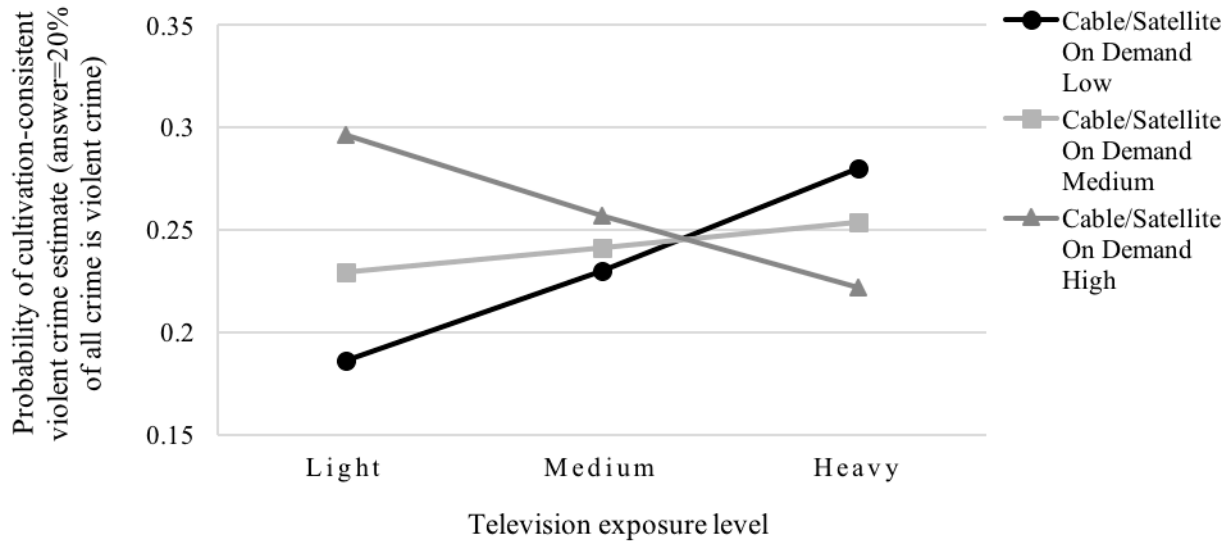

Figure 15. Interaction between television exposure level and on degree of cable/satellite on demand viewing first order violent crime estimates

The Johnson-Neyman region of significance more precisely determined that the relationship between overall exposure and violent crime estimates is significant among those who report doing "none" of their viewing time-shifted On Demand (56.0% of the sample). This indicates that for viewers who don't time-shift On Demand through their cable or satellite provider, overall exposure significantly predicts a greater likelihood of reporting that "20 percent of all crime is violent crime." For viewers who do "some" of their viewing On Demand, the proportion of cultivation-consistent estimates is nearly identical among light (21.62%) and heavy viewers (22.22%). Finally, for those who do "quite a bit" or "most" of their viewing time-shifted On Demand, the proportion of cultivation-consistent estimates reported by light viewers peaks at these high levels, while for heavy viewers, the cultivation outcome remains steady; further, the cultivation estimates are far higher for light (37.31%) than for heavy viewers (23.8%) among these high On Demand viewers.

It appears, then, that the impact of level of On Demand viewing on the cultivation of this first order estimate is stronger for light viewers than heavy viewers. Interestingly, overall, approximately 70 percent of light viewers watch at least some live television. However, less than 60 percent of light viewers who do "none" of their viewing On Demand watch live television, while among light viewers who do any On Demand viewing, more than 90 percent also do live viewing. The fact that traditional live viewing is proportionally higher among light viewers who are On Demand viewers could explain why this form of time-shifting enhances cultivation for light viewers; they are most likely watching content that complements their traditional television exposure. Also, light viewers who are high On Demand time-shifters report higher overall exposure than the mean for all light viewers in the sample. For heavy viewers, however, those who do no viewing On Demand report higher overall exposure than heavy viewers overall, while heavy viewers who are high On Demand time-shifters report lower overall exposure than the heavy viewing sample mean.

All of this evidence together indicates that heavy and light viewers time-shift On Demand through a cable or satellite provide in distinct ways. Specifically, light viewers seem to be supplementing their traditional and overall exposure when they report higher levels of On Demand viewing, while heavy viewers are reducing their overall exposure when their time-shifted On Demand viewing is high. For heavy viewers, because at high levels of this form of time-shifting they appear to be reducing their overall viewing, and replacing, rather than supplementing, their live viewing with On Demand viewing, high levels of time-shifted On Demand viewing reduce the cultivation of this first order estimate, while for light viewers, the opposite is true. These results highlight the fact that in order to understand how different forms of exposure impact the cultivation process, it is important to determine whether new forms of

exposure supplement or replace traditional television exposure, and how this varies across light and heavy viewers.

SVOD

The regression analyses involving degree of overall exposure viewed time-shifted through SVOD reveal that this form of time-shifting only significantly moderates one of the cultivation outcomes. More specifically, the regression analysis for first order mentally ill perpetrator estimates reveals that the interaction between overall television exposure and degree of overall exposure viewed time-shifted through SVOD significantly predicts this dependent measure (b=-.075, p<.05).

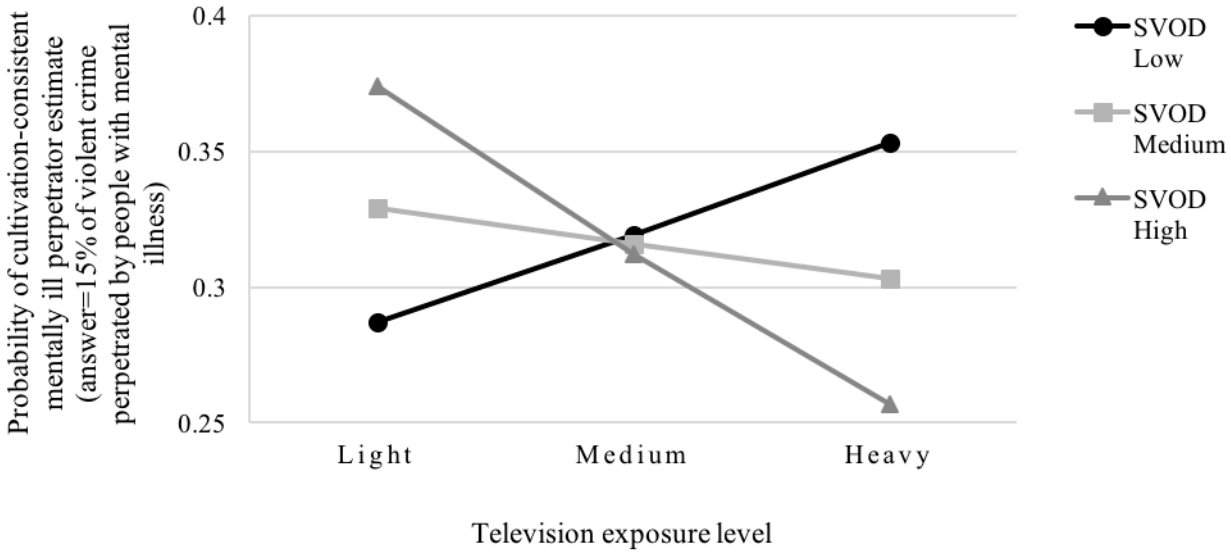

Figure 16. Interaction between television exposure level and degree of SVOD viewing on first order mentally ill perpetrator estimates

When SVOD viewing is lowest, there is a non-significant positive association between overall viewing and the estimate of mentally ill perpetrators (b=.059, p=.190), indicating that these viewers are more likely to provide the cultivation and television-consistent response that "15 percent of violent crime" is perpetrated by mentally ill individuals. Conversely, there is a

negative association between overall exposure and the cultivation outcome at high levels of SVOD viewing; the magnitude of the relationship between overall viewing and the cultivation outcome is greatest for viewers who report high SVOD viewing (b=-.106, p<.10).

As displayed in Figure 16, the proportional mean of cultivation-consistent estimates of mentally ill perpetrators reaches its peak value at high levels of SVOD time-shifting among light overall television viewers (M=.374), and its minimum value among heavy viewers who are high SVOD time-shifters (M=.257). This difference, in which cultivation-consistent estimates for high SVOD users are higher for light than heavy viewers is statistically significant (p<.10), and constitutes the only significant difference across level of exposure for this specific cultivation outcome. While there is an increase in cultivation-consistent estimates of mentally ill perpetrators of violence across light (M=.287) and heavy (M=.353) levels of television viewing for low SVOD shifters, the cultivation differential is non-significant.

The Johnson-Neyman region of significance reveals that it is specifically among those who report doing "most" of their viewing time-shifted through a SVOD service (20.83% of the sample) for whom the relationship between overall exposure and the cultivation outcome is significant. Similar to the results of the impact of cable or satellite On Demand viewing on the cultivation of violent crime estimates, heavy viewers who report mostly using SVOD when watching television are not supplementing their viewing with content that complements their traditional viewing; rather, they are replacing their traditional forms of exposure and accessing content that may differ from what they would watch through live or time-shifted through their DVR or Tivo.

Additionally, SVOD offers original programming that is available exclusively to subscribers, so while mostly engaging in cable or satellite On Demand viewing may reduce

cultivation by providing the opportunity to only watch certain kinds of content, these programs were, or currently are, produced and aired on broadcast or cable television. SVOD viewers are able to access niche content that never airs on network or cable television, and this content may veer completely from conventional television programming. Additionally, negative portrayals of the mentally ill are most frequently featured in news and primetime network programming (Diefenbach & West, 2007), and someone who does most of their viewing through SVOD are less likely to be watching news programs and primetime broadcast television, thereby limiting their exposure to the most frequent negative portrayals of mental illness.

So, even if they are not necessarily consuming niche content, their relatively low exposure to these portrayals could foster less negative perceptions of the mentally ill; conversely, low SVOD users are more likely to consume traditional primetime and news programming and thus cultivate these views. This interpretation of the analysis aligns with the explanation for the conditional effects of gaming console on moderate political ideology. Specifically, because high gaming console users are less likely to be exposed to news programming, high use of the gaming console could foster more moderate political opinions, and less interest in the electoral process.

Free Online

Unlike the findings for live viewing and the three forms of time-shifting already reviewed, the regression analyses reveal that the interaction between degree of time-shifted viewing through a free online service and overall exposure does not significantly predict any of the cultivation outcomes. Free online viewing is one of the few forms of exposure that does not vary across level of exposure, and it is used most often to supplement both traditional live and SVOD viewing. Even among those who report doing most of their viewing in this way, less than ten percent of those viewers report solely engaging in this form of time-shifting. Considering

that it is used to supplement different forms of viewing and that the content viewed varies greatly from broadcast network shows to short-form YouTube videos, this lack of a discernable pattern of content exposure may explain why this form of time-shifting does not result in any significant interaction effects for the cultivation outcomes.

Summarizing the Impact of Traditional Live and Time-Shifted Viewing

The results of these analyses are revealing for several reasons. First, the results of the regression analyses for live viewing offer further support that new and traditional forms of viewing impact mean world views in distinctly different ways. Specifically, high levels of both traditional live viewing and viewing on a television set through a traditional cable or satellite provider significantly enhance the cultivation of mean world views among heavy viewers. As established earlier, the opposite pattern emerges for laptop viewing and streaming media device viewing (both new forms of television exposure), with high levels of both attenuating the cultivation effect among heavy viewers.

These results for traditional live and time-shifted viewing also demonstrate that in addition to varying in the degree to which they use different forms of time-shifting, heavy and light viewers may be using forms of time-shifting in very different ways. Furthermore, the ways in which they use these forms of time-shifting may differentially impact the cultivation process. Specifically, when high levels of time-shifting are supplementing rather than replacing traditional live viewing, cultivation is enhanced; this applies to both heavy and light viewers. For instance, heavy viewers who are high DVR/Tivo time-shifters are supplementing their traditional viewing, thereby enhancing the cultivation of first order murder-victim relationships among these viewers.

The conditional effects of time-shifted DVR/Tivo viewing for the first order murder-victim relationships cultivation outcome also reflect those found for tablet and DVD or Blu-ray viewing. While the content viewed time-shifted through a DVR or Tivo can be stated to coincide with traditional broadcast and cable television viewing than the other devices, all three of these new forms of exposure are used to supplement and not replace traditional exposure. Further, while the DVR or Tivo offers similar content at a more convenient time for heavy viewers, and the exact content viewed on the other two devices is more unclear, heavy viewers who view on either a tablet or DVD/Blu-ray device are watching more television overall than those who do not use these devices. Thus, whether through supplementing the amount of overall exposure with more overall daily viewing, or more specifically the degree of traditional broadcast or cable content consumed, all three of these new ways of viewing enhance the cultivation of murder-victim relationship estimates among heavy viewers.

For cable and satellite On Demand and SVOD time-shifting, however, high use among heavy viewers appears to be replacing rather than complementing traditional live viewing; thus, limited use maintains or enhances cultivation, while high levels attenuate cultivation. For light viewers, in the case of cable or satellite On Demand time-shifting, high levels are supplementing both the amount of viewing they do overall and their traditional live viewing; because of this, high On Demand time-shifting enhances cultivation among light viewers.

While the exact content of what viewers are watching when they are time-shifting in various ways is not known, in the case of SVOD, they are limiting their access to broadcast and cable news networks and programming; even with cable or satellite On Demand viewing, there is limited exposure to news content (Nielsen, 2016, March). Thus, while the degree to which On Demand, and particularly SVOD content differs from mainstream broadcast and cable content in

terms of the nature and form of their portrayals is not known, it is a fact that On Demand does not provide viewers with as much access and exposure to local and national broadcast and cable news as that provided through traditional exposure.

Overall, when heavy viewers are either engaging in high levels of traditional live broadcast and cable viewing, or are supplementing their traditional exposure by watching broadcast and cable programs at a more convenient time, cultivation is enhanced. Conversely, when heavy viewers are engaging in high levels of non-traditional viewing that replace their traditional exposure, this attenuates cultivation.

Viewing Style: Impact on Cultivation

In today's television viewing landscape, viewers watch content on a variety of platforms, engage in various forms of time-shifting, and access content on their television sets in different ways. As described previously, the principal components analysis of the data for degree of viewing on new and traditional platforms, live and time-shifted viewing, and forms of television set viewing resulted in four distinct styles of viewing (results presented in Table 5): traditional viewing (watching live television on a traditional television set, accessed through a cable or satellite provider); traditional shifting (time-shifting using a DVR or Tivo or On Demand through your cable or satellite provider); serious streaming (streaming SVOD content from a gaming console, Internet-connected Smart TV, or streaming media device); and viewing on the go (streaming content free online on your laptop, tablet or smartphone).

In addition to analyzing the impact of degree of viewing done on different platforms, television set viewing devices, and live and time-shifted viewing on the cultivation process, this

study also explores the impact of the aforementioned viewing styles. Specifically, this study addresses the following research question:

> Research Question 11: How does the degree to which viewers engage in different styles of viewing impact the cultivation process?

As reviewed previously (refer to Table 5), traditional viewing is highly, significantly positively correlated with traditional shifting (r=.238, r(partial)=.236; p<.001), and significantly, negatively correlated with the distinctly modernized viewing styles of serious streaming (r=-.251, r(partial)=-.208; p<.001) and viewing on the go (r=-.403, r(partial)=-.378; p<.001). Not surprisingly, serious streaming and viewing on the go are strongly, positively correlated with one another (r=.312, r(partial)=.259; p<.001). Finally, traditional shifting is not significantly correlated with either of these two viewing styles.

When looking at the relationship between amount of television viewing and the different viewing styles, the correlational analyses reveal that only traditional viewing and traditional shifting are significantly correlated with overall exposure whether or not covariates are controlled for in the analyses (refer to Table 7). More specifically, both traditional viewing (r=.298, r(partial)=-.277; p<.001) and traditional shifting (r=.168, r(partial)=.167; p<.001) are significantly, positively correlated with overall exposure, indicating that viewers who are traditional viewers and traditional shifters watch more television.

For serious streaming, on the other hand, while both the zero-order and partial correlational analyses result in a positive association among this viewing style and overall exposure, this relationship is only significant when covariates were controlled for in the analysis (r(partial)=.102, p<.05). Finally, viewing on the go is not significantly associated with overall

exposure; in fact, the zero-order correlational analysis yield virtually no relationship among these two variables (r=-.009, p=.838). Controlling for covariates in the partial correlational analyses strengthens the relationship and results in a positive correlation (r(partial)=.037, p=.414); however, the association between viewing on the go and overall viewing is still weak.

These significant associations indicate that regardless of differences that may exist in demographic characteristics, a viewer who watches in ways that are either traditional (live broadcast viewing on a traditional television set through a traditional cable or satellite provider), or require a traditional cable or satellite subscription (traditional shifting through a DVR/Tivo and cable or satellite On Demand), the more time that viewer spends watching television overall. Further, Internet-based streaming services (i.e., SVOD and free online viewing), and the devices that viewers use to stream the content, are far less likely to be significantly associated with overall exposure, and in some cases (i.e., laptop and desktop viewing), greater use of these platforms is associated with less overall viewing.

When looking specifically at the demographic characteristics associated with these viewing styles, the bivariate correlations reveal that traditional viewing is significantly, negatively correlated with residing in an urban environment (r=-.087, p<.05), and positively, significantly correlated with political ideology (r=.103, p<.05) and age (r=.250, p<.001). Thus, those scoring highly on the traditional viewing style scale are less likely to be urban residents, and more likely to be older and politically conservative. Conversely, serious streaming is significantly, negatively associated with political ideology (r=-.130, p<.01) and age (r=-.240, p<.001), indicating that participants who score highly on this scale are younger and more politically liberal. Traditional shifting is the only viewing style not significantly associated with any demographic variables.

Table 15. Unstandardized regression coefficients of viewing style x television exposure interactions for all cultivation outcomes

	b (viewing style x television exposure) interactions			
	Traditional viewing x TV exposure	Serious streaming x TV exposure	Traditional shifting x TV exposure	Viewing on the go x TV exposure
Violence estimates	.076*	.017	.037	-.108
Law enforcement estimates	-.001	-.032	-.039	-.002
Violent crime estimates	.010	-.035	-.072	-.030
Murder-victim relationship estimates	-.084	-.009	.117	.173
Mentally ill perpetrators estimates	-.054	-.102*	-.088	-.003
Sexism	-.012	.020	.014	-.012
Mean world	.017*	-.009	-.016	-.021
Moderate political ideology	-.052	.115**	.092	.033

Note. Analyses controlled for the following variables: age, gender (male), race (Black), race (White), education, residence (urban), political ideology. For moderate political ideology, the analysis did not control for political ideology, and did control for race (Asian) *p<.10, **p<.05, ***p<.010, ****p<.001

Lastly, viewing on the go is significantly correlated with several demographic variables. First, viewing on the go is significantly, positively correlated with male gender (r=.125, p<.01), and significantly, negatively correlated with political ideology (r=-.095, p<.05) and age (r=-.320, p<.001). Finally, viewing on the go is significantly, positively correlated with 3 of the 4 racial demographics: White (r=.190, p<.001), Black (r=.133, p<.01), and Asian (r=.120, p<.01). Taken together, these correlations indicate that viewers on the go are more likely to be male, more politically liberal, younger, and more likely to be either White, Black or Asian.

Using the same approach employed in examining the impact of new and traditional platforms, ways of viewing on a television set, and live and time-shifted viewing on the cultivation process, regression analyses are conducted to assess whether differences in cultivation outcomes exist in relation to the degree of engagement in each of the four respective

viewing styles listed above. Specifically, this section focuses on how the interactions among television exposure and styles of television viewing cultivate first order societal estimates and second order attitudes and beliefs. The unstandardized regression coefficients for viewing style x overall exposure interactions are reported in Table 15.

Traditional Viewing

The regression analyses reveal that the interaction between overall exposure and the traditional viewing style significantly predict first order estimates of violence (b=.076, p<.10). Further analysis of this interaction reveals that while the association between overall exposure and the first order outcome is positive regardless of the relative reported level of engagement in the traditional viewing style, the magnitude of this association does vary depending on the level of traditional viewing. More specifically, for viewers who score low on the traditional viewing scale, the association between overall viewing and violence estimates is positive but non-significant (b=.078, p=.162), while this relationship is highly significant for high levels of traditional viewing (b=.207, p<.001).

In order to further explore the interaction, as shown in Figure 17, the probability of cultivation-consistent violence estimates is plotted across levels of television exposure as a function of level of traditional viewing. While the proportion of cultivation-consistent estimates of violence is highest when traditional viewing is not accounted for in the regression model (M=.401), the magnitude of the cultivation effect is greatest among those who report high levels of traditional viewing. More specifically, while the cultivation differential is significant without the inclusion of the traditional viewing moderator (M_{Heavy}-M_{Light}=.165), the difference in cultivation-consistent estimates of violence is even greater for those who do much of their viewing in the traditional style (M_{Heavy}-M_{Light}=.204).

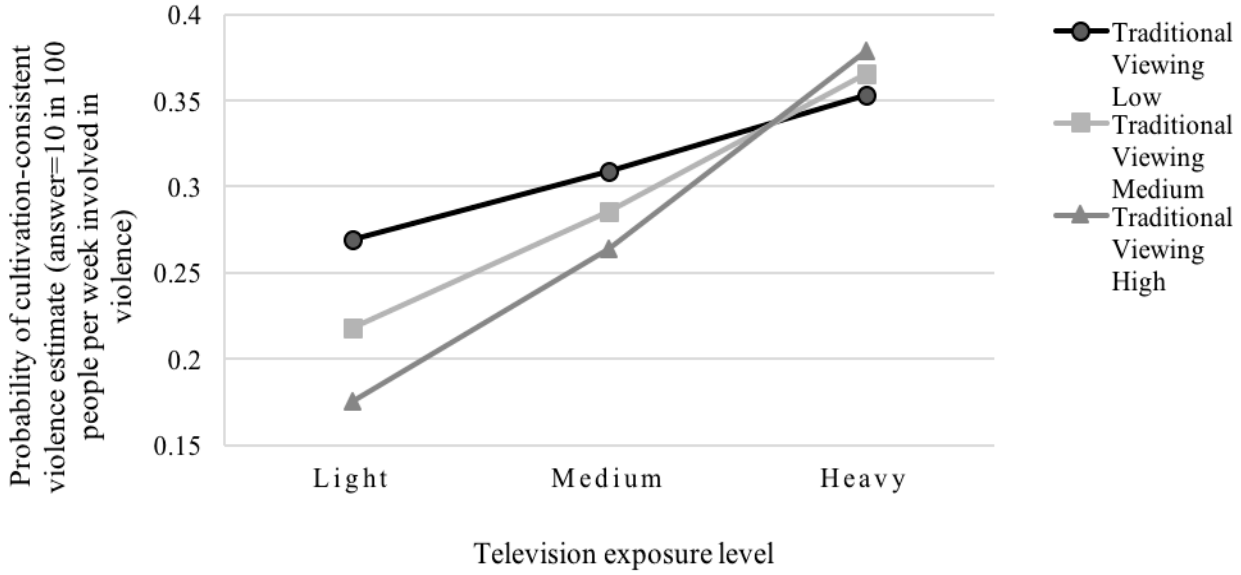

Figure 17. Interaction between television exposure level and degree of traditional viewing style on first order violence estimates

While high traditional viewing enhances the cultivation effect, at low levels of traditional viewing, the cultivation effect is weaker at relatively lower levels of traditional viewing. This is evidenced by the finding that for those who are low traditional viewers, the proportional difference in cultivation-consistent violence estimates (M_{Heavy}-M_{Light}=.084) is smaller and no longer statistically significant. The pattern of conditional effects plotted in Figure 17 mirrors those found for this first order outcome as a function of level of traditional cable or satellite television set viewing (displayed in Figure 11). The Johnson-Neyman technique indicates that for viewers who score higher than 1.67 on the traditional viewing scale (reported by 82.71% of the sample), overall exposure significantly, positively predicts this cultivation outcome. However, this relationship is no longer significant for scores that fall at or below this value (reported by 17.29% of the sample), thereby attenuating cultivation.

As established previously, overall exposure is a significant, independent, positive predictor of this cultivation outcome; thus, unlike the majority of the other cultivation outcomes

analyzed in this study, in which the significant association between overall exposure and the cultivation outcome only emerges at a specific level of a significant moderator, for estimates of violence, it is the level of the moderator that attenuates cultivation, for which overall exposure is no longer significantly associated with violence estimates that is of particular interest.

In the traditional viewing style analysis, the Johnson-Neyman procedure identifies that the relationship between overall exposure and estimates of violence is no longer significant for traditional viewing scores that fall at or below 1.67 (reported by 17.29% of the sample). Approximately 25 percent of those who fall within this proportion of the sample are heavy viewers (n=22); while these viewers do share a low traditional viewing score, in order to uncover the specific levels of the forms of traditional exposure that attenuate cultivation, the distributions of proportional viewing on the traditional television platform, traditional cable or satellite television set viewing, and live broadcast viewing are examined.

For proportional viewing through a traditional cable or satellite provider, all 22 heavy viewers report doing "none" of their viewing this way; for traditional live viewing, approximately 55 percent report doing "none" of their viewing this way, while 45 percent report doing "some" of their viewing this way. For traditional platform viewing, 50 percent do "none" of their viewing this way, 27.7 do "some" of their viewing this way, and 23.3 do "quite a bit" of their viewing this way.

Thus, doing no traditional cable or satellite viewing attenuates the cultivation of first order violence estimates among heavy viewers, relatively low levels of live viewing weakens cultivation, while level of traditional platform viewing does not play as much of a role in weakening the cultivation effect among heavy viewers. It is also important to note that while a

television set is a traditional platform, viewing on a television does not mean that one is viewing in traditional ways.

This is evidenced by the fact that while viewers predominately report viewing on a traditional television over any other platform, they do not report the same high viewing levels for the other forms of traditional viewing. And, while traditional cable or satellite content can be time-shifted using a DVR/Tivo or viewed On Demand, the content itself is still accessed through a traditional provider. And, while live viewing can be done on a computer or laptop, those who report doing "most" of their viewing live all do at least "some" of their viewing on a traditional platform. Thus, it is the content provider and the way that the content is viewed that most strongly differentiates traditional viewing from other styles of viewing. And, it is these characteristics that moderate the process of cultivation, which is further evidenced by the results of the moderation analyses for mean world views.

More specifically, the analysis for the second order mean world outcome reveals that the interaction between overall television viewing and the traditional viewing style results in a significant effect on mean world views (b=.017, p<.05). The moderation analysis further reveals that at low levels of traditional viewing. there is a weak, negative association between television viewing and mean world views (b=-.007, p=.603), while for viewers scoring high on the traditional viewing scale, the relationship between overall viewing is both positive and significant (b=.022, p<.05).

This interaction is further probed by plotting mean world views across levels of exposure and traditional viewing. As shown in Figure 18, there is a crossover interaction between level of television exposure and degree of traditional viewing for mean world views.

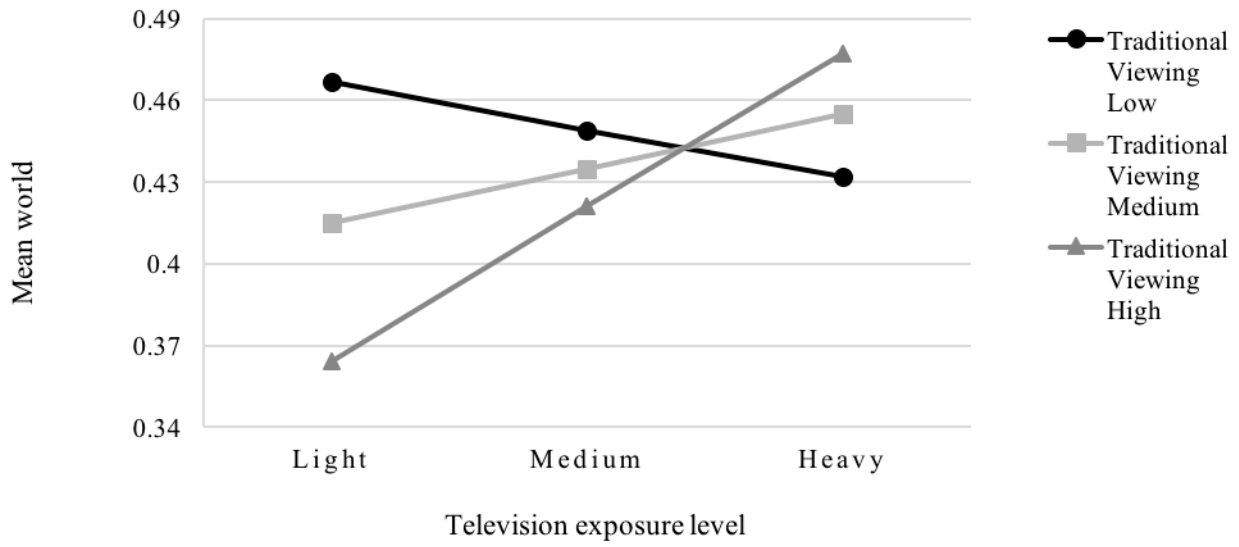

Figure 18. Interaction between television exposure level and degree of traditional viewing style on second order mean world outcome

More specifically, at high levels of traditional viewing, mean world scores are significantly higher for heavy (*M*=.477) than light (*M*=.364) viewers, a difference that is much greater than that found across light (*M*=.432) and heavy (*M*=.451) viewers when traditional viewing is not included in the regression model. Conversely, at low levels of traditional viewing, mean world scores among heavy viewers (*M*=.432) are slightly lower that those reported by light (*M*=.467) viewers. This pattern of conditional effects (significantly higher mean world views among heavy viewers than light viewers at high levels of traditional viewing, and slightly lower mean world scores among heavy than light viewers at low levels of traditional viewing) mirrors those found for live viewing and viewing on a television set through a traditional cable or satellite provider.

The results of this analysis are unsurprising, considering that this pattern of conditional effects does emerge across two of the traditional viewing variables comprising this viewing scale: traditional cable or satellite viewing and traditional live viewing. In fact, even the

Johnson-Neyman region of significance mirrors the one found for traditional cable or satellite viewing. Specifically, overall viewing significantly, positively predicts mean world views for viewers whose traditional viewing scores are in the upper 41.26 percent of the moderator distribution; for traditional cable or satellite use, the region of significance for traditional cable or satellite exposure is 45.19 percent of the distribution.

In addition to offering further evidence to support the position that traditional exposure enhances the cultivation of mean world views, the results of this analysis also support the argument that traditional platform viewing does not play nearly as an important role in the cultivation process. One reason for this is that watching on a television does not mean that one is consuming traditional content; various devices can be used to stream content through a television, thereby providing viewers with a platform on which to watch non-traditional content, as is clear in the case of serious streaming.

Serious Streaming

After exploring the impact of traditional viewing on the cultivation process, the regression analyses focused on the non-traditional serious streaming viewing style. This viewing style reflects the degree to which a viewer is an SVOD time-shifter, and the degree to which they use the following devices to stream content on a television set: gaming console, streaming media device, and Smart TV. First, the analyses reveal the interaction between overall television exposure and serious streaming significantly predicts first order mentally ill perpetrator estimates (b=-.102, p<.10).

Further analyses of the interaction effect reveals that for viewers who score low on the serious streaming scale, there is a positive association between overall exposure and the dependent measure (b=.051, p=.267), whereby greater exposure is related to a greater likelihood

of estimating that 15 percent of violent crime is perpetrated by the mentally ill (the cultivation-consistent estimate). For high levels of serious streaming, on the other hand, heavy overall television exposure is associated with a greater likelihood of estimating that five percent of violent crime is committed by those with mental illness (the real-world estimate). Further, the association between overall viewing and the cultivation outcome is strongest, albeit not significant, for those scoring high on the serious streaming scale (*b*=-.081, p=.185).

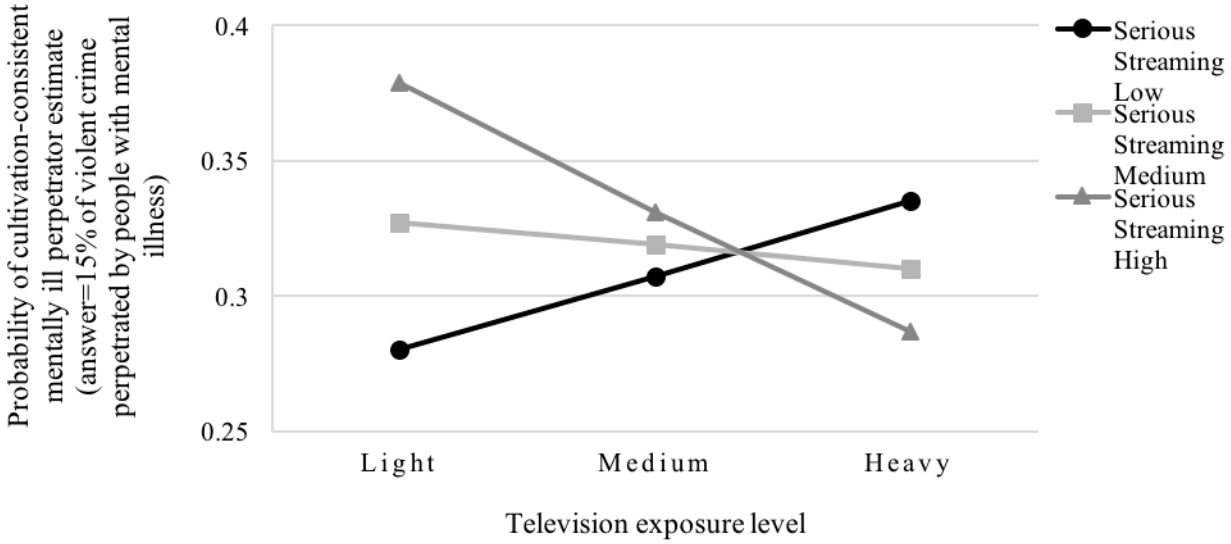

Figure 19. Interaction between television exposure level and degree of serious streaming on first order mentally ill perpetrator estimates

In order to further examine the pattern of conditional effects, proportions of cultivation-consistent estimates of mentally ill perpetrators are plotted across levels of television exposure and serious streaming in Figure 19. As shown above, low levels of serious streaming enhance the cultivation effect, as demonstrated by higher proportional mean of cultivation-consistent estimates of mentally ill perpetrators among heavy (*M*=.335) than light (*M*=.280) viewers. High levels of serious streaming, on the other hand, more strongly impact these cultivation-consistent estimates.

Specifically, for viewers who report high levels of serious streaming, the proportion of cultivation-consistent estimates is drastically lower among heavy viewers than among light viewers. In fact, contrary to the cultivation hypothesis, in which heavy viewing cultivates estimates consistent with the television world, in this case, when serious streaming is high, television viewing predicts estimates consistent with the real world. This finding mirrors the results of the moderation analysis involving SVOD viewing for this cultivation outcome. Specifically, among viewers who do "most" of their viewing through an SVOD provider, overall viewing negatively predicts the cultivation outcome.

And, it is particularly among the highest level of serious streamers, just as is found for SVOD, for whom this negative relationship is significant. This supports the argument that, for those viewers who are replacing their traditional viewing with streaming content and devices, cultivation is reduced. Further, in the case of mentally ill perpetrators, because of this lack of exposure to primetime programming and news in which these negative portrayals of mental illness are most prevalent, streaming instead of traditional viewing is particularly impactful for the cultivation of this specific first order outcome.

In addition to the interaction between television exposure and serious streaming significantly predicting first order estimates of mentally ill perpetrators, for the second order politically moderate ideology outcome, this interaction also results in a significant effect (b=.115, p<.05). Specifically, for viewers who report low degrees of serious streaming, the association between television viewing and moderate political ideology is negative and non-significant (b=-.027, p=.638). For viewers who report high levels of serious streaming, however, the direction of the relationship between overall viewing and moderate political ideology reverses, and the association is stronger (b=.123, p<.05). Specifically, for those who score high

on the serious streaming scale, heavier overall viewing significantly predicts a greater likelihood of identifying with the moderate political ideology.

In order to probe the interaction further, the proportions of viewers reporting a moderate political ideology are plotted across level of television exposure and by level of serious streaming. As displayed in Figure 20, for viewers who report high levels of serious streaming, heavy (M=.235) viewers report significantly higher proportions of moderate political ideology than light viewers (M=.141). This cultivation differential (M_{Heavy}-M_{Light}=.094) is greater than the difference across light and heavy levels of exposure when serious streaming is not accounted for in the regression model (M_{Heavy}-M_{Light}=.068).

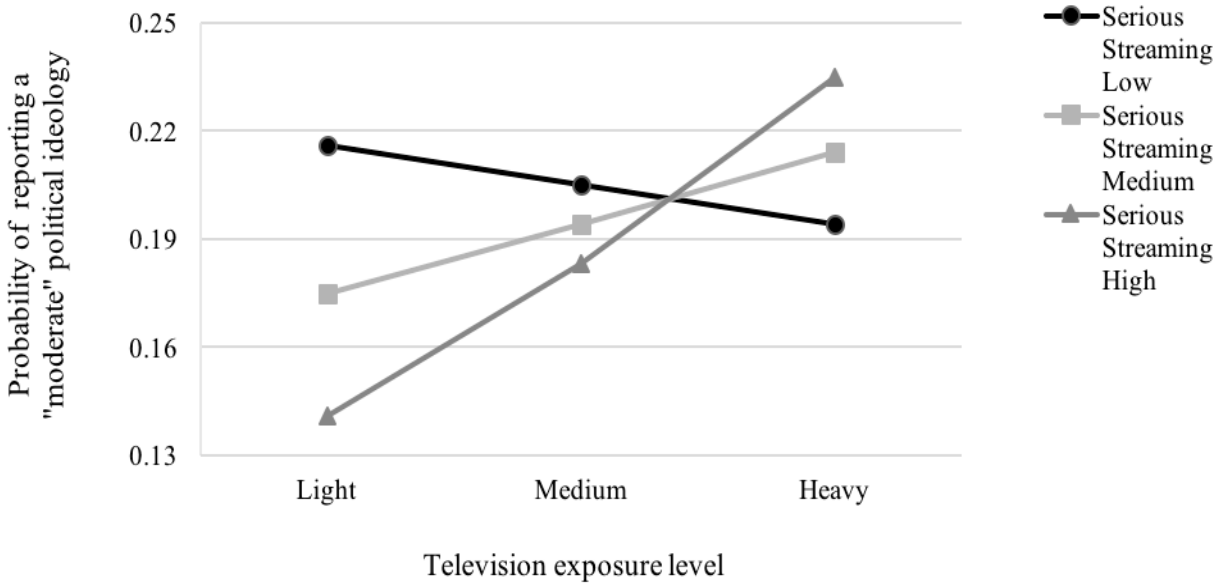

Figure 20. Interaction between television exposure level and degree of serious streaming viewing style on second order "moderate" political ideology outcome

For those who do low levels of serious streaming, however, the proportion of political moderates is lower for heavy than light viewers (M_{Light}-M_{Heavy}=.022). This provides evidence that high serious streaming enhances the cultivation of politically moderate viewpoints. As discussed earlier, this same conditional effect (high levels of the moderating variable

significantly enhancing the cultivation effect) also results for viewers who report high levels of gaming console use when viewing content on a television set. And, the explanation for why high levels of serious streaming reduce the cultivation of mentally ill perpetrator estimates for heavy viewers (limited exposure to news and broadcast network programming limits their exposure to negative portrayals of the mentally ill (Diefenbach & West, 2007)) also explains the pattern of conditional effects for moderate political ideology. Specifically, in the case of political ideology, because serious streamers have limited exposure to broadcast and cable news networks and programming, and particularly the 2016 presidential campaign, high levels of engaging in this viewing style could foster less interest in political issues and the electoral process, and enhance the cultivation of moderate political views.

Traditional Shifting

The next set of regression analyses explored the impact of the traditional shifting viewing style on the cultivation process. The results of the regression analyses indicate that traditional shifting does not significantly moderate the relationship between overall viewing and any of the cultivation outcomes. This is most likely due to the fact that the two items comprising this scale do not moderate the same cultivation outcome, nor produce the same pattern of conditional effects, and because of this variance in findings, no cohesive patterns result when these items are analyzed as a combined scale.

Viewing on the Go

As discussed earlier, through its interaction with overall television exposure, the new media viewing style of serious streaming predicts first order mentally ill perpetrator estimates and the second order outcome of politically moderate ideology. The other highly modern

viewing style of viewing on the go, on the other hand, is not a significant moderator of any of the cultivation outcomes measured in this study.

This lack of significance is unsurprising for several reasons. First, this scale is not significantly associated with overall viewing, nor are there significant differences in the scores on this viewing scale across light and heavy levels of viewing. Second, only two of the items comprising this scale (laptop and tablet viewing) significantly moderate the cultivation process, and even for these two items, neither significantly moderate the same cultivation outcome. Third, as stated earlier, free online viewing (another item comprising this scale) is one of the few forms of exposure that does not vary across level of exposure. And, because the form of content viewed varies greatly from network shows to user-generated content, there is no consistent pattern of viewing that emerges for this form of time-shifting.

Summarizing the Impact of Viewing Styles

Overall, the analyses reveal that only the degree to which a viewer reports being a traditional viewer and serious streamer impacts the relationship between amount of overall television exposure and first and second order cultivation outcomes. Of the 32 regression analyses conducted for viewing style, only four resulted in significant interactions. The results of the significant interaction analyses do reinforce the patterns of conditional effects already established for the cultivation outcomes involving several of the moderators comprising these two viewing scales.

More specifically, high levels of traditional viewing enhance the magnitude of the cultivation effect for first order estimates of violence, mirroring the results for the moderating effect of television set viewing through a traditional cable or satellite provider. Further, the interaction analyses for mean world produce patterns of conditional effects for traditional

viewing similar to those found for two of the variables comprising the scale (live viewing and traditional cable or satellite television set viewing). Specifically, all three of the interaction analyses (traditional viewing style, live viewing and traditional cable or satellite television set viewing) reveal that high levels of traditional exposure enhance the cultivation of mean world views, with heavy viewers reporting significantly higher levels of mean world beliefs than their light viewing counterparts.

The results of the serious streaming analyses demonstrate that replacing traditional viewing with high levels of streaming content and device use significantly impacts the cultivation process. Specifically, while initially it seems that the patterns of conditional effects found for first order estimates of mentally ill perpetrators and moderate political ideology contradict one another, when considered in light of the nature of traditional television content exposure, and the ways in which limited exposure to traditional content may impact these specific cultivation outcomes, these results are logically consistent. Specifically, negative portrayals of mental illness (i.e., that these individuals are violent and dangerous) are presented most frequently in news and broadcast programming.

High serious streaming heavy viewers, who are replacing their traditional viewing with new forms of exposure, are consequently limiting their exposure to this very content, thereby reducing the likelihood that they will provide estimates of the mentally ill that coincide with the portrayals on traditional programming. For moderate political ideology, on the other hand, high serious streaming heavy viewers who have limited access to traditional broadcast and cable news networks and programs are thus limiting their exposure to much of the polarizing political commentary and divisive, disparate and extreme political viewpoints portrayed in mainstream media content, and thus this may foster more politically moderate, and less extreme, views.

The lack of cohesion in the results, as well as the lack of significant findings involving the moderation analyses for the items comprising the other two viewing style scales underscore the fact that many of the individual exposure variables just do not impact the cultivation process, and even when there is evidence of significant moderation, the patterns of conditional effects may not align in wholly consistent ways. This is most evident for the two items comprising the traditional shifting scale. While cable or satellite On Demand viewing may correlate strongly with DVR/Tivo use, this does not mean that they are used in the same ways by light and heavy viewers, nor that they will produce similar patterns of conditional effects, or even impact the same cultivation outcome.

While at first it seems that high levels of both should enhance cultivation because they offer broadcast and cable television content, there are distinctive qualities of On Demand viewing that may explain its differential impact on the cultivation process. First, while DVR or Tivo devices provide viewers with the opportunity to set recordings for their favorite programs or for a show or movie they do not want to miss, it is more of a directed activity in which they are aware beforehand what they want to watch at a more convenient time.

When viewing On Demand, however, viewers are able to search for what kind of program they are in the mood for from a wide variety of genres, channels, movies and programs that they may not have been aware of before they began their search. Cable or satellite On Demand presents viewers with more options than any SVOD service, and gives viewers the opportunity to choose content they may not have known was available prior to searching the viewer library (Nielsen, 2016, April).

Thus, when On Demand viewing is not used at all, or perhaps used to supplement or complement traditional live viewing or DVR/Tivo viewing, cultivation is enhanced or

maintained for heavy viewers. However, when viewers replace more traditional viewing, and do most of their viewing On Demand, they are likely accessing content that differs from what they would watch live or on the DVR. Perhaps these portrayals veer from those in typical broadcast content, or perhaps these viewers, who only represent approximately three percent of the sample, only consume a specific genre or type of content.

Finally, for the reasons stated previously, the lack of impact of viewing on the go on the cultivation process is unsurprising. Due to the wide variation in free online viewing content, it is particularly hard to discern any consistent pattern to which exposure to this content may impact the cultivation process. And, most importantly, as will be emphasized in the discussion of platform diversity next, the impact of platform exposure (comprising the other three items of this scale) on the cultivation process is the least significant of all forms of exposure measured in this study.

Viewing Diversity: Impact on Cultivation

For today's viewers, the television environment offers a seemingly endless variety of choices. In this study, different forms of viewing diversity were measured, and the impact of these forms of viewing diversity on the cultivation of first and second order outcomes is analyzed. In particular, diversity of platform use, time shifting strategies, and ways of viewing on an actual television set are explored; further, in order to represent the diversity in choice of content available today, genre diversity is also examined. This measure of diversity represents the degree to which a viewer consumes specific and singular content or consumes a little (or a lot) of everything. Thus, in addition to exploring how relative exposure across different

platforms, devices, and viewing practices impacts these outcomes, this study also addresses the following research question:

> Research Question 12: How does diversity in platform use, ways of viewing on a television set, time-shifting, and genre exposure impact the cultivation process?

As described in Chapter 3, in order to address this research question, each platform, way of viewing on a television set, and form of time-shifting was binary-coded, with "0" representing a response of "None of My Viewing" and "1" representing all other responses. Indices of platform, television set viewing, and time-shifting were then created from the summation of the binary-coded items. Therefore, rather than measuring the degree of exposure done across these forms of television viewing, the diversity indices simply represent the number of different platforms, devices, and ways of time-shifting that viewers use when watching television.

The genre diversity index was created in the same way. Specifically, for each of the 15 genres listed, responses were binary-coded to reflect whether the viewer did or did not watch the given genre ("Never" was recoded as "0" and all other responses on the frequency scale were recoded to "1"); these binary-coded responses were then summed to create the index. Thus, instead of measuring the relative frequency of viewing each genre, the genre diversity index is a measure of the total number of different genres watched by the viewer.

Discussed earlier in this chapter, the partial (but not the zero-order) correlational analyses reveal that there is a significant, positive association between overall viewing and platform diversity (r(partial)=.114, p<.05). Further, for all other forms of viewing diversity—time-shifting (r(partial)=.150, p<.001), television set viewing (r(partial)=.171, p<.001), genre (r(partial)=.318, p<.001) —these positive associations with overall exposure are highly

significant. Thus, the greater the amount of time that viewers spend watching television on an average day, the more platforms the viewer uses when watching television, the more genres the viewer reports watching, the more forms of time-shifting the viewer reports using, and the greater the number of devices/ways that the viewer reports using to watch content on a television set.

While these associations do indicate a linear relationship between overall exposure and the various forms of viewing diversity, when examining mean overall exposure across level of exposure and across number of platforms, forms of time-shifting, and television set viewing devices viewers report using, important details emerge. More specifically, for time-shifting, among heavy viewers, those who report using no forms of time-shifting (thereby only viewing live) report average daily viewing that is much higher (M=8.18, SD=3.54) than that reported for the average heavy viewer overall (M=6.48, SD=2.38). Next, while those who time-shift in one (M=6.52, SD=2.59) or two (M=6.62, SD=2.40) ways report their amount of exposure as slightly higher than the average heavy viewer, those who time-shift in three (M=6.12, SD=1.74) or four (M=6.41, SD=2.82) ways report exposure slightly lower than the average heavy viewer.

For light viewers, however, those who do not time-shift at all report far lower overall viewing (M=0.95, SD=0.84) than the average light viewer (M=1.44, SD=0.80); the greater the number of ways the viewer reports time-shifting, the greater the average exposure, with light viewers who time-shift in two or more ways reporting higher average viewing than the average light viewer. Thus, for time-shifting, within viewing subgroups, the relationship between overall exposure and time-shifting indicated by the association is only reflected among light viewers.

For platform diversity, among heavy viewers, those who are not diverse at all and those who use all five platforms report approximately seven hours of viewing per day, which is higher

than the average heavy viewer. Conversely, those who use three platforms view approximately six hours, which is less than the average heavy viewer. And, those who use two or four platforms report hours of viewing approximating that of the average heavy viewer. For light viewers, those who report using either four or five platforms report higher viewing than the average light viewer, while those who use three or less platforms all report viewing approximating the mean hours of viewing for light viewers. Thus, the positive association between overall exposure and number of platforms used to watch television only is reflected within the light viewing subgroup.

For television-set viewing diversity, among heavy viewers, those who report not viewing on a television through any of the ways measured in this study (n=12) report average viewing that is less than the mean for heavy viewers overall (*M*=5.79, *SD*=1.33), while those who report using only one form of television set viewing (*M*=7.12, *SD*=3.42) report higher overall viewing than the average heavy viewer. Among the heavy viewers who report only one form of television viewing, approximately 75 percent report that they view through a traditional cable or satellite provider. Heavy viewers who report using all television set viewing devices (n=10) report viewing lower (*M*=5.81, *SD*=1.52) than the average heavy viewer, whereas those who use four out of five television set viewing devices report higher viewing (*M*=6.78, *SD*=1.61) than the average heavy viewer. Finally, heavy viewers who use two (*M*=6.21, *SD*=2.00) or three devices (*M*=6.40, *SD*=2.27) report hours of viewing slightly lower than the sample mean.

When looking at the demographic characteristics (presented earlier in Table 6) associated with forms of viewing diversity, it is platform diversity that is significantly correlated with the greatest number of demographic variables. Specifically, greater platform diversity is significantly, positively associated with gender (male) and all three racial minority variables

(Black, Asian, Hispanic), and significantly, negatively associated with age with the White race variable. Thus, in this sample, being younger, male and identifying as Hispanic, Black or Asian is associated with greater variety in platform exposure, while being older, female, and White is associated with less diverse platform exposure.

Diversity in television set viewing is also significantly associated with age and gender; these associations are positive, indicating that similar to platform diversity, males are more diverse in their viewing. However, unlike platform diversity, in this sample, the older participants are, the more television set viewing devices they report using. Genre diversity is not significantly correlated with any demographic measures, and residing in an urban center is the only demographic variable significantly associated with diversity in time-shifting. The direction of this association indicates that living outside of a city is related to greater diversity in time-shifted viewing.

In order to address the research question, the same approach used to examine the impact of new and traditional platforms, ways of viewing on a television set, live and time-shifted viewing, and viewing styles on the cultivation process is employed. Specifically, in this approach, regression analyses are conducted to assess whether differences in cultivation outcomes exist in relation to how diverse viewers reported being in terms of platform exposure, ways of viewing on a television set, time-shifting and genre exposure. This section focuses on how the interactions among television exposure and forms of viewing diversity cultivate first order societal estimates and second order attitudes and beliefs. The unstandardized regression coefficients for diversity x overall exposure interactions are reported in Table 16.

Table 16. Unstandardized regression coefficients of diversity x television exposure interactions for all cultivation outcomes

	b (diversity x television viewing) interactions			
	Platform x television viewing	Time shifting x television viewing	TV set viewing x television viewing	Genre x television viewing
Violence estimates	-.004	.023	.085***	.030***
Law enforcement estimates	-.034	-.044	-.001	-.002
Violent crime estimates	.004	-.036	-.011	-.001
Murder-victim relationship estimates	.034	-.009	-.007	.017
Mentally ill perpetrators estimates	-.017	-.078**	-.024	.003
Sexism	-.001	.004	-.004	-.001
Mean world	-.009	-.003	.002	-.009
Moderate political ideology	.052	.040	.069*	.001

Note. Analyses controlled for the following variables: age, gender (male), race (Black), race (White), education, residence (urban), political ideology. For moderate political ideology, the analysis did not control for political ideology*p<.10, **p<.05, ***p<.010, ****p<.001

Platform Diversity

Of all forms of diversity measured in this study, the regression analyses reveal that platform diversity is the only form that does not significantly moderate the relationship between overall television exposure and any of the cultivation outcomes. This is unsurprising for several reasons. First, looking back at the impact of platform exposure on the cultivation process, there is only valid evidence that two of the platforms impact the cultivation process. While traditional live viewing and traditional cable or satellite viewing moderate cultivation, traditional platform viewing does not significantly moderate the cultivation process. While tablet viewing does moderate a first order cultivation outcome, the conditional effects of the moderator are only significant for a small proportion of viewers in this sample.

The lack of significant findings for platform viewing, and consequently platform diversity, reinforces that platform viewing in and of itself does not strongly impact the cultivation process. Rather, it is how viewers are using the platform, and how that use supplements, augments, replaces or reduces their overall exposure, and particularly their exposure to traditional mainstream portrayals of the television world, that impacts the process of cultivation.

Time-Shifting Diversity

Unlike the results of the regression analyses for platform diversity, the analyses for time-shifting diversity reveal that the interaction between degree of time-shifting diversity and amount of overall television exposure significantly predicts one of the cultivation outcomes. More specifically, the interaction predicts first order estimates of mentally ill perpetrators (b=-.078, p<.05). The moderation analyses reveal that for those who report low levels of time-shifting diversity, there is a positive, non-significant association between overall exposure and cultivation-consistent estimates (b=.068, p=.176), while among highly diverse time-shifters, overall exposure is negatively related cultivation-consistent estimates (b=-.098, p=.123).

The conditional effects for the probability of cultivation-consistent mentally ill perpetrator estimates across levels of television exposure as a function of levels of diversity in time-shifting are plotted in Figure 21. As displayed here, there is a clear crossover interaction between level of television exposure and degree of time-shifting diversity for this first order estimate. Specifically, in this crossover interaction, low levels of time-shifting diversity enhance the cultivation effect, as demonstrated by the higher proportion of cultivation-consistent estimates at heavy (M=.363) than light (M=.286) levels of television exposure. Conversely, the

proportional mean of cultivation-consistent estimates is higher among light (*M*=.378) than heavy (*M*=.271) viewers who are highly diverse time-shifters.

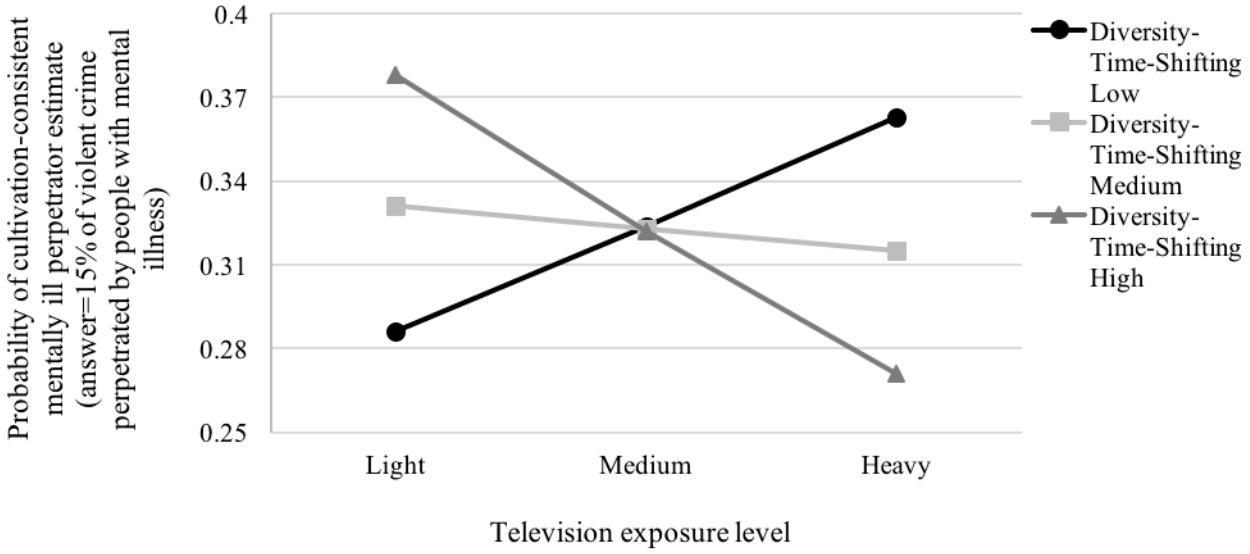

Figure 21. Interaction between television exposure level and degree of time shifting diversity on first order mentally ill perpetrator estimates

While the pick-a-point procedure reveals the general pattern of conditional effects that are depicted above, none of these conditional effects are significant. In order to more precisely determine at which values of time-shifting diversity there is a significant relationship between overall exposure and mentally ill perpetrator estimates, the Johnson-Neyman regions of significance are calculated. These calculations reveal that for those who report using no forms of time-shifting at all, there is a significant, positive relationship between overall viewing and cultivation-consistent estimates of mentally ill perpetrators. Thus, it is heavy viewers that only watch traditional live broadcast television who report the greatest proportion of cultivation-consistent estimates.

As stated previously, heavy viewers who do not time-shift at all report overall exposure that exceeds the mean amount of television viewing reported by the average heavy viewer; these

heavy viewers are not only simply exposing themselves to more traditional content than highly diverse time-shifters, they are exposing themselves to more hours of this content than the average heavy viewer. Conversely, the Johnson-Neyman procedure indicates that at the highest level of time-shifting diversity, there is a negative relationship between overall exposure and the first order outcome. Thus, when time-shifting replaces traditional live viewing, the cultivation of mentally ill perpetrators is attenuated.

Time-shifting diversity is one of three significant moderators for this cultivation outcome. Degree of viewing time-shifted through SVOD (refer to Table 14) and degree of serious streaming (refer to Table 15) both significantly moderate the relationship between television viewing and cultivation-consistent estimates of mentally ill perpetrators. All three of these interaction analyses reveal that at low levels of each of these moderators, the magnitude of the cultivation effect is enhanced, while at high levels, cultivation is attenuated for heavy viewers. Because SVOD, in each of the analyses for which it is tested (as a sole moderator and as part of the viewing style scale and time-shifting diversity) significantly moderates this cultivation outcome, taken together, the results indicate that SVOD in particular most strongly impacts the cultivation of mentally ill perpetrator estimates.

Altogether, the evidence suggests that serious streaming, time-shifting, and particularly, SVOD viewing at such high levels attenuates the cultivation of mentally ill perpetrator estimates. Heavy viewers that are replacing their traditional viewing with these new forms of viewing are limiting their exposure to the negative portrayals of mental illness most prevalently featured on mainstream primetime network programming and on broadcast and cable news networks and television programs; their relatively low exposure to these portrayals could foster less negative perceptions of the mentally ill. Conversely, as is evident particularly in the case of time-shifting

diversity, solely viewing traditionally live and not time-shifting at all enhances cultivation; perhaps it is because of their relatively greater exposure to traditional content that more frequently portrays mentally ill individuals as violent and dangerous that informs their negative perceptions of mental illness.

Television Set Viewing Diversity

The regression analyses for the next form of diversity—ways of viewing on a television set—reveal that the interaction between this form of viewing diversity and overall exposure significantly predicts first order estimates of violence (b=.085, p<.01). This significant interaction indicates that, at varying levels of diversity for ways of viewing on a television set, different patterns in the relationship between the independent variable and the dependent measure emerge.

Specifically, the pick-a-point analysis reveals that for viewers who report low television viewing diversity (one standard deviation below the mean), the relationship between television viewing and the cultivation-consistent estimate is positive and non-significant (b=.051, p=.324); however, at relatively high levels of diversity (one standard deviation above the mean), this relationship is positive and highly significant (b=.267, p<.001). While the beta-values demonstrate the direction and levels of significance for the conditional effects, looking at the proportional means of violence estimates across levels of television exposure and diversity of ways of viewing on a television set allow further insight into this interaction.

As shown in Figure 22, higher diversity in ways of viewing on television enhances the already significant cultivation effect, as demonstrated by the greater cultivation differential at high levels of diversity (M_{Heavy}-M_{Light} =.278) compared to the cultivation differential across levels of exposure when the moderator is not included in the regression model (M_{Heavy}-M_{Light}

=.165). Conversely, low levels of diversity weaken the cultivation effect, as demonstrated by the smaller cultivation differential found at low levels of television set viewing diversity (M_{Heavy}-M_{Light} =.052) than that found across levels of exposure when the moderator is not included in the regression model (M_{Heavy}-M_{Light} =.165).

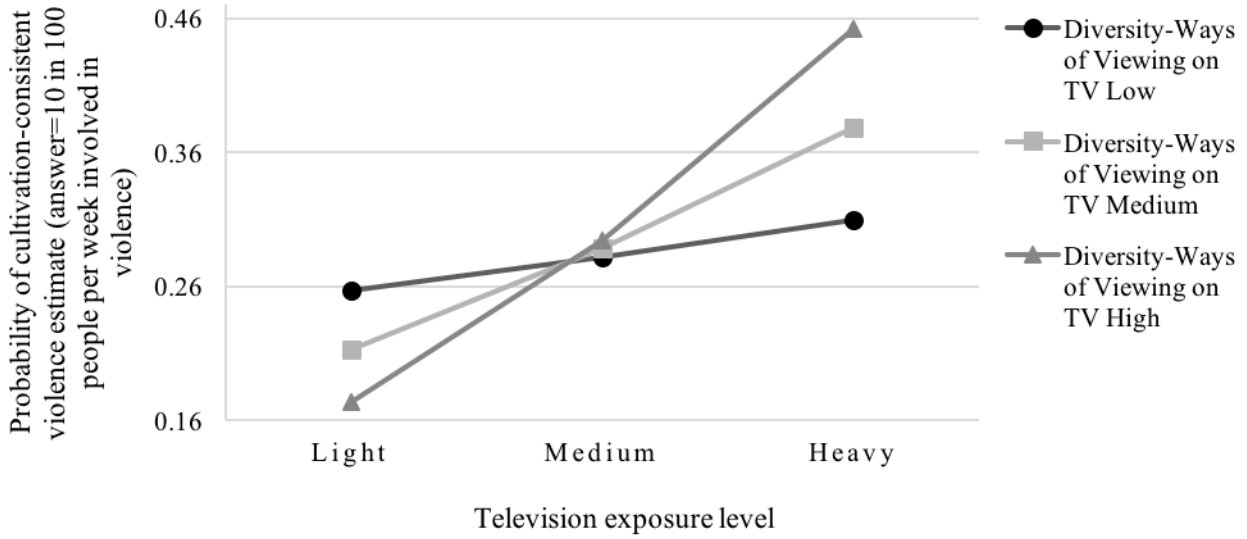

Figure 22. Interaction between television exposure level and degree of ways of viewing on a TV diversity on first order violence estimates

Specifically, the Johnson-Neyman region of significance indicates that the cultivation effect is not significant for those who report no television set viewing diversity (not viewing on a television set in any way). Among all light and heavy viewers, the lowest proportion of cultivation-consistent estimates of violence are reported by heavy viewers who do no television set viewing (8.3%). Conversely, light viewers who report no forms of television set viewing diversity report more than five times this proportion (42.3%). In reporting no television set viewing, these viewers are reporting no traditional cable or satellite viewing, which is also found to attenuate cultivation among heavy viewers.

Also, while none of the other forms of television set viewing are found to significantly moderate the cultivation of violence estimates, the interaction between overall viewing and viewing on each device positively predicts this cultivation outcome. Further, while also non-significant, the interactions between overall exposure and all television viewing styles other than viewing on the go positively predict this cultivation outcome.

Conversely, while the interaction between overall exposure and laptop viewing is the only interaction that significantly, negatively predicts the cultivation outcome, the interactions among overall exposure and tablet viewing, free online viewing, and viewing on the go all negatively predict cultivation consistent estimates of violence. Taken together, all of this evidence suggests that only when a viewer is engaging in high levels of viewing that replace viewing on a television set, and particularly replacing viewing in traditional ways on a television set, is heavier overall exposure not significantly associated with higher proportions of cultivation-consistent estimates of violence.

Next, the regression analyses also reveal that degree of television set viewing diversity significantly enhances the power of the predictive model for the second order outcome of moderate political ideology. Specifically, the interaction between degree of television set viewing diversity and overall television exposure is a significant predictor of this second order outcome (b=.069, p<.10). For television viewers who report low (b=-.060 p=.363) television set viewing diversity, the relationship between television viewing and moderate political ideology is negative and non-significant, indicating that for these viewers, greater overall exposure is weakly associated with a lower likelihood of this outcome.

Inversely, for viewers whose television set viewing diversity is one standard deviation above the mean, the relationship between television viewing is positive (b=.117, p<.10) and

significant; thereby indicating that for viewers who watch on a television using many different television set viewing devices, heavier overall exposure is associated with a greater likelihood of identifying as politically moderate. To further explore this interaction, presented in Figure 23, proportional means of viewers categorized as reporting a moderate political ideology are plotted across levels of television exposure as a function of relative levels of television set viewing diversity.

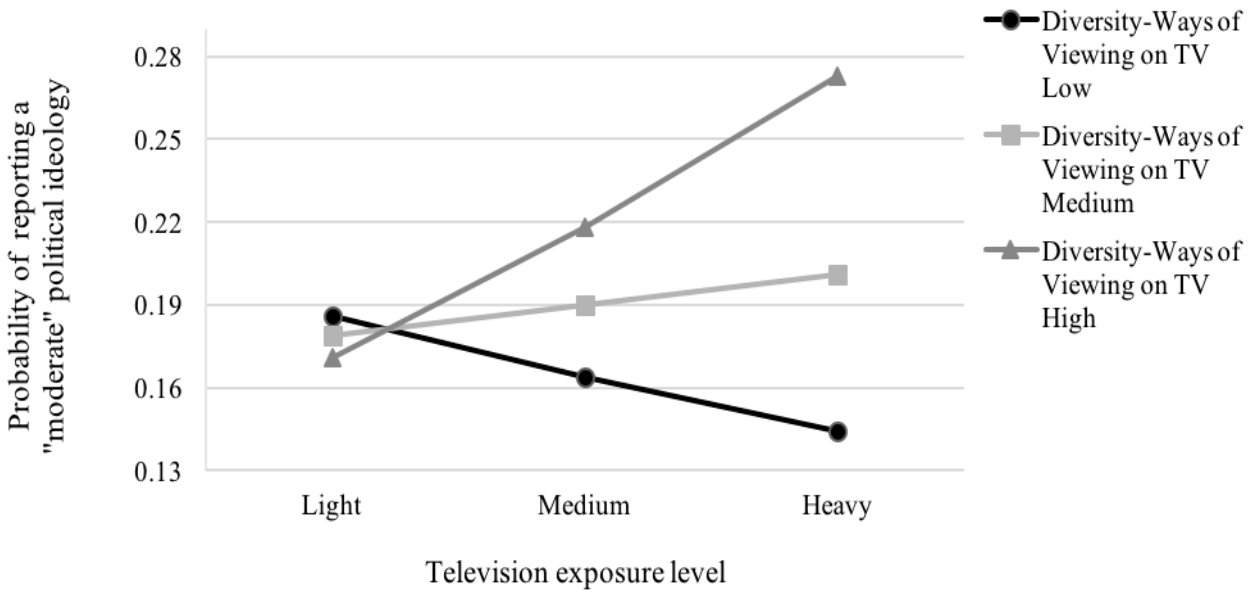

Figure 23. Interaction between television exposure level and degree of ways of viewing on a TV diversity on second order moderate political ideology

As shown here, relatively higher degrees of television set viewing diversity enhance the cultivation effect, as there is the largest difference between light and heavy viewers' reported identification with moderate political ideology at this level. Specifically, light viewers who report higher levels of diversity report the lowest politically moderate attitudes (M=.171), and heavy viewers who are highly diverse are the most moderate politically (M=.273). This cultivation differential is significant (M_{Heavy}-M_{Light}=.098, p<.10), and is larger than the cultivation differential when television set viewing diversity is not in the regression model (M_{Heavy}-

M_{Light}=.068). Additionally, as displayed in the interaction plot, level of viewing diversity has virtually no impact on the cultivation of politically moderate ideology among light viewers, as demonstrated by the negligible difference in the cultivation outcome between lower and higher levels of diversity (M_{Low}-M_{High}=.015). Among heavy viewers, however, the proportion of political moderates varies substantially as a function of level of television set viewing diversity (M_{High}-M_{Low}=.129).

The Johnson-Neyman region of significance further specifies this interaction, revealing that it is for those reporting that they use at least four television set viewing devices (14.34% of the sample) that overall exposure is significantly associated with politically moderate ideology. When television set viewing diversity is so high, even if they are supplementing their traditional cable or satellite viewing, heavy viewers are doing greater proportions of viewing streaming through various devices. Unlike the findings for violence estimates, the interactions between overall exposure and all forms of television set viewing diversity do not positively predict politically moderate ideology. In fact, while the interactions among the new forms of television set viewing and overall exposure positively predict this cultivation outcome, the interaction between overall exposure and traditional cable and satellite viewing negatively predicts politically moderate ideology.

Thus, the results of the moderation analysis for television set viewing diversity reflects these findings, with viewers who report using multiple streaming devices, and consequently not doing the largest share of their viewing traditionally, reporting proportionally higher degrees of politically moderate ideology. Additionally, among heavy viewers, approximately three-quarters of viewers who report viewing on a television set in only a single way report that they are viewing through a traditional cable or satellite provider; among these heavy viewers, the

proportion identifying as politically moderate is substantially lower (13.1%) than when viewing is also done on, or replaced by, viewing on new television set viewing devices. At higher levels of diversity among heavy viewers, proportions of political moderates range from 20.1 to 30.0 percent. Thus, when viewers are solely viewing traditional broadcast or cable content they are more likely to affiliate with a specific political ideology.

This pattern of conditional effects (high levels enhancing moderate political ideology, while low levels reduce the cultivation effect among heavy viewers) reflects that found for politically moderate ideology for both serious streaming and gaming console viewing. High levels of these moderators may enhance the cultivation of political ideology because their high levels of streaming limit their engagement with traditional television broadcast and cable political news. Or, their ownership of so many devices means that in addition to many hours of television viewing, these heavy viewers also are heavy media consumers in general (i.e., use their gaming console to play video games, streaming music from their streaming media device, etc.) and their media diet limits the amount of time they spend consuming news and political commentary. Whatever the exact explanation may be, taken together, these results indicate that high use of new streaming-enabled television set viewing devices enhances the cultivation of political ideology, while only watching traditionally attenuates cultivation.

Genre Diversity

Finally, the regression analyses for genre diversity reveal that the interaction between genre diversity and overall exposure also significantly predicts first order estimates of violence (b=.030, p<.01). The interaction analyses reveal that for viewers who report average (b=.147, p<.001) and high (b=.254, p<.001) levels of genre diversity, the associations between overall exposure and cultivation-consistent estimates of violence are positive and highly significant. At

low levels of genre diversity, however, the relationship between television viewing and cultivation-consistent estimates of violence is non-significant (*b*=.040, p=.479). These results mirror the direction and magnitude of conditional effects for first order estimates of violence at levels of diversity of ways of viewing on a television set, traditional cable or satellite viewing, and the traditional viewing style.

The conditional effects are further explored in the interaction plot of the proportions of cultivation-consistent estimates of violence across levels of exposure and genre diversity in Figure 24. This interaction plot also allows for direct comparison to the interaction plot for this first order outcome as a function of television viewing and television set viewing diversity. As is clearly evident when comparing the interaction plots depicted in Figures 22 and 24, the results of the interaction analyses for first order estimates of violence are very similar for degree of diversity in ways of viewing on a television set and diversity in genre exposure.

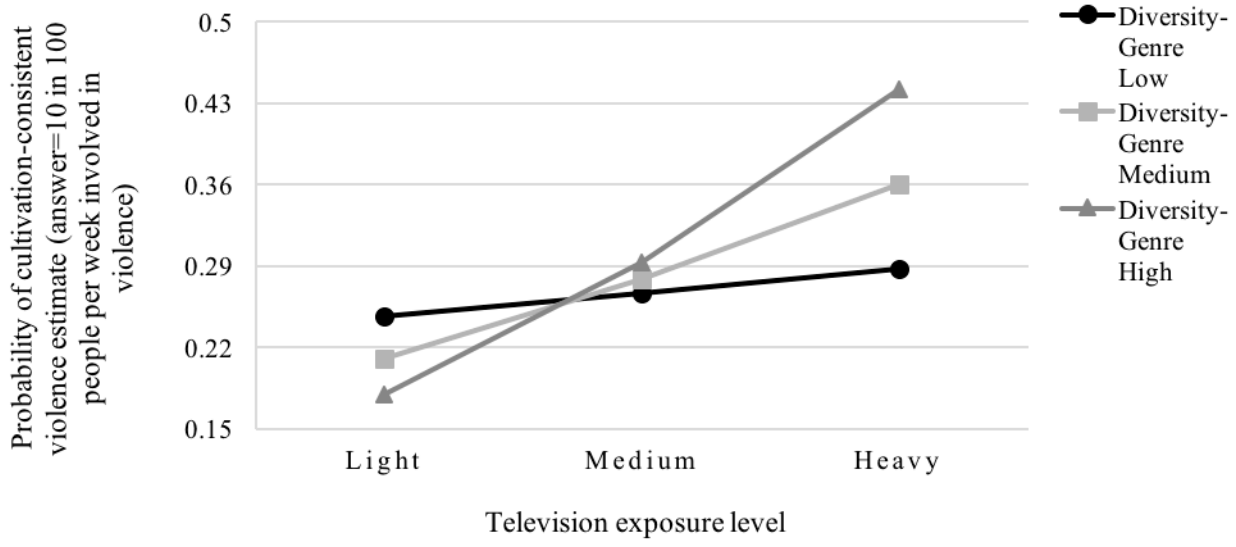

Figure 24. Interaction between television exposure level and degree of genre diversity on first order violence estimates

High degrees of diversity for both significantly enhance the already significant cultivation effect, as demonstrated by the cultivation differentials for high diversity in television set viewing (M_{Heavy}-M_{Light} =.278) and high genre diversity (M_{Heavy}-M_{Light} =.263). Conversely, low diversity for both of these moderating variables weakens the magnitude of the cultivation effect so that the cultivation differentials at low levels of diversity in television set viewing (M_{Heavy}-M_{Light} =.052) and genre diversity (M_{Heavy}-M_{Light} =.040) are no longer significant.

In probing this interaction further, the Johnson-Neyman region of significance indicates that the relationship between overall exposure and cultivation-consistent estimates of violence is enhanced for those who view more than seven different television genres. For those who view seven or less, the proportion of cultivation-consistent estimates reported among heavy viewers is 26.9 percent, which is commensurate with that reported among light viewers who watch seven or less genres (25.6%), but more than 20 percent less than the proportion reported for heavy viewers who watch more than seven genres.

While there is a large difference across those watching seven or less and those watching more than seven genres among heavy viewers, among light viewers, the proportion of cultivation-consistent estimates of violence is only slightly higher (approximately five percent) for those watching more than seven genres than those watching seven or less genres. Thus, for light viewers, who are more selective to begin with, genre diversity does not significantly impact the cultivation of violence estimates. For heavy viewers, however, highly selective genre viewing (as indicated by low levels of genre diversity) attenuates the cultivation of this first order outcome. Overall, then, these results indicate that when viewers narrow the scope of their consumption to only specific content types and portrayals, the cultivation of violence estimates is attenuated.

While new television technologies offer viewers the opportunity to be more selective and provide access to tailored and niche content, simply using different devices some of the time does not in and of itself threaten cultivation. Moreover, when viewers use new technologies to supplement their more traditional television viewing, they may be watching the same things they always watch, just at a more convenient time. When this is done, as demonstrated by the significant interaction for television set viewing diversity and the positive (although non-significant) interactions for relative exposure of viewing on each television set viewing device, cultivation is maintained or even enhanced for heavy viewers. It is when viewers use new television technologies to narrow the scope of their exposure, and selectively view few genres (as demonstrated in the results of the genre diversity analysis) that certain cultivation outcomes may be attenuated.

Summarizing the Impact of Viewing Diversity

As described above, the regression analyses reveal that only three of the forms of viewing diversity (time-shifting diversity, television set viewing diversity, and genre diversity) significantly moderate the relationship between overall television exposure and a cultivation outcome. Overall, only four of the 32 regression analyses resulted in a significant interaction effect on a cultivation outcome.

The regression analyses first determined that two of the diversity measures (television set viewing diversity and genre diversity) significantly moderate the relationship between first order estimates of violence and overall exposure. Interaction analyses for this first order outcome further reveal that there are nearly identical patterns of conditional effects for both of these diversity moderators. Specifically, at high levels of both forms of diversity, the already significant cultivation effect is substantially enhanced. Conversely, for viewers who report low

levels of television set viewing and genre diversity, the cultivation effect is weaker and no longer significant. This is evidenced by the drastically smaller values of the cultivation differentials when both forms of viewing diversity are at their lowest levels.

As described previously, this same significant pattern of conditional effects is also found for first order estimates of violence across levels of two other moderators: the traditional viewing style and television set viewing through a traditional cable or satellite provider. That this same pattern of conditional effects is found within each pair of conceptually related moderators (i.e., two traditional forms of exposure and two forms of viewing diversity) is unsurprising, nor is it is surprising that genre diversity impacts cultivation in a similar way as traditional viewing. For, traditional primetime programming offerings on just the three major networks represent at least eight genres on a nightly basis, so the traditional live cable or satellite viewer on any given night would be exposed to drama, sports, comedy, crime drama, action-adventure, reality, news, informational, and newsmagazine programs.

However, the finding that the same pattern of conditional effects exists across traditional viewing and viewing on non-traditional devices (television set viewing diversity) does not initially seem logically consistent. It is only when these interactions are further probed, and considered in light of the other significant moderator for this cultivation outcome (laptop viewing) that this logical consistency is revealed. Specifically, television is a strong independent, significant, positive predictor of cultivation-consistent estimates of violence; it is only when heavy viewers are not doing any form traditional viewing that this relationship is not significant. When viewers are replacing their traditional television platform viewing with doing the majority of their viewing on a laptop, cultivation is attenuated, and when viewers are not viewing on a television set through a cable or satellite provider at all (as indicated by the

moderation analyses for both traditional cable or satellite viewing and television set viewing diversity), cultivation is also weakened.

While the television platform itself does not significantly interact with overall exposure in the regression model for this outcome, just as is found for cable or satellite television set viewing, doing no viewing on this traditional platform weakens the cultivation effect substantially so that it is no longer a significant predictor (p=.738), while cultivation is maintained at average and high levels of traditional platform viewing.

Thus, in the case of this cultivation outcome, television set viewing diversity is strongly related to whether a person views on a traditional television platform. While over 80 percent of heavy viewers who report no diversity do not view on a television platform at all, among those who report high television diversity (using three or more devices), 100 percent report viewing on a traditional television platform. Thus, as long as viewers are not replacing viewing on a television set with viewing in ways that represent the greatest departure from traditional viewing (i.e., no television platform viewing, no cable or satellite viewing, viewing limited genres, mostly laptop viewing), overall television viewing will still significantly predict first order estimates of violence.

Next, as described earlier, the analysis of conditional effects for mentally ill perpetrator estimates at levels of time-shifting diversity demonstrate that at low levels of this moderator, the cultivation effect is enhanced, while at high levels of this moderator, overall exposure is negatively associated with the cultivation outcome. Looking back at the conditional effects for mentally ill perpetrator estimates across levels of other significant moderators, this same pattern is found.

Specifically, at low levels of SVOD viewing, serious streaming, and streaming media device use, the cultivation effect is also enhanced, with cultivation-consistent estimates higher among heavy than light viewers. Conversely, at high levels, cultivation-consistent estimates are lower at heavy than at light levels of overall exposure. As this same pattern is found for the moderators of time-shifting diversity, SVOD viewing, serious streaming, and streaming media device use, it appears that this pattern of conditional effects is specific to conceptually related forms of non-traditional television exposure. For all of these moderators, further probing reveals that it is at the very highest levels of engaging in these new forms of exposure that overall viewing is a significant, negative predictor of the cultivation outcome. Thus, it is when heavy viewers are replacing their traditional viewing with time-shifted and streaming content exposure that cultivation is significantly impacted.

As stated previously, the negative portrayals of the mentally ill that would most likely cultivate the perception that the mentally ill are dangerous and disproportionally engage in criminal behavior are most frequently featured in news and primetime network programming (Diefenbach & West, 2007). Thus, viewers who are limiting their exposure to traditional primetime and broadcast news and network programming by instead streaming time-shifted content may be less likely to report these negative views of the mentally ill.

Finally, although television set viewing diversity does not indicate what share of their exposure viewers are watching on each device, the results for the impact of this moderator on moderate political ideology indicate that when viewing is only done through a traditional television provider, viewers report political viewpoints aligning with a liberal or conservative ideology. Additionally, while heavy viewers who report using four or five devices may not be replacing traditional viewing with new forms of television set viewing, they are sharing the

amount of time they are consuming traditionally simply because they are using so many devices to watch television.

Because television broadcast and cable news is the primary type of content for which streaming devices do not offer the same degree of access as that offered through a cable or satellite provider, these heavy viewing, highly diverse television set viewers may not be as highly exposed to the politically polarizing commentary on the news, and are consequently more likely to be moderate. Or perhaps these viewers are supplementing their television viewing with gaming, and they are not particularly engaged in current events and do not have strong feelings about politics one way or the other. Whatever the explanation for the conditional effects for politically moderate ideology, the conditional effects of new and traditional forms of exposure on the cultivation of this second order outcome indicate that these patterns of impact are different than those found for most of the other cultivation outcomes.

More specifically, the general pattern found across the significant interaction analyses for the other cultivation outcomes is that higher levels of traditional forms of viewing enhance or maintain cultivation. In the few cases when new forms of exposure are supplementing and complementing traditional and overall exposure, cultivation may be enhanced; however, when new forms of exposure are replacing traditional exposure, cultivation is attenuated. In the next chapter, the patterns of conditional effects are summarized in further detail. Then, the limitations of this study are presented, concluding with a discussion of directions for future research.

CHAPTER 5

DISCUSSION

As stated in Chapter 1, no cultivation study to date has measured or addressed how new digital television technologies and patterns of viewing intervene in the cultivation process. This study specifically seeks to fill this void by examining this unexplored area of cultivation research. In order to fill this void, a questionnaire was developed to measure television exposure in the current media environment—across new and traditional platforms, devices, and modes of viewing. In addition to measuring new and traditional forms of exposure— more specifically, the degree to which these forms of exposure were used when viewing television—the 509 participants that completed this questionnaire also provided demographic information, reported how much television they viewed on average (in hours), and answered the items comprising the dependent measures used in this study (first order estimates, political ideology, Social Roles Questionnaire subscale, and the Mean World Index).

Descriptive and correlational analyses, analyses of variance, principal components analysis, regression and moderation analyses were all conducted to explore what patterns of viewing characterize how viewers watch television today, how new and traditional patterns of viewing vary across light and heavy viewers, which forms of exposure most significantly impact the cultivation process, whether similar patterns of moderation emerge across all cultivation outcomes, if new and traditional forms of exposure differentially impact the cultivation process, and finally, how these patterns of impact may be explained. In the next section, the major findings from these exploratory analyses are identified, and the possible explanations for these findings are presented.

Summary of Findings

Prior to focusing on the impact of television viewing on cultivation outcomes, and the ways in which traditional and new forms of television exposure impacts the cultivation process, the results of the analyses first reveal that in terms of platform use, the traditional television is the platform that all viewers report doing relatively more of their viewing on than any other platform, with more than 90 percent of viewers reporting that they use this platform at least "some" of the time, and more than half of all viewers use this platform "most" of the time. Laptops were used at least "some" of the time by more than half of all viewers, and light viewers actually did proportionally more of their viewing this way than heavy viewers report doing on this platform.

The proportional viewing on the two small portable devices was lower than the other platforms, with less than ten percent of viewers watching television on a tablet or smartphone more than "some" of the time. When looking at the proportional distribution of responses for degree of television set viewing through the use of new and traditional devices, the most common form of television set viewing is through a traditional cable or satellite provider, with two-thirds of participants reporting doing at least "some" of their viewing this way, and nearly half doing "most" or "quite a bit" of their television viewing this way.

Relatively high proportions of viewers report doing "none" of their overall television viewing through either the gaming console or Smart TV, while a little over half of the sample report doing "none" of their overall television viewing using a streaming media device or DVD/Blu-ray player. In terms of the ways in which viewers report doing relatively more of their television set viewing, following through a traditional cable or satellite provider, viewers report doing "quite a bit" or "most" of their viewing using a streaming media device, followed by the

gaming console, Smart TV, and lastly, the DVD/Blu-ray player was the device that viewers report using least to do "quite a bit" or "most" of their television set viewing. Thus, while the greater proportion of viewers report viewing through a traditional cable or satellite provider, its use is not as dominant or widespread as the traditional television platform.

While a greater proportion of participants report doing at least "some" of their overall viewing traditionally (i.e., live broadcast) than non-traditionally through any form of time-shifting, traditional live viewing is not the dominant way in which participants in this study report doing "quite a bit" or "most" of their overall viewing. Rather, a slightly greater proportion of participants report that "quite a bit" or "most" of their overall viewing is done through a SVOD service such as Netflix or Hulu Plus than the proportion reporting they do "quite a bit" or "most" of their viewing traditionally (broadcast live). Lower percentages (about a quarter) of participants report doing "quite a bit" or "most" of their viewing free online or time-shifted using a DVR or Tivo, and only slightly over ten percent report doing "quite a bit" or "most" of their viewing On Demand through a cable or satellite provider.

Next, a principal components analysis was conducted on the data regarding exposure across platforms and television set viewing devices, as well as the degree to which participants reported viewing live and through various forms of time-shifting. From this analysis, four distinct patterns, or styles, of viewing emerged; the items comprising these viewing styles capture traditional and distinctly new forms of viewing. In addition to analyzing relative exposure across a specific new or traditional platform or television set viewing device, these viewing style scales offer a more integrated way of conceptualizing and analyzing the degree to which each participant's relative use of time-shifting, different platforms, and devices reflect traditional viewing (i.e., live and on a traditional television set, and not using digital, Internet-

connected devices and streaming services) and new styles of viewing (traditional shifting, serious streaming, and viewing on the go). The new styles of viewing reflect the different dimensions of television technology that allow television to be tailored to enable a more convenient viewing experience (i.e., allowing the viewers to choose when, where, and what they want to watch), and offer a novel approach to conceptualizing and measuring new and traditional forms of television exposure in the current viewing environment.

Next, the results of the analyses looking at how proportional viewing across new and traditional platforms, devices, live and time-shifted viewing, viewing styles and viewing diversity varies among light and heavy viewers reveal that heavy viewers are far more traditional than light viewers, which is indicated by their higher degrees of traditional platform, television set viewing, live viewing, and scores on the traditional viewing scale. Additionally, the analyses show that heavy viewers generally engage to a significantly higher degree in more diverse viewing across platforms, devices, time-shifting and genre exposure, as well as proportionally higher levels of viewing on most of the specific platforms and devices than light viewers.

There are exceptions, however; for degree of viewing on a laptop, light viewers actually report higher levels than heavy viewers. And, while light viewers do not report doing higher proportions of viewing than heavy viewers through a streaming media device, time-shifted free online or through an SVOD provider, proportional viewing among light viewers via these new media technologies either does not significantly differ from that of heavy viewers (as is the case with the streaming media device on free online viewing) or exceeds their proportional viewing in a traditional manner (as is the case with SVOD and traditional live viewing).

The ways in which viewers watch television, and how that viewing differs across light and heavy viewers informs the interpretation of the results regarding how new and traditional

forms of exposure moderate the cultivation process. As stated previously, the purpose of this study is to investigate the impact of traditional and new forms of exposure on the cultivation process. In order to investigate this impact, 23 different exposure variables (relative degree of viewing on five different platforms, using five television set viewing devices/modes of access, live viewing and degree of four forms of time-shifted viewing, four forms of viewing diversity, and the four viewing styles) were tested as potential moderators of the relationship between overall exposure and eight different cultivation outcomes (five first order estimates and three second order outcomes). A number of control variables were included in the regression models in order to remove the effects of possible confounding variables.

In order to determine whether the exposure variables moderated the relationship between overall exposure and the cultivation outcomes, each regression analysis tests the interaction between overall exposure and each respective exposure variable to uncover whether the interaction significantly predicts the cultivation outcome (refer to Table 17 for the unstandardized regression coefficients for these significant interactions). Of the eight outcomes measured in this study, the regression analyses reveal that neither overall exposure nor any of the moderating variables included in the analyses significantly predict the second order outcome of sexism.

After extensively probing the results of the interaction analyses, and testing the effect of possible influential outliers, the analyses also reveal that of the 23 moderators tested, there is no statistically meaningful evidence that six of these 23 variables significantly moderate the relationship between overall exposure and any of the cultivation outcomes: viewing on the desktop platform, smartphone platform, and traditional television platform; time-shifted free online viewing, traditional shifting and viewing on the go viewing styles, and platform diversity.

Table 17. Unstandardized regression coefficients of all significant interactions between overall television exposure and new and traditional forms of exposure (platform, television set viewing, live and time-shifted viewing, viewing styles and forms of diversity) for all cultivation outcomes

		First order estimates					Second order outcomes		
		Violence	Law enforcement	Violent crime	Murder-victim relationship	Mentally ill perpetrators	Sexism	Mean world	Moderate political ideology
Platform	Laptop	-.104**						-.018*	
	Desktop								
	Tablet				.188**				
	Smartphone								
	Television								
TV set viewing	Gaming console								.096**
	Streaming media device					-.070*		-.011*	
	Smart TV		-.069*						
	DVD/Blu-ray				.219**				
	Traditional cable or satellite	.060**						.013**	
Live and time-shifted viewing	Broadcast live							.013*	
	DVR/Tivo				.106*				
	On Demand			-.131**					
	SVOD					-.075**			
	Free online								
Viewing styles	Traditional viewing	.076*						.017*	
	Serious streaming					-.102*			.115**
	Traditional shifting								
	Viewing on the go								
Diversity	Platform								
	Time-shifting					-.078**			
	TV set viewing	.085***							.069*
	Genre	.030***							

Note. Analyses controlled for the following variables: overall television viewing, age, gender (male), race (Black), race (White), education, residence (urban), political ideology. For moderate political ideology, the analysis did not control for political ideology, and did control for race (Asian) *p<.10, **p<.05, ***p<.010, ****p<.001

Overall, 184 interaction analyses were carried out, out of which 24 interactions between overall exposure and a moderator variable were found to significantly predict a cultivation outcome; thus, only slightly over 13 percent of all moderation analyses result in a significant interaction. For each of these significant interactions, further analyses were conducted to specifically examine how cultivation outcomes vary across levels of exposure as a function of the moderator variable, and to determine at which levels of the moderator the relationship between overall exposure and the cultivation outcome is significant and non-significant. The resulting conditional effects of the independent variable on the given cultivation outcome across levels of the moderating variables reveal the ways in which traditional and new forms of exposure both differentially and similarly impacted the cultivation process.

First, the interaction analyses for the first order outcome of violence estimates reveal that five variables significantly moderate the relationship between overall exposure and the first order outcome: laptop viewing, traditional cable or satellite viewing, traditional viewing style, television set viewing diversity, and genre diversity. Interaction analyses for this first order outcome further reveal that there are nearly identical patterns of conditional effects for both of the traditional moderators and both of the diversity moderators. Specifically, at high levels, the already significant cultivation effect is substantially enhanced. Conversely, for viewers who report low levels of these variables, the cultivation effect is weaker and no longer significant. This is evidenced by the drastically smaller values of the cultivation differentials when all four variables are at their lowest levels.

The exact opposite pattern emerged, however, for the non-traditional platform viewing moderator; no or low laptop viewing enhances cultivation, while high levels reduce the cultivation effect. While the general patterns of the conditional effects suggest that traditional

exposure enhances, while non-traditional viewing attenuates cultivation, the forms of diversity do not initially appear to support this interpretation of the finding. However, because traditional broadcast and cable television does in fact offer a variety of genres to the primetime viewer every night, and offers even greater access to live news and sports than that offered by any of the new streaming services, the traditional heavy viewer is in fact a consumer of diverse genres, and this moderator should impact the cultivation process in the same way as the other traditional forms of exposure.

Television set viewing diversity, however, does not as clearly fit the conceptual idea of the traditional viewer. For, when viewers report high television set viewing diversity it means that they do view on a number of non-traditional devices. However, when these interactions are probed further, and the degree to which diversity and laptop viewing are used to supplement or replace traditional forms of viewing are compared, there is in fact a logical explanation as to why television set viewing diversity impacts cultivation in the same way that the traditional forms of exposure do, and why laptop viewing produces the opposite pattern of conditional effects.

All of the regression analyses reveal that television is a strong independent, significant, positive predictor of cultivation-consistent estimates of violence; and the moderation analyses reveal that it is only when heavy viewers are not doing any form of traditional viewing that this relationship is not significant. Reporting no television set viewing diversity is yet another indicator that viewers are not viewing through a traditional cable or satellite provider, which is why reporting no diversity attenuates the cultivation of violence estimates. Additionally, television set viewing diversity is also strongly related to traditional television platform viewing, as viewers are using these devices to watch television on a television set, with all heavy viewers who report high diversity also reporting that they view on a traditional television platform.

Thus, it is only when traditional viewing is replaced with non-traditional viewing, specifically in this case, laptop viewing, that the cultivation effect is attenuated. Due to the fact that heavy viewing so strongly predicts cultivation-consistent estimates of violence, and that the more genres a viewer watches, the greater the likelihood of these estimates, it does not appear that exposure to a specific genre or type of content contributes particularly to the cultivation of these estimates; rather, it is the amount of exposure to the traditional broadcast television world that enhances this cultivation outcome.

The results for mean world views are very similar to those found for first order estimates. Specifically, high levels of traditional exposure enhance the cultivation of mean world views, with heavy viewers reporting significantly higher levels of mean world beliefs than their light viewing counterparts. As shown in Table 17, it is at high levels of three traditional forms of exposure (traditional viewing style, live viewing and traditional cable or satellite television set viewing) that overall exposure significantly predicts mean world views.

However, at low levels of these traditional moderators, specifically when viewers are not viewing live through a traditional cable or satellite provider, the opposite pattern emerges, and heavy viewing no longer is associated with mean world views. Conversely, it is at high levels of non-traditional forms of exposure (laptop viewing and streaming media device use) that the cultivation effect is reduced, and at these high levels, heavy viewing actually cultivates more positive and trusting views of the world. These results offer further support for the position that when new forms of exposure replace traditional forms of viewing, cultivation is attenuated, or in the case of mean world views, overall exposure is actually negatively related to the cultivation outcome.

While the results for these outcomes offer clear evidence of the differential impact of traditional and new forms of exposure on the cultivation process, the results for several of the other cultivation outcomes initially appear to seriously undercut the evidence of this differential impact. As shown in Table 17, only new forms of exposure significantly moderate the cultivation of first order murder-victim relationship estimates, and it is at high levels of all three of these moderators (tablet viewing, DVD/Blu-ray viewing, and DVR/Tivo time-shifted viewing) that cultivation is enhanced. While DVR/Tivo time-shifted viewing should theoretically enhance cultivation because, like the VCR decades before, this technology allows heavy viewers to watch more of what they already would, just at a more convenient time, tablet and DVD/Blu-ray viewing, potentially offers viewers the opportunity to consume niche and alternative content that may not be available through their cable or satellite provider, and thus could potentially weaken the cultivation effect for heavy viewers who do most of their viewing in these new ways.

However, looking back at the distribution of viewing across these two new devices, there are only a handful of heavy viewers who do "quite a bit" or "most" of their viewing in these new ways. Rather, these viewers do "some" of their viewing on these devices to supplement their traditional exposure. In fact, heavy viewers who report using the tablet and Blu-ray or DVD player actually report spending more time each day watching television than the average heavy viewer. Together, these suggest that heavy viewers who use these devices to supplement their television viewing are increasing their overall consumption by viewing on these devices, not heavily consuming only niche or alternative content.

Thus, when heavy viewers augment their traditional and overall viewing, as opposed to replace or reduce this exposure, using these new media devices may enhance cultivation. While the content viewed time-shifted through a DVR or Tivo is traditional broadcast and cable

television viewing, and the content viewed on the other devices may not be traditional broadcast content, all three of these new forms of exposure are used to supplement and not replace traditional exposure.

Therefore, whether through supplementing the amount of overall exposure with more overall daily viewing (like the DVD/Blu-ray player and tablet), or more specifically the degree of traditional broadcast or cable content consumed by making viewing more convenient (like the DVR/Tivo), all three of these new ways of viewing enhance the cultivation of murder-victim relationship estimates among heavy viewers. These results therefore do not undercut the conclusions of the mean world view and first order estimate analyses; rather, they suggest that while replacing traditional exposure with new forms of viewing may attenuate cultivation, when new forms of viewing are used to supplement and even increase overall exposure, particularly exposure to traditional broadcast and cable content, cultivation may even be enhanced.

The results for the cultivation of first order estimates of mentally ill perpetrators offers strong evidence of how, when used to replace traditional viewing, high levels of new forms of television viewing attenuate and reduce cultivation. More specifically, as shown in Table 17, four ways/devices/styles of streaming moderate the cultivation of first order estimates of mentally ill perpetrators: streaming media device, time-shifting diversity, SVOD viewing, and serious streaming.

All of these interaction analyses reveal that at low levels of each of these moderators, the magnitude of the cultivation effect is enhanced, while at high levels, cultivation is attenuated for heavy viewers. Heavy viewers that are replacing their traditional viewing with these new forms of viewing are limiting their exposure to the negative portrayals of mental illness most prevalently featured on mainstream primetime network programming and on broadcast and cable

news networks and television programs; their relatively low exposure to these portrayals could foster less negative perceptions of the mentally ill. Conversely, as is evident particularly in the case of time-shifting diversity, solely viewing traditionally live and not time-shifting at all enhances cultivation; perhaps it is because of their relatively greater exposure to traditional content that more frequently portrays mentally ill individuals as violent and dangerous that informs their negative perceptions of mental illness.

While limited exposure to traditional primetime and news programming may explain the attenuation of the cultivation of estimates of mentally ill perpetrators, another explanation is that, particularly in the case of SVOD, heavy viewers who are replacing their traditional exposure with this time-shifted content may be solely consuming niche content or original programming that may potentially provide audiences with portrayals and messages that counter those found on broadcast, cable or satellite television. Whatever the reason, it is clear that when viewers are replacing their traditional viewing with these new forms of exposure, heavy exposure cultivates less negative perceptions of the mentally ill, thus reducing the cultivation effect.

Perhaps the most initially confusing results were for the interaction analyses for the second order outcome of politically moderate ideology. As shown in Table 17, high levels of three forms of exposure involving streaming devices and viewing (serious streaming, gaming console viewing, and television set viewing diversity) enhance the cultivation of this second order outcome. And, while DVR/Tivo, DVD/Blu-ray and tablet viewing enhance cultivation by supplementing traditional viewing, rather than replacing it, for these moderators, it is when streaming replacing viewing that cultivation of political moderate ideology is enhanced. While at first this appears to undercut all of the results and conclusion of the other interaction analyses, the explanation for why high levels of the aforementioned new forms of exposure reduce the

cultivation of mentally ill perpetrator estimates for heavy viewers (limited exposure to news and broadcast network programming limits their exposure to negative portrayals of the mentally ill (Diefenbach & West, 2007) also explains the pattern of conditional effects for moderate political ideology.

Specifically, in the case of political ideology, it was found that being politically moderate was significantly, negatively correlated with viewing political news programming. Because of this limited exposure to broadcast and cable news networks and programming, and particularly the 2016 presidential campaign, high levels of viewing on these new devices offering less political news and commentary could foster or reflect less interest in political issues and the electoral process, and enhance the cultivation of moderate political views. Or, perhaps, their ownership of so many devices mean that in addition to many hours of television viewing, these heavy viewers also are heavy media consumers in general (i.e., use their gaming console to play video games, streaming music from their streaming media device, etc.) and their media diet limits the amount of time they spend consuming news and political commentary.

Therefore, rather than these results undermining all of the conclusions drawn thus far, when considering what viewers are actually more likely to be exposed to on traditional broadcast television than through streaming services or alternative providers, particularly at a time of such political polarization, in the case of moderate political ideology, it makes sense that limiting exposure to traditional television may enhance, rather than attenuate, cultivation.

Finally, just as differences in the amount of overall viewing light and heavy viewers do in new and traditional ways impacts the patterns of conditional effects, the degree to which new forms of exposure are used to supplement, replace, or complement traditional forms of exposure vary across light and heavy viewers can produce meaningful patterns as well. This is

particularly evident in the analysis of the impact of Cable or Satellite On Demand viewing on the cultivation of estimates of violent crime. Specifically, light viewers seem to be supplementing their traditional and overall exposure when they report higher levels of On Demand viewing, while heavy viewers are reducing their overall exposure when their time-shifted On Demand viewing is high.

For heavy viewers, because at high levels of this form of time-shifting they appear to be reducing their overall viewing, and replacing, rather than supplementing, their live viewing with On Demand viewing, high levels of time-shifted On Demand viewing reduce the cultivation of this first order estimate, while for light viewers, the opposite is true. These results demonstrate that in order to uncover the complexities of these interactions, it is important to consider the degree to which heavy *and* light viewers are using new forms of exposure to supplement or replace traditional television exposure, account for the differences that may exist among these viewers, and how this may impact the patterns of conditional effects. While the preceding discussion provided a summary of the main findings of this study, in the section that follows, the implications of these results for cultivation theory and research are presented.

Theoretical Implications

Heavy viewers today not only spend a great deal of time watching a diverse array of television content, they also watch this content on a wide variety of platforms, time-shift in many ways, and view television using a great variety of devices. However, despite the fact that they use a variety of new television technologies, when looking at how heavy viewers typically watch television, it is traditional forms of exposure that characterize their television viewing

experience. Specifically, the traditional television clearly dominates all other screens, with heavy viewers overwhelmingly doing the majority of their viewing on this screen.

This dominance reflects that at least in terms of the screen on which viewers report watching most, there has been great stability in the medium over time. One reason for this stability is that none of the new viewing platforms offer viewers a higher quality viewing experience in terms of screen size and quality; while portable platforms do offer convenience in terms of being able to watch content anywhere, this is their only true competitive advantage. Further, although a traditional platform, when viewing on a television, viewers can watch content in both new and traditional ways. Thus, not only does this platform offer an optimal viewing experience, it also does not limit access to different content types and providers. Because of this, you cannot use a participants' reported degree of traditional platform viewing as a sole indicator of how traditional the viewer may or may not be, further underscoring the importance of looking at how viewers are accessing and consuming television content when they are watching on a traditional television.

It appears that new television set viewing technologies have penetrated the television viewing landscape to a greater degree than new television platforms, and heavy viewers are using new devices to stream content in addition to watching content through their traditional broadcast and cable provider. While the penetration of new television set viewing technologies is greater than that of new viewing platforms, it is the adoption of different forms of time-shifting that have demonstrated the greatest uptake, and represent the greatest challenge to traditional television consumption. First, because diversity is a defining and enduring characteristic of traditional television exposure, with viewers exposed to at least eight different genres on primetime network television on any given night, the degree of selectivity enabled by new

television technologies may result in viewers watching a more limited variety of genres. Second, because of their penetration, and the fact that they provide viewers with original programming that does not need to conform to standard broadcast television conventions, it is particularly SVOD and free online viewing that are the most probable new forms of exposure to alter the traditional viewing experience and by extension, the process of cultivation. For, if the realities of the television world differ across new and traditional forms of exposure, then the beliefs and attitudes which viewing cultivates may differ across forms of exposure as well.

Addressing first the question of whether television viewing independently cultivates the outcome measures traditionally used in cultivation research, the results of this study indicate that unlike the findings of previous cultivation research, the magnitude of the relationships between television exposure and several of the attitudes and beliefs that are supposedly consistent with the television world were not uniform in strength, and many were very weak. While there are many possible explanations for these findings (discussed in the "Limitations" section later in this chapter), these results do call into question the degree to which the the evolution of television technology has impacted not only the ways that we watch television and what we see onscreen, but also how these changes have impacted the cultivation process.

This question of how new and traditional forms of exposure may impact the cultivation process was addressed in this study. The results provide limited evidence that either new or traditional ways of viewing moderate the relationship between overall viewing and the cultivation of beliefs and attitudes that have been determined in past cultivation research to be consistent with the traditional television world. Despite limited evidence of either cultivation relationships or moderation of these relationships, the results do suggest that when the various forms of exposure do significantly moderate the process of cultivation, different forms of

exposure can potentially impact cultivation in distinct ways. Specifically, when viewers watch a great deal of television that is highly traditional in nature (i.e., diverse broadcast, cable and satellite programming), the relationships between overall exposure and cultivation outcomes are strengthened. While heavy viewers may, for instance, overestimate violence or view the world as a scary or mistrustful place more so than light viewers, it is particularly those who are heavily exposed to mainstream network television for whom the cultivation of these views and beliefs are most pronounced.

This is not to say, however, that newer forms of exposure uniformly reduce cultivation; in fact, because many of these new technologies are used to supplement traditional exposure, or even facilitate greater exposure by making viewing more convenient, technologies such as the DVR may actually enhance the cultivation effect. Conversely, when new television technologies are used to the extent that they limit access to the traditional broadcast television world (i.e. by instead mostly streaming Internet-based content), this may actually weaken the cultivation effect. Whether streaming Internet-based content or watching a show stored on their DVR, however, these new forms of exposure all have one defining feature in common: the viewer must be purposeful and active in the selection of content.

Unlike traditional live viewing, in which viewers may simply turn on the television and watch whatever is on at the moment, at least at the stage of content selection, new television technologies make television viewing a more active experience. Despite this commonality, however, as stated above, these new forms of exposure do not all impact the cultivation process in the same way. The greater degree of selectivity afforded by new television technologies does not mean that viewers will only watch certain types of content and narrow their exposure to certain genres; rather, it is the degree of access to traditional broadcast and cable television

content facilitated by different technologies, devices, and ways of viewing that most substantially impacts cultivation.

When exposure to this traditional content is greatest (whether by primarily engaging in live broadcast television viewing, watching time-shifted traditional content through a DVR or Tivo, or supplementing exposure with occasionally viewing on different platforms or devices), cultivation is more likely to be enhanced. Conversely, when the use of new television technologies dominate television viewing, and access to the inherently diverse nature of traditional broadcast and cable content is consequently reduced (by viewing primarily on a non-traditional platform, using mostly streaming devices when watching on a television, or primarily watching content through an Internet-based provider), the impact on the cultivation process is quite different; specifically, cultivation is generally more likely to be attenuated.

Altogether, despite the massive evolution of television technology, heavy viewers today continue to watch a lot of everything that network, broadcast and cable television have to offer. They do use new television technology, but primarily as a way to increase overall exposure, and to access television in more convenient ways. The results of the analyses, however, do suggest that, when new television technologies are used to significantly limit exposure to the world of traditional broadcast television and increase exposure through alternative content providers, they do have the potential to impact the cultivation process and weaken the cultivation effect. However, due to the fact that traditional forms of television viewing have remained remarkably stable despite the massive changes in technology since its inception, it is likely that the aforementioned potential may never be realized. While this study does not offer substantial evidence that new media technologies impact the process of cultivation, it does open the door to

a number of possible areas of future inquiries. Before offering possible suggestions for future research, however, the limitations of this study are discussed below.

Limitations

At the outset, this study sought to advance cultivation theory by exploring cultivation in the new media environment. First, as no cultivation study to date had incorporated measures of television exposure across media platforms, devices, and forms of time-shifting, this study filled that void by comprehensively measuring the new and traditional forms of exposure stated above. Second, this study also introduced viewing style scales, which captured distinct patterns of viewing that characterized the new and traditional ways that viewers watch television today. Finally, this study also addressed questions that were previously unexplored in cultivation research regarding the implications of these forms and styles of exposure for the cultivation process. Despite these valuable contributions, however, this study had several limitations that need to be addressed.

First, the demographic composition of this sample was problematic for several reasons. One, participants in this sample did not approximate the racial demographics of the population; Asian Americans were over-represented in the sample, while both Hispanics and Blacks were under-represented. Additionally, the sample was more highly educated, younger, and more liberal than the general United States population. Thus, the fact that this sample did not approximate the demographic composition of United States population limits the generalizability of the findings to the population at large.

The demographic composition of this sample was also problematic because of the significant relationship between several of the demographic variables and forms of television

exposure. For instance, Asian Americans watch less television and use new media platforms more than the general population, and the distribution of the viewing variables may have been skewed because Asian Americans were over-represented in this sample. Additionally, younger viewers watch less television and use streaming media devices and SVOD services more than older adults; the distribution of the viewing variables may have been skewed because older adults were under-represented in this study. Despite the lack of generalizability of this sample to the demographics of the population of the United States, television viewing, platform and device usage across age and racial demographics did reflect those reported by Nielsen.

Another limitation of this study is that the heavily skewed nature of the distributions of viewing across some of the new platforms and devices did not allow for a meaningful interpretation of the impact of high levels of viewing for these variables. For example, when the analyses for high levels of viewing on a smartphone or through a DVD or Blu-ray player are based on the responses of the less than one percent of viewers who do "most" of their viewing on these devices, any conclusions are most likely due to error. Similarly, the results of the first order murder-victim relationship analyses are also based on a small subgroup of responses. Specifically, less than ten percent of all viewers in the sample report the cultivation-consistent response that "most murders take place between strangers"; the distribution of this variable was so heavily skewed, therefore, that any significant findings cannot be applied or generalized to the greater population of heavy viewers.

Additionally, although there was justification to the use a less rigorous criterion of significance due to the exporatory nature of this analysis, the alpha level of .10 increases the likelihood of Type I error in this study. In fact, many of the significant interactions only met this level of significance. Taking into account both the skewness of several of the distributions

discussed above, and the fact that many of the interactions were significant at $p<.10$, the possibility that some of these findings may simply be attributed to random error is probable.

Next, while sexism has been explored in past cultivation research, this is the first cultivation study that used this specific measure of sexism. Thus, the results for this specific cultivation outcome cannot be directly compared to those found in previous cultivation studies of sex role traditionalism. Additionally, the mentally ill perpetrator estimate outcome was potentially problematic, as it has not been tested across cultivation studies like the four other outcomes. Combined with the finding that it was not associated with overall exposure, it is questionable whether television portrayals actually do cultivate perceptions of the mentally ill as violent and dangerous.

Next, the measures of platform viewing, time-shifting, and ways of viewing on a television set represent another potential limitation of this study. First, because these items only measured relative exposure done in each way, they do not provide data indicating the actual amount of time they spend viewing in each way. Considering that this allowed participants to report that they did "some" of their viewing in every way, "most" of their viewing in more than one way (approximately ten percent of participants reported doing "most" of their time-shifting in more than one way), these measures were not the most accurate indicator of what platforms, devices, and services that participants use most frequently when watching television. Also, the distinctions among different platforms, time-shifting forms, etc. may have been arbitrary, making the interpretations of findings for single platforms suspect.

These issues of measurement are related to the fact that, due to the unchartered nature of this investigation, these variables have not been operationalized in previous cultivation research. Thus, unlike the measure of overall exposure, mean world, and all of the first order estimates

(except for the mentally ill perpetrator estimates), these traditional and non-traditional forms of exposure have not been validated in past cultivation studies. While the fact that the principal component analysis yielded conceptually logical and consistent scales of viewing style does suggest that these variables were measured appropriately, they have yet to be determined as reliable measures of exposure. With these limitations in mind, this chapter concludes with a discussion of suggestions for future research.

Future Research Directions

Finally, as stated previously, this exploratory study and its findings serve as a starting point for future research into cultivation in the new media environment, and more specifically, the implications of new and traditional forms of exposure for the cultivation process. As described in the discussion of the three-prong cultivation approach in Chapter 2, in order to evaluate the degree to which viewing cultivates perceptions, attitudes, and beliefs that are commensurate with the world portrayed on screen, message system analyses must be conducted to determine the facts and nature of television portrayals. As shown in this study, and in the Nielsen data reviewed in Chapter 1, SVOD services (through providers such as Netflix and Hulu Plus) are now widely used to view television content.

Content analyses of the variety of programming offered through these SVOD services is a potentially unsurmountable challege. If these services only offered popular original content, then this content could be analyzed to determine how similar the "facts" of these shows match the "facts" of more traditional programming, but the problem is that these services do not only offer original content. In fact, most of the programming available on these services is not new and original content, but rather movies and popular broadcast or cable series currently or

previously aired on television. And, new series and movies are added and removed from these services constantly, making the task of analyzing this content even more difficult. While these challenges may prevent message system analyses of SVOD content to be carried out, future research could ask viewers the type of content that they most frequently view through these services (i.e., original programming, television series currently airing on broadcast or cable television networks, movies) to analyze if watching orginal content cultivates different beliefs or attitudes than exposure to traditional network programs.

Unfortunately, conducting message system analyses of free online content is potentially even more challenging. Between user-generated content, web series, short orginal videos and clips of programs, pirated content, and broadcast network websites that allow viewers to watch currently airing full-length programs for free, and the fact that free online content is ever-changing, and constantly updated content is added virtually every minute of every day, it is impossible to discern any consistent system of messages that characterize the content that is viewed free online. However, similar to the suggestion for SVOD above, future research could ask how frequently viewers watch different types of online content. However, while original programming available through SVOD services could potentially be analyzed, given the endless magnitude of options of original free online content, it would be impossible to conduct message system analyses of this content, or even account for how much content is available on any given day.

Message system analyses of primetime network programming, however, are a more realistic, and arguably, more pressing task for cultivation researchers. Unlike the Violence Profiles which were updated annually to detail the results of the message systems analyses, there is limited information about the system of messages portrayed on television today. The results of

message system analyses are necessary to evaluate the impact of television's portrayals on audiences; thus, large scale analyses of television content must be conducted to determine whether messages have indeed remained generally steady or if major shifts have occurred. For example, the findings of this study suggest that, at least in this sample, there were no analyses that determined that television cultivated sexist attitudes. Message system analyses are needed to determine if television today does offer, for example, less stereotypical portrayals of gender.

Next, based on the limitations of this dataset in terms of the composition of the sample, it would be advantageous to replicate this research with a more diverse sample; specifically, one that is more demographically representative of the general population. Also, as discussed above, the measures of exposure across platforms, devices, and forms of time-shifting were developed for this study and had not been validated in previous research. Future research could either attempt to validate the measures used in this study, or use measures of viewing across platforms and devices from existing studies that have been validated outside the confines of cultivation, and determine the suitability of these measures for analyzing the impact of new and traditional forms of exposure on the cultivation process.

Another approach to analyzing the impact of new and traditional forms of exposure on the cultivation process would be to measure the amount of time (the number of minutes) that viewers report watching on each device, platform, and through each provider. This would allow for a more accurate assessment of how much time viewers actually spend watching television in new and traditional ways, and could provide more reliable evidence of the impact of how amount viewing in new and traditional ways impacts the cultivation process.

An additional avenue for future inquiry would be to analyze the possible interplay between cognitive variables, new and traditional forms of exposure, overall exposure, and the

impact of these interactions on the cultivation process. As discussed in the cognitive processes section of chapter 2, research analyzing how transportation and engagement in a narrative mediates the cultivation effect, as well as research on the impact of attention and motivation to process on the cultivation of first and second order outcomes, have made valuable contributions to our understanding of how cultivation "works" at the micro-level. Future research could look at, for example, whether new media may facilitate certain cognitive states, and what the implications of this may be for the cultivation process.

Lastly, while this study did include demographic variables in the regression analyses, they were only included as control variables so that the impact of the moderating variable on the relationship between overall exposure and cultivation outcomes could be analyzed independently of possible confounding variables. This study thus did not look at patterns that may have emerged across different demographic subgroups, which presents a possible avenue for future research. As emphasized in Chapter 2, there is an abundance of evidence that exposure to television overrides differences that exist among heavy viewers, pulling their views and beliefs to reflect those that are promoted on screen-a phenomenon known as mainstreaming. Therefore, in the future, in addition to looking at how cultivation outcomes vary across levels of exposure and new and traditional exposure moderators, these cultivation outcomes could also be analyzed for patterns of differences across demographic subgroups.

Overall, this study represents an initial first step in advancing cultivation research in the new media environment. While there were limitations, much of which are related to the exploratory and novel nature of this study, the findings do provide evidence that new and traditional forms of exposure impact cultivation outcomes. Most importantly, this study and its

findings present opportunities for future research that will only enhance the theoretical traditional of cultivation.

APPENDIX

RESPONDENT QUESTIONAIRRE

What is your age?

Are you:
- Male
- Female
- Other (please specify) _____

We hear a lot of talk these days about liberals and conservatives. I'm going to show you a scale on which the political views that people might hold are arranged from extremely liberal to extremely conservative. Where would you place yourself on this scale?
- Extremely Liberal
- Liberal
- Slightly Liberal
- Moderate/Middle of the Road
- Slightly Conservative
- Conservative
- Extremely Conservative

Which of the following do you most closely identify as?
- White/Caucasian
- Black/African American
- Hispanic/Latino
- Asian/Asian American
- Native American
- Pacific Islander
- Other (please specify)
  _____

What is your highest level of education?
- High school graduate
- Some high school
- Some college
- College Graduate
- Some postgraduate/professional work
- Graduate/postgraduate degree

Which of the following best describes the area you live in?
- Urban
- Suburban
- Rural

What is your current employment status? (Please check all that apply)

- ❑ Employed, full-time
- ❑ Employed, part-time
- ❑ Temporarily unemployed
- ❑ Full-time student
- ❑ Part-time student
- ❑ Not employed at all
- ❑ Retired

For the following questions, please choose the answer that best reflects what you think:

Generally speaking, do you think most people would try to take advantage of you if they got a chance, or would they try to be fair?

- ❍ Most people would try to take advantage of you
- ❍ They would try to be fair

Generally speaking, would you say that most of the time people try to be helpful, or that they are mostly just looking out for themselves?

- ❍ Most people try to be helpful
- ❍ They are looking out for themselves

Generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with people?

- ❍ You can trust most people
- ❍ You can't be too careful

During any given week, about how many people out of 100 are involved in some kind of violence?

- ❍ About 1 out of 100
- ❍ About 10 out of 100

Of all working people in this country, what percent do you think work in law enforcement and crime detection?

- ❍ About 1%
- ❍ About 5%

What percent of all crimes are violent crimes-like murder, rape, robbery, and aggravated assault?

- ❍ About 10%
- ❍ About 20%

Do most murders take place between strangers or people who know each other?

- ❍ Between strangers
- ❍ Between people who know each other

What percent of all violent crimes are committed by people with mental illness?

- ❍ About 5%
- ❍ About 15%

Please indicate how much you agree or disagree with the following statements:

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
For many important jobs, it is better to choose men instead of women.	❍	❍	❍	❍	❍
A father's major responsibility is to provide financially for his children.	❍	❍	❍	❍	❍
Mothers should make most decisions about how children are brought up.	❍	❍	❍	❍	❍
Only some types of work are appropriate for both men and women.	❍	❍	❍	❍	❍
Men are more sexual than women.	❍	❍	❍	❍	❍
Some types of work are just not appropriate for women.	❍	❍	❍	❍	❍
Mothers should work only if necessary.	❍	❍	❍	❍	❍
Girls should be protected and watched over more than boys.	❍	❍	❍	❍	❍

On an average weekday, how many hours would you say you spend watching TV – whether "live" or time-shifted, or on a TV or a laptop or any another device – during the following times:

	# HOURS
6AM-NOON	
NOON-6PM	
6PM-MIDNIGHT	
MIDNIGHT-6AM	

On an average Saturday, how many hours would you say you spend watching TV – whether "live" or time-shifted, or on a TV or a laptop or any another device – during the following times:

	# HOURS
6AM-NOON	
NOON-6PM	
6PM-MIDNIGHT	
MIDNIGHT-6AM	

On an average Sunday, how many hours would you say you spend watching TV – whether "live" or time-shifted, or on a TV or a laptop or any another device – during the following times:

	# HOURS
6AM-NOON	
NOON-6PM	
6PM-MIDNIGHT	
MIDNIGHT-6AM	

How frequently do you watch the following types of programs?

	Never Watch	Rarely Watch	Sometimes Watch	Frequently Watch	Very Frequently Watch
Crime drama (e.g., Law & Order, NCIS, Bones)	❍	❍	❍	❍	❍
Drama (e.g., The Good Wife, Grey's Anatomy, House of Cards)	❍	❍	❍	❍	❍
Comedy (e.g., The Simpsons, The Big Bang Theory, Modern Family)	❍	❍	❍	❍	❍
Action-adventure (e.g., Game of Thrones, Arrow, Supergirl)	❍	❍	❍	❍	❍
News broadcast (e.g., Local, Network, Cable)	❍	❍	❍	❍	❍
Political (e.g., O'Reilly Factor, Hannity, Rachel Maddow, etc.)	❍	❍	❍	❍	❍
Daytime talk (e.g., The Ellen Degeneres Show, The View)	❍	❍	❍	❍	❍
Late-night talk (e.g., Jimmy Kimmel, Conan)	❍	❍	❍	❍	❍
Reality (e.g.,Teen Mom, Dancing with the Stars, Keeping up with the Kardashians)	❍	❍	❍	❍	❍
Sports (e.g., Basketball, Golf, Football)	❍	❍	❍	❍	❍
Game shows (e.g., Family Feud, Jeopardy)	❍	❍	❍	❍	❍
Lifestyle (e.g., House Hunters, Diners, Drive Ins, and Dives, Love it or List It)	❍	❍	❍	❍	❍
Documentary/informational (e.g., Intervention, Mythbusters, No Reservations with Anthony Bourdaine)	❍	❍	❍	❍	❍
Newsmagazines (e.g., Dateline, 20/20, Frontline)	❍	❍	❍	❍	❍
Soap Operas (e.g., General Hospital, Days of Our Lives)	❍	❍	❍	❍	❍

Of the total time you spend watching television, movies, and other video content, how much of your viewing is done in the following ways?

	None of my viewing	Some of my viewing	Quite a bit of my viewing	Most of my viewing
On a laptop computer	❍	❍	❍	❍
On a desktop computer	❍	❍	❍	❍
On a tablet (e.g. iPad, Samsung Galaxy)	❍	❍	❍	❍
On a smart phone	❍	❍	❍	❍
On a television set	❍	❍	❍	❍

Of the total time you spend watching television, movies, and other video content on a television set, how much of that viewing is done in each of the following ways?

	None of my viewing	Some of my viewing	Quite a bit of my viewing	Most of my viewing
Streaming on your TV set through a game console (Xbox, Playstation etc.)	❍	❍	❍	❍
Through a streaming media device connected to your TV set (e.g., Roku, Apple TV)	❍	❍	❍	❍
Streaming on an internet-connected smart TV	❍	❍	❍	❍
On a Blu-Ray or DVD player	❍	❍	❍	❍
On a TV set that is not connected to the internet or streaming device (except for cable/receivers)	❍	❍	❍	❍

Of the total time you spend watching television, movies, and other video content, how much of your viewing is done in the following ways?

	None of my viewing	Some of my viewing	Quite a bit of my viewing	Most of my viewing
Live, at the time scheduled, on broadcast/cable	❍	❍	❍	❍
Time-shifted (recorded and viewed later) using a DVR or Tivo	❍	❍	❍	❍
On Demand through my cable/satellite provider	❍	❍	❍	❍
On a subscription video streaming service that charges a monthly fee (such as Netflix, Hulu Plus)	❍	❍	❍	❍
On a free online service (e.g., Hulu, a Broadcast Network Website, Crackle, Youtube)	❍	❍	❍	❍

BIBLIOGRAPHY

Alcorn, N., Buchanan, L., & Voon, G. (2014). *Deloitte media consumer survey 2014.* Sydney, New South Wales, AU: Deloitte Touche Tohmatsu.

Amazon Inc. (2011, June). *Amazon mechanical turk: Best practices guide*. <http://mturkpublic.s3.amazonaws.com/docs/MTURK_BP.pdf>

Baber, K. M. & Tucker, C. J. (2006). The social roles questionnaire: A new approach to measuring attitudes towards gender. *Sex Roles, 54*, 459-467.

Berinsky, A. J., Huber, G. A., & Lenz, G. S. (2012). Using mechanical turk as a subject recruitment tool for experimental research. *Political Analysis, 20*, 351-368.

Bilandzic, H., & Busselle, R. (2008). Transportation and transportability in the cultivation of genre-consistent attitudes and estimates. *Journal of Communication*, *58*(3), 508-529.

Bilandzik, H. & Busselle, R. (2012). A narrative perspective on genre-specific cultivation. In M. Morgan, J. Shanahan, & N. Signorielli (Eds.), *Living with television now: Advances in cultivation theory & research* (pp. 261-285). New York: Peter Lang.

Bilandzic, H. & Rössler, R. (2004). Life according to television, implications of genre-specific cultivation effects: The gratification/cultivation model. *Communications: The European Journal of Communication Research*, 29(3), 295-326.

Bowling, A. (2005). Techniques in questionnaire design. In S. Ebriham & A. Bowling (Eds.), Handbook *of health research methods: Investigation, measurement and analysis* (pp. 394-427). London: Open University Press.

Buhrmester, M., Kwang, T., & Gosling, S.D. (2011). Amazon's mechanical turk: A new source of inexpensive, yet high-quality, data? *Perspectives in Psychological Science, 6*, 3-5.

Busselle, R. W., & Shrum, L. J. (2003). Media exposure and exemplar accessibility. *Media Psychology*, **5**, 255–282.

Cacioppo, J., & Petty, R. (1982). The need for cognition. *Journal of Personality and Social Psychology, 42*, 116-131.

Cohen, J., & Weimann, G. (2000). Cultivation revisited: Some genres have some effects on some viewers. *Communication Reports*, *13*(2), 99-114.

Dahlstrom, M. F. & Scheufele, D. A. (2010). Diversity of television exposure and its association with the cultivation of concern for environmental risks. *Environmental Communication, 4*(1), 54-65.

Dal Cin, S., Zanna, M. P., & Fong, G. T. (Eds.). (2004). Narrative persuasion and overcoming resistance. In E. S. Knowles & J. A. Linn (Eds.), *Resistance and persuasion* (pp. 175-191). Mahwah, NJ: Erlbaum.

Diefenbach, D. L., & West, M. D. (2007). Television and attitudes toward mental health issues: Cultivation analysis and the third-person effect. *Journal of Community Psychology*, *35*(2), 181-195.

Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment*, *49*, 71–75.

Dupuis, M., Endicott-Popovsky, B., & Crossler, R. (2013, January). An analysis of the use of Amazon's mechanical turk for survey research in the cloud. *Proceedings of the international conference on cloud security management: ICCSM 2013* (pp. 10-17).

Epstein, S., Pacini, R., Dene-Raj, V., & Heier, H. (1996). Individual differences in intuitive-experiential and analytical-rational thinking styles. *Journal of Personality & Social Psychology, 71*, 390-405.

Eschholz, S., Chiricos, T. & Gertz, M. (2003). Television and fear of crime: Program types, audience traits, and the mediating effect of perceived neighborhood racial composition. *Social Problems, 50*, 395-415.

Ferguson, D. A. & Perse, E. M. (1993). Media and audience influences on channel repertoire. *Journal of Broadcasting & Electronic Media, 37*(1), 31-47.

Field, A. (2013). *Discovering statistics using IBM SPSS statistics (4th edition)*. London: Sage.

Gerbner, G. (1956). Towards a general model of communication. *AV Communication Review, 4*, 171-199.

Gerbner, G. (1960). The individual in mass culture. *Saturday Review, 43*(25), 11-12, 36-37.

Gerbner, G. (1966a). An institutional approach to mass communications research. In L. O. Thayer (Ed.), *Communication: Theory and research* (pp. 429-455). Springfield, IL: Charles C. Thomas.

Gerbner, G. (1966b). On defining communication: Still another view. *Journal of Communication, 2*(16), 99-103.

Gerbner, G. (1969). Toward "cultural indicators": The analysis of mass mediated public message systems. *AV Communication Review, 17*(2) 137-148.

Gerbner, G. (1972). The new media environment. *New perspectives in communication: Proceedings of the all-day conference held in conjunction with the 25th anniversary of Boston University's School of Public Communication* (pp. 1-7).

Gerbner, G. (1987). Television's populist brew: The three Bs. *Et cetera, 44*(1), 3-7.

Gerbner, G. (1990). Epilogue: Advancing on the path of righteousness (maybe). In N. Signorielli & M. Morgan (Eds.), *Cultivation analysis: New directions in media effects research* (pp. 249-262). Newbury Park: Sage.

Gerbner, G. (1998). Cultivation analysis: An overview. *Mass Communication & Society, 1*(3/4), 175-194.

Gerbner, G., & Gross, L. (1976). Living with television: The violence profile. *Journal of Communication, 26*(2), 172-199.

Gerbner, G., Gross, L., Eleey, M., Jackson-Beeck, M., Jeffries-Fox, S., & Signorielli, N. (1977). TV violence profile no. 8: The highlights. *Journal of Communication, 27*(2), 171-180.

Gerbner, G., Gross, L., Jackson-Beeck, M., Jeffries-Fox, S., & Signorielli, N. (1978). Cultural indicators: Violence profile no. 9.

Gerbner, G., Gross, L., Morgan, M., & Signorielli, N. (1980). *Violence profile no. 11: Trends in network television drama and viewer conceptions of social reality 1967~1979.* The Annenberg School of Communications, University of Pennsylvania.

Gerbner, G., Gross, L., Morgan, M., & Signorielli, N. (1981). Scientists on the TV screen. *Society, 18*(4), 41-44.

Gerbner, G., Gross, L., Morgan, M., & Signorielli, N. (1982). Charting the mainstream: Television's contributions to political orientations. *Journal of Communication, 32*(2), 100-127.

Gerbner, G., Gross, L., Morgan, M., & Signorielli, N. (1986a). Living with television: The dynamics of the cultivation process. In J. Bryant & D. Zillman (Eds.), *Perspectives on media effects* (pp. 17–40). Hilldale, NJ: Lawrence Erlbaum Associates.

Gerbner, G., Gross, L., Morgan, M., & Signorielli, N. (1986b). *Television's mean world: Violence profile no. 14-15*. The Annenberg School of Communications, University of Pennsylvania.

Gerbner, G., Gross, L., Morgan, M., Signorielli, N., & Shanahan, J. (2002). Growing up with television: Cultivation processes. In J. Bryant & D. Zillman (Eds.), *Media effects: Advances in theory and research, 2nd edition* (pp. 43-67). Mahwah, NJ: Erlbaum.

Glick, P., & Fiske, S. T. (1996). The Ambivalent Sexism Inventory: Differentiating hostile and benevolent sexism. *Journal of Personality and Social Psychology, 70*, 491-512.

Goidel, R., Freeman, C. & Procopio, S. (2006). The impact of television viewing on perceptions of juvenile crime. *Journal of Broadcasting & Electronic Media, 50(1)*, 119-139.

Good, J. (2009). The cultivation, mainstreaming, and cognitive processing of environmentalists watching television. *Environmental Communication, 3*(3), 279–297.

Gross, K., & Aday, S. (2003). The scary world in your living room and neighborhood: Using local broadcast news, neighborhood crime rates, and personal experience to test agenda setting and cultivation. *Journal of Communication, 53*(3), 411-426.

Hawkins, R. P. & Pingree, S. (1981). Uniform content and habitual viewing: Unnecessary assumptions in social reality effects. *Human Communication Research*, 7(4), 291-301.

Hawkins, R. P. & Pingree, S. (1982). Television's influence on constructions of social reality. In D. Pearl, L. Bouthilet, & J. Lazar (Eds.), *Television and behavior: Ten years of scientific progress and implications for the eighties* (Vol. 2, pp. 224–247). Washington, DC: Government Printing Office.

Hawkins, R. P., Pingree, S., & Adler, I. (1987). Searching for cognitive processes in the cultivation effect: Adult and adolescent samples in the United States and Australia. *Human Communication Research, 13*(4), 553-577.

Hayes, A. F. (2012). PROCESS: A versatile computational tool for observed variable mediation, moderation, and conditional process modeling [White paper].

Hayes, A. F. (2015). Hacking PROCESS for bootstrap inference in moderation analysis. [White paper].

Hayes, A. F. & Montoya, A. K. (2017). A tutorial on testing, visualizing, and probing an interaction involving a multicategorical variable in linear regression analysis. *Communication Methods and Measures* (11)1, 1-30.

Huff, C. & Tingley, D. (2015). "Who are these people?" Evaluating the demographic characteristics and political preferences of MTurk survey respondents. *Research & Politics, 2*(3), 1-12.

IBM Corp. Released 2016. IBM SPSS Statistics for Macintosh, Version 24.0. Armonk, NY: IBM Corp.

Kim, J. (2012). The institutionalization of YouTube: From user-generated content to professionally generated content. *Media, Culture & Society 34*(1) 53–67.

Lawrence, A. J. (1995). Deletion influence and masking in regression. *Journal of the Royal Statistical Society. Series B (Methodological)*, 181-189.

Leeper, T. J. (2015, November 30). *HIT design*. Retrieved from <https://github.com/cloudyr/MTurkR/wiki/HITDesign>

Lotz, A. (2014). *The television will be revolutionized* (2nd ed.). New York: New York University Press.

McKinley, C. J. (2013). Reexamining the link between cultivation factors and viewer involvement: Investigating viewing amount as a catalyst for the transportation process. *Communication Studies, 64*(1), 66-85.

Miller, J. W., Stromeyer, W. R., & Schwieterman, M. A. (2013). Extensions of the Johnson-Neyman technique to linear models with curvilinear effects: Derivations and analytical tools. *Multivariate Behavioral Research*, *48*(2), 267-300.

Morgan, M. (1982). Television and adolescents' sex role stereotypes: A longitudinal study. *Journal of Personality and Social Psychology, 43*(5), 947-955.

Morgan, M. (1984). Heavy television viewing and perceived quality of life. *Journalism Quarterly, 61*, 499–504.

Morgan, M. & Rothschild, N. (1983). Impact of the new television technology: Cable TV, peers and sex-role cultivation in the electronic environment. *Youth & Society, 15*(1), 33-50.

Morgan, M. & Shanahan, J. (1991). Do VCRs change the picture? VCRs and the cultivation process. *American Behavioral Scientist, 35*(2), 122-135.

Morgan, M., Shanahan, J. & Signorielli, N. (2012). *Living with television now: Advances in cultivation theory & research*. New York: Peter Lang.

Morgan, M., Shanahan, J. & Signorielli, N. (2015). Yesterday's new cultivation, tomorrow. *Mass Communication & Society, 18*, 674–699.

Napoli, P. M. (2012), Audience evolution and the future of audience research. *The International Journal on Media Management*, *14*,79–97.

Nee, R. C., & Dozier, D. M. (2015). Second screen effects: Linking multiscreen media use to television engagement and incidental learning. *Convergence: The International Journal of Research into New Media Technologies*, 1-14.

Neuendorf, K., Jeffres, L. W., & Atkin, D. (2000). The television of abundance arrives: Cable choices and interest maximization. *Telematics & Informatics, 17*, 169-197.

Nielsen Company. (2014, February). *The digital consumer report.* New York: Author.

Nielsen Company. (2015, April 6). *Live tv + social media engaged viewers.* Retrieved from the Nielsen Company Web site: <http://www.nielsen.com/us/en/insights/news/2015/live-tv-social-media-engaged-viewers.html>

Nielsen Company. (2015, March). *Connecting with the cosmos: The total audience media universe.* Retrieved from the Nielsen Company Web site:<http://www.nielsen.com/us/en/insights/news/2015/connecting-with-the-cosmos-the-total-audience-mediauniverse.html>

Nielsen Company. (2016, January). *The Nielsen total audience report: Q4 2015*. New York: Author.

Nielsen Company. (2016, March). *Video on demand: How worldwide viewing habits are changing in the evolving media landscape*. New York: Author.

Nielsen Company. (2016, September). *The Nielsen total audience report: Q2 2016.* New York: Author.

Nielsen Company. (2017, May). *The Nielsen comparable metrics report: Q4 2016.* New York: Author.

Nielsen Company. (2017, April). *The Nielsen total audience report: Q4 2016.* New York: Author.

Pandey, S., & Elliott, W. (2010). Suppressor variables in social work research: Ways to identify in multiple regression models. *Journal of the Society for Social Work and Research*, *1*(1), 28-40.

Paolacci , G. & Chandler, J. (2014). Inside the turk: Understanding mechanical turk as a participant pool. *Current Directions in Psychological Science, 23*(3), 184-188.

Perloff, R. (2015). Mass communication research at the crossroads: Definitional issues and theoretical directions for mass and political communication scholarship in an age of online media. *Mass Communication & Society, 18*, 531–556.

Perse, E., Ferguson, D., & McLeod, D. (1992). *Cultivation in the newer media environment.* Paper presented at the Annual Meeting of the Association for Education in Journalism and Mass Communication (75th, Montreal, Quebec, Canada, August 5-8, 1992).

Pew Research Center. (2015, April). *A deep dive into party affiliation.* Washington, DC: Author.

Pew Research Center. (2016, April). *A wider ideological gap between more and less educated adults: Political polarization update*. Washington, DC: Author.

Raman, R. (2015, August 5). *What the evolution of television means for the world*. Retrieved from the World Economic Forum Web site: <http://www.weforum.org/agenda/2015/08/what-the-evolution-of-television-means-for-the-world/>

Rivadeneyra, R., & Ward, L. M. (2005). From Ally McBeal to Sábado Gigante: Contributions of television viewing to the gender role attitudes of Latino adolescents. *Journal of Adolescent Research*, *20*(4), 453-475.

Romer, D., Jamieson, K. H., & Aday, S. (2003). Television news and the cultivation of fear of crime. *Journal of Communication, 53*(1), 88-104.

Rubin, A., Perse, E., & Taylor, D. (1988). A methodological examination of cultivation. *Communication Research, 15*, 107-134.

Schumm, W. R. (2012). Lessons for the "devilish statistical obfuscator," or how to argue for a null hypothesis: a guide for students, attorneys, and other professionals. *Innovative Teaching, 1*(2), 1-13.

Schumm, W. R., Pratt, K. K., Hartenstein, J. L., Jenkins, B. A., & Johnson, G. A. (2013). Determining statistical significance (alpha) and reporting statistical trends: Controversies, issues, and facts. *Comprehensive Psychology, 2(*10), 1-6.

Shanahan, J. & Morgan, M. (1999). *Television and its viewers: Cultivation theory and research*. Cambridge, UK: Cambridge University Press.

Shrum, L. J. (2001). Processing strategy moderates the cultivation effect. *Human Communication Research, 27*(1), 94-120.

Shrum, L. J. (2007). Cultivation and social cognition. In D. R. Roskos-Ewoldsen & J. L. Monahan (Eds.), *Communication and social cognition: Theories and methods* (pp. 245–272). Mahwah, NJ: Lawrence Erlbaum.

Shrum, L. J. (2009). Media consumption and perceptions of social reality: Effects and underlying processes. In J. Bryant & M. B. Oliver (Eds.), *Media effects: Advances in theory and research* (3rd ed., pp. 50–73). New York: Psychology Press.

Shrum, L. J. & Bischak, V. D. (2001). Mainstreaming, resonance, and impersonal impact: Testing moderators of the cultivation effect for estimates of crime risk. *Human Communication Research, 27*(2), 187-215.

Shrum, L. J., Burroughs, J. E., & Rindfleisch, A. (2005). Television's cultivation of material values. *Journal of Consumer Research*, *32*(3), 473-479.

Shrum, L. J. & Lee, J. (2012). Multiple processes underlying cultivation effects: How cultivation works depends on the types of beliefs being cultivated. In M. Morgan, J. Shanahan & N. Signorielli (Eds.), *Living with television now: Advances in cultivation theory & research* (pp. 147-167) New York: Peter Lang.

Shrum, L. J., Lee, J., Burroughs, J., & Rindfleisch, A. (2011). An online process model of second-order cultivation effects: How television cultivates materialism and its consequences for life satisfaction. *Human Communication Research, 37*, 34-57.

Shrum, L. J., Wyer, O. S., & O'Guinn, T. C. (1998). The effects of television consumption on social perceptions: The use of priming procedures to investigate psychological processes. *The Journal of Consumer Research, 24*(4), 447-458.

Signorielli, N. (1984). The demography of the television world. In O. H. Gandy, P. Espinosa, and J. A. Ordover (Eds.), *Cultural Indicators: An international symposium* (pp. 137-157). Vienna, Austria: Osterreichischen Akademie der Wissenschaften.

Signorielli, N. &Bacue, A. (1999). Recognition and respect: A content analysis of primetime television characters across three decades. *Sex Roles, 40*(7/8), 527-544.

Signorielli, N. & Kahlenberg, S. (2001). Television's world of work in the nineties. *Journal of Broadcasting & Electronic Media, 45*(1), 1-19.

Simons, N. (2013). Watching TV fiction in the age of digitization: A study into the viewing practices of engaged TV fiction viewers. *International Journal of Digital Television, 4*(2), 177-191.

Slater, M. & Rouner, D. (2002). Entertainment-education and elaboration likelihood: Understanding the processing of narrative persuasion. *Communication Theory, 12*(2), 173-191.

Spiller, S. A., Fitzsimons, G. J., Lynch Jr, J. G., & McClelland, G. H. (2013). Spotlights, floodlights, and the magic number zero: Simple effects tests in moderated regression. *Journal of Marketing Research*, *50*(2), 277-288.

Stevens, J. P. (1984). Outliers and influential data points in regression analysis. *Psychological Bulletin*, *95*(2), 334.

Swim, J. K., Aikin, K. J., Hall, W. S., & Hunter, B. A. (1995). Sexism and racism: Old-fashioned and modern prejudices. *Journal of Personality and Social Psychology, 68*(2), 199-214.

Thompson, F. T., & Levine, D. U. (1997). Examples of easily explainable suppressor variables in multiple regression research. *Multiple Linear Regression Viewpoints*, *24*(1), 11.

Tyler, T. R. & Cook, F. L. (1984). The mass media and judgments of risk: Distinguishing impact on personal and societal level judgments. *Journal of Personality and Social Psychology, 47*(4), 693-708.

U.S. Census Bureau (2015a). *Age demographic and housing estimates, 2010-2015 American Community Survey 5-year estimates*. Retrieved from <https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_15_5YR_DP05&src=pt>

U.S. Census Bureau (2015b). *Educational attainment, 2010-2015 American Community Survey 5-year estimates*. Retrieved from <https://factfinder.census.gov/faces/tableservices/jsf/pages/ productview.xhtml?pid=ACS_15_5YR_S1501&prodType=table>

United States Department of Labor (2015). *American time use survey (ATUS)*. Bureau of Labor Statistics.

Van den Bulck, J. (1999) VCR-use and patterns of time shifting and selectivity. *Journal of Broadcasting & Electronic Media, 43*(3), 316-326

Warner, R. M. (2013). Applied Statistics: From Bivariate Through Multivariate Techniques (2nd edition). Thousand Oaks, CA: Sage.

Webster, J. (1986). The television audience: Audience behavior in the new media environment. *Journal of Communication, 36*(3), 77-93.

Williams, D. (2006). Virtual cultivation: Online worlds, offline perceptions. *Journal of Communication, 56*, 69-87.