DISSERTATION

CRAFTING THE "MYTHS OF THE FUTURE": THE ART AND SCIENCE OF WRITING SCENARIOS IN SCENARIO PLANNING

Submitted by

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In partial fulfillment of the requirements

For the Degree of Doctor of Philosophy

Colorado State University

Fort Collins, Colorado

Spring 2019

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ABSTRACT

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The purpose of this research was to investigate scenario writing as a discrete component of the scenario planning process. While ongoing scholarship on scenario planning has added data to support many of the outcomes of the process, the specific guidance to writers of scenarios has remained largely absent from the literature. For those who would write scenarios either as practitioners or as organizational members who tackle the process, more information would be useful to inform the writing.

This research had two aims. First, to distill the available literature on scenario writing into a practical model for writers. In addition to reviewing scenario planning literature, this work also considered the impact of specific genres of writing: science fiction, with its future-oriented frame; theater, with its performance and lived-experience approach to content; and short stories, with their high-impact, short-format structure. Beyond types of writing, best practices for writing were also considered. Second, this work sought to test writing quality in scenarios by measuring participant experiences with the stories.

To accomplish this second objective, the researcher facilitated a series of scenario planning workshops, wrote scenarios of high and low quality, and leveraged the ITC-Sense of Presence Inventory (SOPI) to measure participant experiences of sense of presence. Sense of presence is a useful and previously unexplored construct to measure participant experiences with scenarios. The ITC- SOPI has primarily been used to measure sense of presence for participants

experiencing non-written media, like movies, video games, or virtual reality. The tool showed promise, however, to asses a scenario reader's experience as well. The instrument measures four constructs of sense of presence: spatial presence, engagement, ecological validity, and negative effects.

Spatial presence is a person's sense of being drawn into the medium. Engagement describes a participant's sense of enjoyment. Ecological validity is the sense of naturalness or realistic qualities of the medium. And negative effects are the person's discomfort experienced after interacting with the medium. All of these constructs are of interest to scenario writers, since the existing literature does consistently explain that participants should experience all four – feeling drawn into the story, enjoying at least parts of the experience, feeling that the scenarios are realistic, and potentially undergoing difficult or challenging changes in thinking as a consequence of the experience.

The results of the inquiry were promising. Three hypotheses were tested to understand how scenario quality affected participant sense of presence and whether or not participating in the workshops had any effect on sense of presence. Results indicated that both workshop participation and scenario quality had statistically significant effects on sense of presence scores. Such results indicate additional inquiry would be beneficial.

ACKNOWLEDGMENTS

To my advisor, mentor, and friend, Dr. Tom Chermack – thank you so much for sticking with me over the last decade! The work we have gotten to do together has been the absolute highlight of my professional and academic experience, and without you, none of it would have been possible. Thank you for the inspiration, for your passion for this subject, and for being such an amazing influence on both my and Justin's lives. And to your family, Danielle and Isla! Thank you for being part of this journey and for being part of our lives!

To my committee members, Dr. Sue Doe, Dr. Dae-Seok Chai, and Dr. Gene Gloeckner. Thank you all for the incredible support and encouragement, and for the input on how to improve the work. I appreciate you all!

To my brother Christopher, for always being there and being willing to listen to me rattle off parts of the project. Thanks for your support!

To my husband, Justin, thank you so much for believing in me through this process and for making sure I ate dinner every night. I love you and I could not have done this without you! And to your whole family – the Allens and McClellands – all of whom kept believing this was possible even when it started to look like ten years was the timeline. Thank you all!

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CHAPTER ONE: INTRODUCTION AND BACKGROUND

What makes a good story? What is it about a compelling narrative that causes readers or listeners to feel completely engaged – as though they are truly experiencing the story first hand? Questions like these are at the forefront of research into how people experience a variety of media – video games, movies, and stories (Cooper, Milella, Pinto, Cant, White, & Meyer, 2018; Dillon, Keogh, Freeman, & Davidoff, 2000; Jung, 2011; Nagendran, Pillat, Kavanaugh, Welch, & Hughes, 2014; Takatalo, Nyman, & Laaksonen, 2008; van Baren & Ijsselsteijn, 2004). Measuring an individual's sense of presence – that is, his or her experience of being fully immersed in the medium – helps creators of media understand how to make their content as captivating and therefore effective as it can be (Cooper, et al., 2018; Dillon et al., 2000; Nagendran et al., 2014).

Scenario planning relies on a particular medium – stories – to achieve its objectives. Accordingly, questions like these should also be at the forefront of scenario planning research. In scenario planning, participants ultimately produce, or contribute to the production of, a series of narratives about the potential futures they may face. These stories capture their hopes and fears, their anxieties and ambitions for their organization (Flowers, 2003; Schwartz, 1991). More than this, the stories also have a very specific purpose, a specific effect or succession of effects they are meant to have on participants.

First, scenarios, like all stories, are meant to inspire participants to suspend their disbelief and consider the possibilities presented (Chermack & Coons, 2012; Ralston & Wilson, 2006). Once participants experience presence within the story, scenarios are able to catapult readers into a future realm in which exposure to, and practice for, potential outcomes is possible. When effective, scenarios should inspire revelation. They will "force people to think about the future"

(Wack, 1984, p. 25), "change readers' behavior" (Schwartz, 1991, p. 38), "stretch as well as focus people's thinking (Schoemaker, 1993, p. 200), and when they are "scientifically developed," they "can reliably and predictably *change minds*" (Ogilvy, 2005, p. 332). While the entirety of the scenario planning process contributes to these influences on participants, the stories themselves are the containers of and the primary drivers of the full experience. Through the stories, participants are able to rehearse potential futures, see themselves reacting to and proactively driving changes that otherwise might come as costly surprises (Kahane, 2012; Ralston & Wilson, 2006; Wilkinson & Kupers, 2013). Scenarios are vital to the successful outcomes of scenario planning.

Yet the inquiry into scenarios themselves has not been a focal point in scenario planning research; within the last five or so years, this topic has become more popular (Burnham-Fink, 2015; Chermack & Coons, 2012; Derbyshire & Wright, 2017). This is not to suggest that the development of the stories has not consistently been part of the conversation. The earliest scenario planners provided experiential details about the writing process and offered general frameworks for practitioners (Ogilvy & Schwartz, 1998; Ralston & Wilson, 2006; Ringland, 1998; Schwartz, 1991; Wack, 1984). While texts offer general guidelines for writing scenarios, and some provide typologies to help scenario writers base their stories on key styles (Bishop, Hines, & Collins, 2007; Börjeson, Höjer, Dreborg, Ekvall, & Finnveden, 2006), only one article has attempted to specify the writing process in detail (Chermack & Coons, 2012). This work emphasizes practitioner experience with the writing process, but it does not support or validate its recommendations with research. Another recent article has proposed an existing framework from science fiction writing as an option for writing scenarios (Burnham-Fink, 2015). Burnham-Fink (2015) put forth a sci-fi prototyping model and came closer to a step-by-step process for

writing and provides a case study example of such application but stops shorts of explicit guidance for writing. A few authors have begun the process of identifying feasible theories to frame the scenario writing process (Bowman, MacKay, Masrani, & McKiernan, 2013; Frittaion, Duinker, & Grant, 2010). These works have drawn from available theories in the field of literary studies to explain how the stories told in scenarios operate, but they do not provide offer evidence to inform the scenario writing process.

Ultimately, scenario planning literature suggests that, when effective, scenarios contribute to participant learning, changes in mental models, and stronger decision making (Chermack & Lynham, 2002; Schwartz, 1991; Wack, 1984). Well-crafted scenarios take participants from the point of identifying key problematic issues to being able to envision and plan for a wide range of possible outcomes. Scenarios push participants to see differently – to re-perceive their world and its future (Ringland, 1998; Schwartz, 1991; van der Heijden, 1996; Wack, 1984). Finally, scenarios encapsulate the output of the overall process so that organization members who do not engage in the full workshop experience can read the stories and have the same shift in understanding and perception (Chermack, 2011; Ogilvy & Schwartz, 1998; van der Heijden, 1996). In fact, scenarios are one of the only means of carrying scenario planning outcomes beyond the small workshop participation group throughout an organization (van der Heijden, 1996). Despite their significance to the process, however, there is little evidence to support recommendations about how to write them. As such, there is no way to confirm (or disconfirm) the effectiveness of the writing or the finished stories. This means practitioners of scenario planning must cobble together the scenario writing process from a range of varying experience- and opinion-based recommendations (Burnham-Fink, 2014; Chermack & Coons,

2012). The result is that there is no way truly to understand – or reliably replicate – an effective scenario writing process.

It would revolutionize scenario planning to be able to explain exactly how to write scenarios. For those who practice and study scenario planning, the ability to describe precisely how to compose the stories, such that they would effectively play their part in achieving scenario planning outcomes, would be invaluable. Literature reviews have attempted to tackle the variety of material available to scenario planning practitioners for "scenario development," but these works focus primarily on the overall scenario planning process rather than the isolated writing process (Amer, Daim, & Jetter, 2013; Bishop et al., 2007; Börjeson et al., 2006). The writing of scenarios is typically only briefly described. Such reviews provide typologies, characterizations, and high-level overviews of scenarios, but they stop at descriptive classification. To address the need left in the absence of precise guidelines for writing scenarios, this project seeks to isolate the writing process within the broader scenario development phase of scenario planning and identify the specific steps and quality measures of scenario authorship. Further, it attempts to explain the relationship between the scenarios and the participants more precisely.

The Problem

Without process development and research to support the procedure of writing scenarios, there is no consistent, clear technique for producing scenarios or measuring scenario quality. Consequently, the ability to assess the full scenario process is limited. A "good" scenario has the effect of enabling participants to change their minds (Ogilvy, 2005; Wack, 1984), but the guidelines for producing good written scenarios are insufficient. The consequences of this limitation are twofold: (1) practice is not fully informed, and (2) there is no regular means of assessing the quality of the product.

To address the need left in the absence of precise guidelines for writing scenarios, it is necessary to segregate the writing process from the broader scenario development phase and pinpoint the specific steps of the scenario writing process. Therefore, the problem statement is:

> The absence of evidence-based support for writing scenarios according to specific standards impairs scenario planning practice and research.

Significance of the problem. Scenarios are a critical piece of the scenario planning process (Burnham-Fink, 2014; Chermack & Coons, 2012; Ogilvy, 1996; Schwartz, 1991, van der Heijden, 1996; Wack, 1984). Regardless of their importance, the writing process is neither guided by research nor supported by theory (Burnham-Fink, 2014; Chermack & Coons, 2012). Today, there are only vague guidelines for crafting "good" scenarios. Ultimately, outcomes of the scenario planning process rest on participant engagement in the written scenarios. If they cannot be fully engaged in the scenarios, they cannot fully integrate the material, nor can they undergo the mental model shifts expected in the process (Chermack, 2005; Chermack, 2011; Chermack & Lynham, 2002; Wack, 1984). In other words, if participants do not experience sense of presence as they interact with the stories, the changes the scenarios are supposed to enact in their thinking cannot occur. Without that engagement, scenario planning outcomes cannot be achieved. Thus, scenario planning as a discipline suffers from an incomplete set of standards for producing consistent outcomes.

Purpose of the Study

This project had several ambitions. First, it sought to analyze existing scenario planning literature that offers guidelines for the writing of scenarios. The goal of this analysis was to synthesize recommendations into a model for scenario writing, including quality criteria. Second, this project tested hypotheses to measure participant response to scenarios. To support this

investigation, it added to the scenario planning model, illustrating a previously underdeveloped step between the scenario planning process and its outcomes. Third, the project examined the difference between participants' reactions to scenarios when they have had the full scenario planning experience and the reactions of non-participating individuals who only experience reading the stories.

Research Questions

The following research question frames the analysis and theory building content of this project:

Research Question 1 (*RQ1*): How does existing scholarship describe the creation of scenarios in terms of writing methods?

To measure participants' response to scenarios, this project also asks:

Research Question 2 (RQ2): Is there a difference between scenario workshop participants and non-participants in regard to sense of presence scores?

Research Question 3 (RQ3): Is there a difference between high- and low- quality scenarios in regard to sense of presence scores?

Research Question 4 (RQ4): Is there an interaction of workshop participation and scenario quality in regard to sense of presence scores?

Definition of Key Terms

The key terms used in this study are (1) scenario planning, (2), scenario, (2a) "good" scenario, (3) suspension of disbelief, (4) and presence.

Scenario Planning. Scenario planning "in the first place a diagnostic tool for conditions in which uncertainty rules" (Kahane, 2012, p.12). It is "a way for people to work with complex problematic situations" (Kahane, 2012, p. 17) so that they are better able to understand their decisions. Moreover, it is "a tool for surfacing assumptions so that changes can be made in how decision makers see the environment" and "changing and improving the quality of people's perceptions" (Chermack, 2011, p. 3). The process is about "making choices *today* with an understanding of how they might turn out" (Schwartz, 1991, p. 4). Scenario planning "opens the space to consider 'what if' rather than 'whether'" (Wilkinson & Kupers, 2014, loc. 1881). Ultimately, scenario planning is a process through which organizations work to better understand their environment, learning to be more flexible and adaptable (Chermack, 2011; Oliver & Parrett, 2018; Wack, 1984).

Scenario. Though its origins are rooted in theater, the definition used for scenario here is focused more specifically on scenarios used in the scenario planning process. However, it is useful to understand the original concept since the etymology of this key term informs understanding for its more contextual use in scenario planning. The Latin root for the term is *scena*, meaning "scene" (Harper, 2014). This became the Late Latin *scenarius*, and then the Italian *scenario*, both meaning "of stage scenes" (Harper, 2014). The first English recording of the word occurred in 1868, when "scenario" was used to describe the "sketch of the plot of a play" (Harper, 2014). In the modern sense of an "imagined situation," the term was first recorded in 1960, describing "hypothetical nuclear wars" (Harper, 2014).

In the field of scenario planning, several definitions are useful. Both Porter (1985) and Chermack (2011) described scenarios as "internally consistent" views of the future. Schwartz (1991) and Ringland (1998) described scenarios poetically as: "myths of the future" (Schwartz,

1991, p. 41) and "a fairy tale" (Ringland, 1998, p. 2). While there was some discomfort in the literature around calling scenarios "stories" or "narratives" (van der Heijden, Bradfield, Burt, Cairns, & Wright, 2002; Chermack, 2011) from the perspective of the scenario author, scenarios are truly stories about the future, containing plausible but challenging information that works to break readers out of their current thinking around possibility. There has also been a more recent trend toward leaning into the narrative structure of scenarios (Burnham-Fink, 2015; Chermack & Coons, 2012; Vervoort, Bendor, Kelliher, Strik, & Helfgott, 2015) Scenarios also facilitate the process of internal discovery – what would we do if, how would we handle this reality? For this project, scenario is understood to mean a story of the future, crafted for an organization so that it may explore possible future realities and develop options and strategies based on those potential states.

"Good" scenario. An important subsection of the definition for scenario is the explanation of qualities of that make a scenario "good." While there is not yet a unified, evidence-based understanding of quality for scenarios, the "goodness" of the stories is frequently touched on in relevant literature. Since this study aims to explore quality, another set of definitions from the literature is helpful here. It is quite common that the literature uses language of change – sometimes bordering on painful change – to describe the effect scenarios should have on participants. Wack (1984) used the terms "force" and "compel" to describe the action of scenarios – that they will force thoughts about the future. Both Shoemaker (1993) and van der Heijden (1996) said scenarios will "stretch" people's thinking. Keough and Shanahan (1998) stated that strong scenarios will "jolt" readers out of their comfort zone, forcing them to take in and contemplate alternative perspectives. Ogilvy (2005) claimed that scenarios, when produced

according to scientific processes, "can reliably and predictably *change minds*" (p. 332, his emphasis).

"Good" scenarios are able to enact changes on the people who experience them (Ogilvy, 2005; van der Heijden, 1996; Wack, 1984). They are compelling, evocative, and challenging (Chermack, 2011; Chermack & Coons, 2012). High-quality scenarios should create cognitive dissonance in the reader such that she is forced to contend with unfamiliar, frightening, or seemingly impossible circumstances (Keough & Shanahan, 2008). This means "good" scenarios are realistic enough to be believed – to induce a suspension of disbelief, otherwise known as a sense of presence in the story. Yet they must also be stretchy enough; they must push on the boundaries of what is assumed to be real and drive the audience to think differently about themselves and their environment (van der Heijden et al., 2002; Wack, 1984). This is a tall order, but one that should be, based on the process of scenario planning, replicable and bounded by clear process.

Suspension of disbelief. Suspension of disbelief is a concept that comes from philosophy, typically attributed to Samuel Taylor Coleridge (1817) though also often connected to Benedictus de Spinoza (1670). Coleridge's (1817) more widely recognized explanation for the term is that it is the willingness of a reader – though current studies also consider observers of media – temporarily to disable her critical assessment of any text. In other words, belief is suspended when people lose themselves in the medium with which they are interacting, believing for a moment that the world of that medium is plausible, real, or engaging. Coleridge (1817) quite beautifully referred to this experience as "poetic faith" (p. 99).

Presence or sense of presence. Presence, sometimes called "sense of presence" is the construct that has emerged from research aimed at exploring people's experience of suspension of disbelief while interacting with media – from books to television and movies to video games (Lessiter, Freeman, Keogh, & Davidoff, 2001; van Baren & Ijsselsteijn, 2004). When media users experience suspension of disbelief, they are more completely *present* in the media experience. Presence is typically subdivided into several experiences that make up the larger construct. These include, but are not limited to sense of physical space, enjoyment, belief in the plausibility of the media, and any negative physical or mental experiences that occur as a result of the experience (Lessiter et al., 2001; van Baren & Ijsselsteijn, 2004) – such as blurred vision from seeing a 3D movie to intense unease upon reading a gruesome passage.

CHAPTER TWO: LITERATURE REVIEW AND WRITING MODEL

This chapter explores published work on scenario planning, sense of presence, and the ITC-Sense of Presence Inventory (SOPI). First, a brief history of scenario planning is presented, including a summary of results from research studies that measure the outcomes of the process. Second, an integrative literature review (Callahan, 2010; Torraco, 2005; Passmore & Chermack, 2005) of scenario planning, focusing on the information about writing scenarios, is provided. The literature review is used to create two models for writing scenarios: Scenario Writing Guidelines and Scenario Quality Checklist. Third, an integrative literature review focused on sense of presence and the ITC-SOPI is provided.

Scenario Planning

The first major component of this study is scenario planning itself. While this topic has been explored in greater detail in other texts (Bloom & Menefee, 1994; Curry, 2012; Chermack 2011; Ogilvy & Schwartz, 1998; Schwartz, 1991), it is useful to present a concise history of the field, a summary of the process, and an overview of the research studies focused on measuring its impact. Such a background helps frame the other components of this study. Specifically, a brief overview of the research studies conducted on scenario planning illustrates that to date, no investigation has been conducted specifically on scenario quality or the scenario writing process.

Scenario planning – historical overview. Scenarios – as strategic tools – have their roots in military strategy. The original use of the term "scenarios" in association with future-thinking exercises is typically credited to Herman Kahn, a member of the Hudson Institute and later the Rand Corporation (Curry, 2012; Schwartz, 1991). The concept of war games was based on the same process as scenario planning – imagining potential versions of the future and designing reactions accordingly (Frentzel, Bryson, & Crosby, 2000). The Stanford Research

Institute (SRI) also worked on long-range planning programs for industries connected to research, politics, or economics – specifically projecting for large-scale social changes (Ringland, 1998). SRI's work introduced Shell Oil to the concept of scenario planning, resulting in most famous use case of this strategic technique. Shell's use of scenarios to plan for and overcome economic instability in the 1970s catapulted scenario planning into the spotlight (Ringland, 1998).

The creation of scenario planning as a technique is typically credited to the team of futurists working for Shell in the 1960s, among them Pierre Wack and Henk Alkema (de Ruijter, 2014). While credit for the concept of scenario planning can be difficult to assign to one individual, this project is focused on the scenario planning technique created first at Shell, adopted and refined by the Global Business Network (GBN), and structured on the 2x2 "double uncertainty" matrix (Chermack, 2011; Curry, 2012; Ogilvy & Schwartz, 1998; Ralston & Wilson, 2006; Schwartz, 1991; Wack, 1984). With that focus, it is traditionally Wack who is recognized as the father of scenario planning (van der Heijden, 1996).

The process of scenaric thinking was developed in response to an increasingly complex and unpredictable world (Steil & Gibbons-Carr, 2005). Scenaric thinking afforded companies the ability to act more with more agility and speed than their competitors (van der Heijden, 1996). As the field grew, a wide array of techniques for conducting scenario planning were developed (Cornish, 2004), but the Shell/GBN/2x2 matrix model is increasingly well-established, as it tends to be the dominant technique in the field (Curry, 2012). For better or worse, this means more information is available about the outcomes of this technique (Ramirez & Wilkinson, 2014). This approach generally begins with workshops conducted with organizational members to engage in strategic conversations (Chermack, 2011; Schwartz, 1991; van der Heijden, 1996). They identify

critical uncertainties, and those details are crafted into stories about possible futures (Schwartz, 1991; Wack, 1984). Additional details about the specific process used for this study are provided in Chapter 3.

In organizations, future-thinking behaviors are uncommon in times of prosperity; it is during times of crisis that organizations look for stronger anticipatory behaviors (Godet, 2000). Scenario planning applies in either situation – good or bad times, with equally positive results (Godet, 2000). A variety of strategic techniques provide results, but scenaric thinking, with its emphasis on confronting and addressing uncertainties, may be the most useful (Clemens, 2009). While strategic planning is one form of futures thinking, scenario planning works against the idea of forecasting and with the idea of imagining possibilities.

Scenario planning – theoretical model. In his theory of scenario planning, shown in Figure 2.1, Chermack (2011) illustrated the interconnected major theory domains that comprise the foundation of scenario planning as a process.

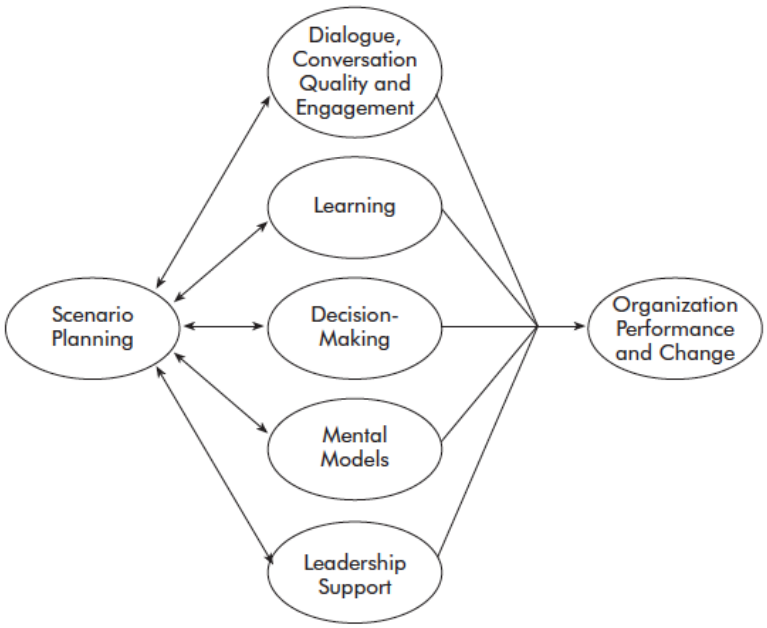


Figure 2.1: Theory of Scenario Planning from Chermack

This model links overall organizational performance and change to five domains impacted by scenario planning experiences. Participants in scenario planning interventions undergo changes – induced by the process – in each of these areas (Chermack & Lynham, 2007; Chermack & Nimon, 2008; Glick, Chermack, Luckel, & Gauck, 2012; Haeffner, Leone, Coons, & Chermack, 2012; Veliquette, Coons, Mace, Coates, & Chermack, 2012). The theoretical foundations, guidelines for using scenarios, and strategies for evaluating the outcomes of scenario planning are increasingly well covered by the literature (Chermack, 2011; Spaniol & Rowland, 2018). For this study, a brief review of these outcomes is helpful, as it frames the conversation about the role of writing scenarios.

Outcomes of scenario planning. In the Theory of Scenario Planning, the primary outcome of the process is organizational performance and change (Chermack, 2011). The underlying domains supporting that outcome – dialogue, conversation quality and engagement; learning; decision making; mental models; and leadership support – have been investigated in recent scholarship (Chermack, Coons, O'barr, & Khatami, 2017; Chermack & Lynham, 2002; Chermack & Nimon, 2008; Chermack, van der Merwe, & Lynham, 2007; Glick et al., 2012; Haeffner et al., 2012; Veliquette et al., 2012;). These variables have bearing on the constructs under study in this dissertation, and so results from analysis are presented here.

Dialogue, conversation quality, and engagement. The first outcome – dialogue, conversation quality, and engagement – was explored in a quasi-experimental study of nine participants from a large organization in the United States, which was replicated using a larger sample size of 137 participants. In the original smaller study, participants were given the Conversation Quality and Engagement Checklist (CQEC) pre- and post-scenario planning intervention (Chermack et al., 2007). Chermack, van der Merwe, and Lynham (2007)

hypothesized that there would be an increase in mean scores as measured by the CQEC. Descriptive statistics of the results showed an overall increase in mean scores from pre- to post-intervention. Their conclusion indicated that communication skills are important to scenario planning and that perceptions of these skills improved via scenario planning exercises (Chermack et al., 2007).

In the larger study, researchers worked with 137 participants from 10 organizations in the US (Veliquette et al., 2012). Results were again significant, reinforcing a perceived improvement in communication skills and engagement through scenario planning.

Learning. The foundational inquiry for this domain presented results from a quasi-experimental study with a sample of nine participants (Chermack et al., 2007); a larger replication study with 133 participants reinforced the results (Haeffner et al., 2012). Participants experienced a scenario planning intervention and completed a pre- and post-test using the Dimensions of Learning Organization Questionnaire (DLOQ). This instrument measures seven constructs: continuous learning, dialogue and inquiry, team learning, embedded systems, empowerment, system connections, and leadership. It has been validated using criterion indices for assessing model validity. In the scenario planning study, results were significant for six of the seven constructs measured by the DLOQ (Chermack et al., 2007). The DLOQ is designed to measure an organization's learning culture through employees' perceptions of the seven dimensions (Chermack et al., 2007).

Overall, participants demonstrated significant increases in all but embedded systems; the authors contextualized this outcome by explaining that for this construct, a connection to scenario planning has not been asserted previously, and it was not their intention to do so (Chermack et al., 2007). For the other six constructs, however, the results reinforced previous

studies and claims in the scenario planning literature – that participants experience increases in perception of their organization as a learning entity (Chermack et al., 2007).

In the replication study with 133 participants, for six of the seven constructs, participants showed significant change from pre- to post-test (Haeffner et al., 2012). In this study, continuous learning was the construct for which significant change could not be demonstrated. The authors purported that this outcome was based on the one-time nature of the scenario planning intervention (Haeffner et al., 2012).

Decision-making style. Scholars have explored decision-making style hypothetically and theoretically (Wright & Goodwin, 1999; van der Heijden, 1997, 2005; van der Heijden et al., 2002), as well as empirically (Chermack & Nimon, 2008). They went on to produce the first empirical study of decision-making style as an outcome of scenario planning, using the General Decision-Making Style Survey developed by Scott and Bruce (1995). The GDMS measures differences in decision-making behavior across five decision-making styles: rational, intuitive, dependent, avoidant, and spontaneous (Scott & Bruce, 1995). Rational decision-making is "characterized by a thorough search for and logical evaluation of alternatives" (Scott & Bruce, 1995, p. 820). The intuitive style is focused more on an internal "sense of 'rightness' about decisions" (Scott & Bruce, 1995, p. 823). Dependent decision-making style looks to other people's opinions and recommendations (Scott & Bruce, 1995). The avoidant style actually tries to avoid making decisions (Scott & Bruce, 1995). And spontaneous decision-making is focused on attempting to make decisions as quickly as possible (Scott & Bruce, 1995).

Chermack and Nimon (2008) hypothesized that people who engaged in scenario planning would tend to use less rational, avoidant, and spontaneous styles, and would tend to use more intuitive and dependent decision-making styles. Because scenario planning encourages more

innovative, open thinking and less dependence on exactly what is known today, the authors hypothesized that decision making styles would be less focused on precise logic and more focused on intuition (Chermack & Nimon, 2008). Further, because scenario planning requires groups of people to process information together, Chermack & Nimon (2008) suggested that decision making style would be more collaborative, and therefore more dependent. Scenario planning is also purported to develop better decision making, such as comfort with uncertainty and willingness to explore options (Wack, 1984). As such, the authors suggested decision making style would be less spontaneous and avoidant (Chermack & Nimon, 2008).

Their investigation included a pre- and post-test design with a population of 84 managers from one US company (Chermack & Nimon, 2008). Findings in this study showed that participation in scenario planning decreased rational and spontaneous decision making and increased intuitive decision making (Chermack & Nimon, 2008). No effect was found for dependent decision making (Chermack & Nimon, 2008).

Mental models. Perhaps the most commonly cited outcome of scenario planning is a change in participant mental models. Until 2012, empirical evidence to support these claims was limited to inference. The Mental Models Style Survey (MMSS) was used in a pre- and post-test design with a sample of 129 participants (Glick et al., 2012). This survey measures five constructs: political, financial, efficiency, social, and systems mental model styles. It was developed using subject matter experts to build categories and items (Glick et al., 2012). Results for this study showed a significant decrease in participant political mental model style and significant increases in efficiency, social, and systems mental model styles (Glick et al., 2012). Such results support assertions in the literature that scenario planning shifts mental models toward more shared thought patterns. There was no significant change in financial mental model

styles, which the authors connect to the possibility that a financial mental model style may be less likely to be influenced by an intervention like scenario planning (Glick et al., 2012).

Leadership support. Currently the least studied of the domains, Leadership Support is cited in the literature as a key to the success of scenario planning activities (Chermack, 2011; McWhorter, Lynham, & Porter, 2008; Wack, 1984). In Chermack's (2011) theory of scenario planning, leadership support is included not because it is well established through research as a component of scenario planning, but because leadership "is a critical component of any organizational change or development effort" (p. 52). In McWhorter, Lynham, and Porter's (2008) work, an initial exploration of leadership as both a precursor to and an output of scenario planning is explored. Further study is needed on this aspect of scenario planning. Scholarship has so far focused on understanding the ways in which leaders see scenario planning to be connected to leadership development (Chermack, 2011). While leadership support is recognized as both a possible outcome

***Scenario planning outcomes summary*.** Research into the scenario planning process has focused on the domains described here. The focus of these studies is the change participants undergo as they experience scenario planning. Since this work seeks to understand the specific operation of the scenarios themselves on those outcomes, the next layer of literature review is focused on what is known in existing literature about the process of writing scenarios.

Written Scenarios – Art versus Science

An interesting theme in the scenario planning literature is the tension between art and science (Wack, 1984; Chermack, 2011; Ogilvy & Schwartz, 1998; Schwartz, 1996; van der Heijden, 2005). Seminal works in the field commonly explore this relationship – and it comes through as a relationship more than a conflict. For most, the tone is generally that scenario

planning is, for the most part, an art (Chermack, 2011; Schwartz, 1991). It requires craft, skill, experience, and technique (Schwartz, 1991; van der Hejden, 1997). But this last item is pivotal. In order to be able to suggest scenario planning as a strategic process open for widespread use, it is important that it is a replicable process. This ultimately means that, especially in prescriptive scenario scholarship, it is framed as a science – in Ogilvy's (2005) words, a "scenariology" or "science of scenario planning" (p. 331).

Synthesis of seminal works in written scenario design and construction. Scenario planning enjoys considerable popularity, evidenced by the proliferation of publications both scholarly and otherwise. A consistent element of the inquiry is a shared concern that, while scenario planning techniques are applied in practice with some frequency (Amer et al., 2013; Bowman et al., 2013; Keough & Shanahan, 2008), rigorous scholarship on the topic has only recently become more common (Bowman et al., 2013; Chermack, 2005; Chermack, 2011; Spaniol & Rowland, 2018).

The writing of scenarios is an emergent point in the literature (Bishop et al., 2007; Bowman et al., 2013; Chermack & Coons, 2012; Mahmoud et al., 2009). This is not to suggest that the development of the stories about the future has not consistently been part of the conversation within the field. Even the earliest scenario planners provided experiential details about the writing process and offered general frameworks for practitioners (Ogilvy & Schwartz, 1998; Ringland, 1998; Schwartz, 1991; Wack, 1984).

Effective scenario planning will result in learning, changes in participant mental models, and stronger decision making (Chermack & Lynham, 2002; Schwartz, 1991; Wack, 1984). The scenarios take participants from the point of identifying key problematic issues to being able to envision and plan for a wide range of possible outcomes. Scenarios push participants to see

differently – to gently re-perceive their world and its future (Ringland, 1998; Schwartz, 1991; van der Heijden, 1996; Wack, 1984). Finally, scenarios encapsulate the output of the overall process so that organization members who did not engage in the full workshop experience can read the stories and have the same shift in understanding and perception (Chermack, 2011; van der Heijden, 1996).

These future stories are a vital component of the process; they are a primary driver of scenario planning outcomes, and they are one of the only means for disseminating those outcomes throughout an organization (van der Heijden, 1996). Yet there is no guiding framework or model to support the writing of scenarios. Practitioners of scenario planning must piece together the scenario writing process from various recommendations. The result is that there is no way truly to understand the units at work within the scenario writing process; moreover, there is no direct way to confirm or disconfirm results of the writing process.

While many texts offer general guidelines for writing scenarios, and some provide typologies to help scenario writers base their stories on key styles (Bishop et al., 2007; Börjeson et al., 2006), only one article has attempted to specify the writing process in greater detail (Chermack & Coons, 2012). Without a guiding model for consistently replicable scenario writing, writers risk atheoretical application – a liability which can result in haphazard procedures without integrity (Chermack, 2002). Recently, a few authors have begun the process of identifying feasible theories to frame the scenario writing process (Bowman et al., 2013; Frittaion et al., 2010). These works have drawn from available theories in the field of literary studies to explain how the stories told in scenarios operate rather than conceptualizing a theory applicable specifically to this unique type of story generation.

Integrative Literature Review – Writing Scenarios

This section of the literature review is divided into two parts: an integrative literature review and a resulting model for writing scenarios. The integrative literature review follows the methods described by Callahan (2010), Torraco (2005), and Passmore and Chermack (2005). It explores an emergent subtopic within a more mature topic (Torraco, 2005) – scenario writing as a distinct activity within the scenario planning process. To address the first research question, a comprehensive literature search was conducted. Procedures for this search are described in the next section.

The second part of this section is a model, generated from the synthesis of the literature, for writing scenarios. The model is composed of two elements: (1) a set of guidelines for scenario authors to support their writing process, and (2) a checklist that can be used to verify the requisite elements for quality scenarios are included.

Procedures – literature review. To generate as many results as possible, this literature search was conducted using a research university's library system, including the databases LexisNexis, Business Source Premier, Academic Source Premier, and the multiple database search engine WorldCat. GoogleScholar was also used to broaden the results. For literature specific to scenario planning with recommendations for scenario writing, the search terms used were "scenario narrative," "creating scenarios," "scenario planning AND scenarios," "writing scenarios," "plotting scenarios," and "scenario development." Search results were limited to peer-reviewed articles or books published in English. No specific time period was identified during the search. To focus on the research purposes and ensure reliability of the data, popular publications, unpublished dissertations or theses, and conference proceedings were excluded from the results.

The criteria for inclusion of texts in this review were: (1) description or discussion of scenario writing, (2) connection to the Shell/GBN/2x2 matrix scenario planning approach, and (3) description of "effective" scenarios. Initial searches returned 83 results with content related specifically to the construction of scenarios. Those 83 sources were stage reviewed (Torraco, 2005) to cull the results to books and articles that met these three criteria. Ultimately, 12 works were included in the final review. Each of these provides some form of instruction on how to write scenarios and offers general quality guidelines for effective or "good" completed scenarios in the specific scenario planning approach described by the GBN.

To further develop and deepen the inquiry into good writing techniques for scenarios, this literature review included a second level targeted at examining published information on writing. A wealth of material is available for writers, so in order to refine and limit it to a manageable quantity, tight parameters were used for the searches. First, the researcher used her own background knowledge of writing genres and their applicability to scenarios to bound searches to three key areas: short stories, science fiction, and theater. These criteria are appropriate to scenario planning because scenarios are meant to be brief (Ogilvy, 2005; Wack, 1984), they pursue futuristic conceptualizations of reality (Wack, 1984), and they are occasionally described as performance pieces meant to be acted out or role played to achieve maximum impact (Schwartz, 1991).

Even with these criteria, the quantity of information available is overwhelming. To further constrain the literature, two additional criteria were imposed. The first searches were for published texts, written by well-known authors, on the craft of writing. In order to expand those results, syllabi from writing programs in the three genres were searched on Google and Google Scholar. Additionally, points of contact from a few of those writing programs were consulted for

input on source material. These searches returned 16 resources that fit within the boundaries for genre.

Procedures – scenario writing model. To advance the practice of scenario writing, the integrative literature results were synthesized into the models described here. Integrative literature reviews should be "organized around a coherent conceptual structuring of the topic (e.g., a guiding theory)" (Torraco, 2005, p. 365). Since no guiding theory for scenario writing exists, the aim of this literature review was to generate such a structure. The conceptual framework for this review, then, is the generation of a model to guide the creation of high-quality scenarios.

Delimitations and Resulting Limitations

The inquiry herein was focused on one specific approach to scenario planning – Wack and Newland's technique as created for Royal Dutch/Shell, as documented by Schwartz (1991), van der Heijden (1996), and Chermack (2011). There are myriad approaches to scenario planning, each with its own process outline and recommendations for scenario development. This limitation in scope has been applied to manage the volume of information from the literature, as well as to locate the theory conceptualization activity within one specific approach to the process. The scenario planning approach selected for review is one for which research and theory work has already begun; as such, this project attempted a contribution by expanding on that work, emphasizing an emergent topic within the broader concept and exploring that topic more completely. However, imposing parameters such as the confinement to one approach limits this work to one very particular method. The theory conceptualization activity applies only within the context of the GBN scenario planning method. Generalizability to other approaches for scenario planning cannot be suggested.

Further, literature was bounded so that, from the scenario planning content, only works referring to scenario writing were included. Reducing the number of texts reviewed, while making the content more manageable, also limits the results of this investigation. With regard to general writing guidance, the three criteria for genres of writing – short stories, science fiction, and theater – make good sense in terms of the aims of scenario writing, but the limitations imposed present a potential for improvement in future studies. For example, the boundaries imposed during the search process provided a focus primarily on creative writing rather than expanding to include sources that might provide insights on rhetoric. And while the three genres included here connect logically to scenario writing, it might be worthwhile in the future to study genre theory as it relates to the topic of scenarios. Given the considerable influence rhetoric and genre theory might have on the future of scenario writing, both areas warrant additional research. Clearly, the list of resources provided here is not exhaustive, and ongoing work can and should expand to include additional and future resources.

However, a point of saturation was reached during the review of these resources. Recommendations, even across the genres, began to have noticeable consistency. It follows that even with an expanded selection of sources, the core recommendations for good writing will remain uniform. The next section explains the recommendations for writers as distilled from these texts.

These strategies made the review manageable, but they exclude other potentially relevant sources. While saturation was achieved, the fact remains that an abundance of resources about writing are available. Future inquiry to elaborate on scenario writing may be served by expanding the inclusion criteria to gather additional data on interconnected phases of the writing and planning processes.

Results – Scenarios and Writing

Publications providing guidelines for scenario writing fall into two categories: general, experience-based overviews and more specific, process-based guidelines. The general overviews tend to come from books or book chapters, while the more precise guidelines tend come from peer reviewed articles.

The scenario planning works presented here have been consolidated into Table 2.1, showing author and year of publication, and type of guidelines – whether general or specific.

Table 2.1

Scenario Writing Information by Author, Year of Publication, and Category for General or Specific Writing Guidelines

Authors and Year	Category
Wack, 1984	General
Schoemaker, 1993	General
Schwartz, 1991	General
van der Heijden, 1996	General
Ogilvy and Schwartz, 1998	Specific
Ringland, 1998	General
Bell, 2003	General
Schnaars & Ziamou, 2001	General
Flowers, 2003	General
Chermack, 2011	Specific
Chermack & Coons, 2012	Specific
Bowman, MacKay, Masrani, McKiernan, 2013	Specific

The review of relevant texts is structured as follows: first, background and framing concepts from the literature are presented, including the purposes and quality measures for scenarios. Second, the writing process as presented in the recommendations is described. Thorough review of the works presented here resulted in a distillation of four distinct steps that can be considered scenario writing. These are Pre-Writing, Scenario Content Development,

Scenario Structure Development, and Scenario Characteristics Development. Those steps served as the basis for the scenario writing model and checklist presented here.

Purpose and definition of scenarios. There are as many definitions of scenarios as there are works about the scenario planning process. Most authors provide quotes from their favorite predecessors to define the stories, and then add their own contribution to the mix. In order to understand how to write scenarios, it is important first to comprehend what exactly these stories are. Table 2.2 provides key definitions from works included in this study; these have been limited to definitions about the stories – not the overall process.

Table 2.2

Definitions of Scenarios from Key Sources

Author and Year	Definition of the term "Scenario"
Wack, 1984	Scenarios within the scenario planning context cannot simply "tell a story." They are only truly scenarios when they facilitate decision making (p. 87).
Porter, 1985	"An internally consistent view of what the future might turn out to be" (p. 446). It is an "internally consistent view of an industry's future structure. It is based on a set of plausible assumptions about the important uncertainties that might influence industry structure, carried through to the implications for creating and sustaining competitive advantage. [A scenario] is not a forecast but one possible future structure" (p. 448).
Schwartz, 1991	"Scenarios are myths of the future" (p. 41).
van der Heijden, 1996	Scenarios are strategic narratives, which "belong to a person or an organization and relate to their anticipation of future states of the interactional world in which the person or the organization plays an important role" (p. 114)
Ringland, 1998	"Think of a scenario as a fairy tale" (p. 2)
Chermack, 2011	"…a set of internally consistent and imagined futures…" (p. 16)

Quality criteria. Another core component of many of the guidelines is a subtle, general framing about what does and does not make a scenario effective. This is challenging for the would-be scenario author since these criteria are not precisely articulated. Rather, they are descriptions of characteristics that a "good" scenario will have. Most often, these are described as effects scenarios will have on people. In other instances, they are explained as actual content elements. Table 2.3 shows the general quality measures as described in the works reviewed.

Table 2.3

Descriptions of Effective Scenarios

Author and Year	Description of Effective Scenario Characteristics
Wack, 1984	Scenarios force people to think about the future (p. 25) "Scenarios can be successful in structuring uncertainty only when (1) they are based on a sound analysis of reality, and (2) they change the decision-maker's assumptions about how the world works and compel him to change his image of reality" (p. 26).
Porter, 1985	A "useful" scenario will combine elements of an industry's structure that are interrelated to each other in order to illustrate how changes in or among any of those elements create rippling, linked changes in others (p. 456).
Schwartz, 1991	Well written scenarios will always change readers' behavior (p. 38).
Schoemaker, 1993	Good scenarios will "stretch as well as focus people's thinking" (p. 200). Good scenarios provide multiple intellectual windows on a complex phenomenon in order to challenge people's thinking (p. 200)
van der Heijden, 1996	Scenarios should stretch participants, compelling them to acquire a "peripheral vision" outside the standard focal point of their organization. Successful scenarios "communicate powerful insights about likely changes or potential discontinuities and their impacts, positive or negative, on business opportunities. We will understand events in a new way and see new possibilities to reposition the organization advantageously. We will have reached unique insight" (p. 125).

Keough and Shanahan, 1998	Strong scenarios will allow readers to be "jolted from a familiar thought mode and forced to consider" thoughts outside their comfort zone (p. 175).
Ringland, 1998	Strong scenarios "unfreeze" people's intellect, providing a "framework within which it's not only 'OK' but even mandatory to admit that they do not know what the future will bring, but nevertheless to plan. The role of the vivid image, storyline, of timelines, of anecdotal events in scenario are an important part of the method" (p. 190).
Ogilvy and Schwartz, 1998	Strong scenarios will direct readers to "rethink their assumptions about the future" (p. 71).
Ogilvy, 2005	"…a good set of scenarios, scientifically developed, can reliably and predictably *change minds*" (p. 332).
Chermack, 2011	"Scenarios must be relevant, challenging, and plausible in order to be useful tools for managers" (p. 159).

The most common gauge of whether a scenario has been effective – whether it is a good scenario – is the influence it has on those who read it. Strong scenarios are recognized by their power to change readers' minds. They also challenge the audience. The language used by these authors is often almost violent – "force," "jolt," "stretch" (Keough & Shanahan, 1998; Shoemaker, 1993; Wack, 1984). This suggests the best scenarios provoke a strong reaction from readers, creating discomfort, cognitive dissonance, and ultimately, change.

In order to know if scenarios are well written, changes in participants must be able to be observed. Some researchers have set out to demonstrate changes in participant behavior as a result of whole the scenario planning process (Chermack & Lynham, 2007; Chermack & Nimon, 2008; Glick et al., 2012; Haeffner et al., 2012; Veliquette et al., 2012). Chermack's (2011) theory of scenario planning identifies the five behavior domains influenced by the scenario planning process: dialogue and conversation quality, learning, decision making, mental models, and

leadership support, all described in more detail earlier in this chapter. In this theory, scenario planning influences each of these domains, which then have a corresponding influence on organizational performance and change (Chermack, 2011). The theory conceptualization activity presented in this project aims to fill in more detail about what occurs during the scenario planning process that achieves the influence on those behaviors. Scenario writing, as a distinct element of the overall planning process, plays a part in achieving the changes in participant behavior, and therefore also contributes to the influence scenario planning has on organization performance and change.

Effective Writing Resources

Publications providing guidance to writers were sorted into categories according to the genre to which they applied – short stories, science fiction, or theater. An additional category was included for more general guidance, specific to the craft of writing on a broader scale. The writing guideline literature presented here has been consolidated into Table 2.4, illustrating author, year of publication, and connection to genre.

Table 2.4

Writing Guideline Literature by Author, Year, and Genre

Authors and Year	Category/Genre
Strunk, 1918 The Elements of Style	General
Austin, 1975 How to Do Things with Words	General
Goldman, 1983 Adventures in the Screen Trade	Theater
Asimov, 1991 Writing Science Fiction and Fantasy	Science Fiction
Lamott, 1994	General and Short Story

Bird by Bird Bradbury, 1990 Zen in the Art of Writing	General and Science Fiction Theater
Howard & Mabley, 1995 The Tools of Screenwriting: A Writer's Guide to the Craft and Elements of a Screenplay	
Gunn, 2000 The Science of Science Fiction Writing	Science Fiction
King, 2000 On Writing: A Memoir of the Craft	General and Science Fiction Theater
Snyder, 2005 Save the Cat	
Tufte, 2006 Artful Sentences: Syntax as Style	General
Vogler & Montez, 2007 The Writer's Journey: Mythic Structure for Writers	General and Short Story
Truby, 2008 The Anatomy of a Story: 22 Steps to Becoming a Master Storyteller	General and Short Story
Seger, 2010 Making a Good Script Great	Theater
Fish, 2011 How to Write a Sentence: And How to Read One	General
Kress, 2011 Elements of Fiction Writing: Beginnings, Middles, and Ends	General
Schmidt, 2012 A Writer's Guide to Characterization	General

The review of these resources is presented in two parts. First, an overview of the broadest writing guidelines is provided. Second, a breakdown of recommendations by genres is offered. Third, the scenario writing model, including guidelines for writers and a checklist, is explained.

Effective writing – general. Nearly every text on how to write offers high-level recommendations to authors about how to craft stories. The specifics, in fact, seem to be more challenging to articulate than the vaguer, more generalized advice. Consensus occurs around some key points for writers. First and foremost, writers must practice the craft, relentlessly, in order to hone their skills (Bradbury, 1990; Fish, 2011; King, 2000; Lamott, 1994). Many writers explain their own success in terms of their diligence with the work of writing: making time every single day to write something – anything – so that the skill is cultivated thoroughly (Kress, 2011; Strunk, 1918; Tufte, 2006; Vogler, 2007). For scenario writing specifically, this particular recommendation supports the notion that professional consultants, those with extensive practice in the construction of scenarios, are better suited to compose stories that will work as they should for the process.

Second to practicing the act of writing is reading (Austin, 1975; Bradbury, 1990; Fish, 2011; Lamott, 1994; King, 2000). Writers must saturate themselves with writing, reading everything they can for the purpose of understanding quality (Fish, 2011; Schmidt, 2012; Tufte, 2006; Vogler, 2007). This capacity to discern quality is developed over time, by exposure to a wide variety of writing (King, 2000; Lamott, 1994; Truby, 2008). Reading also helps a writer develop techniques, at first by way of replication, and eventually through personal expansion and development (Fish, 2011; King, 2000; Truby, 2008). This aspect of the writing process is, for scenario writers, a challenge. Where can a scenario author find scenarios to read as guides? While some exist, available for review online, most scenario work is proprietary to the

organizations that engage in the process, so there are limitations on what is available for consumption and review. However, a focused study of short stories and science fiction may help develop the necessary exposure to guide a writer in the craft of scenarios.

Once writers are practicing on a daily basis and reading as much and as often as they can, they may come to focus more precisely on exact writing techniques that make for better material. These are summarized in the sections below.

Characters and characterization. The single most common refrain about how to write good stories is that the characters must be significant, real, and relatable (Bradbury, 1990; King, 2000; Kress, 2011; Lamott, 1994; Schmidt, 2012; Seger, 2010). Characters are the crux of any story; they draw an audience in through empathy or repulsion (Bradbury, 1990; Goldman, 1983; Seger, 2010). Some authors describe their characters in a way that suggests the fictional people actually shape and shift the storyline (King, 2000; Lamott, 1994). Because characters have human traits – they are honest, deceitful, kind, cruel, compassionate, or cold-hearted, the audience connects to and recognizes those attributes (Bradbury, 1990; Goldman, 1983). In addition to having common behaviors, characters can also carry archetypal qualities; though these are not necessarily everyday human features, they are still easily recognized and connected with, since they are common throughout a culture and its stories.

The major archetypal characterizations have been consolidated in Table 2.5, showing the name of the archetype, along with a brief summation of the qualities of such a character.

Table 2.5

Archetypes and Summary of Characteristics

Archetype Name and Alternate Names	Summary of Characteristics
Hero (Protagonist)	Called to action, primary driver of storyline, can take up most of the description or detail

Guardians (Obstacles, Antagonists)	Provide counterpoint to the hero or protagonist, often have more negative qualities than the hero
Mentors (Teachers, Sidekicks)	Offer guidance and support, sometimes provide false guidance or unhelpful resources
Villains (Antagonists, Enemies)	Directly inhibit the actions of protagonists/heroes and work against them in the storyline

A key element of creating characters is making them relatable to audiences and using archetypal or familiar qualities helps accomplish this goal. An additional feature of characters is their dialogue, which is sometimes identified as a separate specific technique for writing good stories; however, the literature is very clear that bad dialogue can ruin a story more quickly than good dialogue can help make it (King, 2000; Lamott, 1994). In scenarios, characters may take the form of the organization, of an organization member, or of a variety of environment factors or critical uncertainties. Dialogue is generated in part through the writer's exploration of the organizational vernacular.

Plot or storyline. Authors reviewed in this study tended quite frequently to assert that plot – or the storyline itself – comes from the characters (Bradbury, 1990; Goldman, 1983; King, 2000; Lamott, 1994; Truby, 2008; Vogler, 2007). Again, there is a consistent sentiment that characters actually create the story and provide it to the author (Bradbury, 1990; King, 2000; Lamott, 1994; Schmidt, 2012). At first blush, this guidance seems to suggest there is some hidden magic – that these fictional entities in the writer's mind will dictate information to help shape the story. On the contrary, most of the writers go deeper, looping back to processes for creating characters, explaining that when the writer has a solid conceptualization of what a

person does, the writer can begin to understand what people like that character would do in the real world, and their plot follows from that understanding (King, 2000).

Even with characters as drivers of the action, it is important that stories have clear beginnings, middles, and ends (Goldman, 1983; Kress, 2011). This helps frame the reading in a way that makes sense to the audience, but it also helps highlight the pivotal points of the action (Goldman, 1983; Kress, 2011; Lamott, 1994; Schmidt, 2012). A helpful diagram of the typical story arch is provided in Figure 2.1

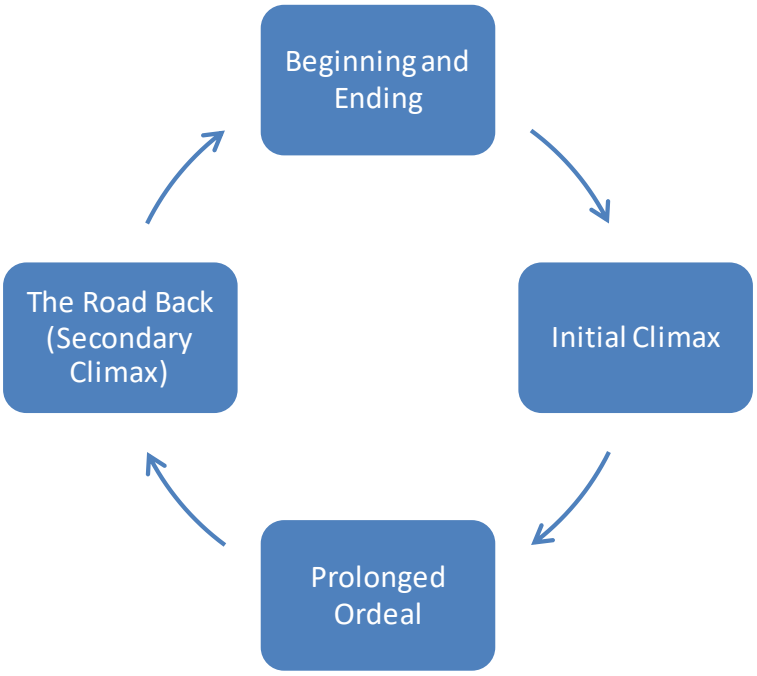


Figure 2.1: Model of storyline or plot in traditional storytelling, adapted from Vogler & Montez (2007)

Such standard plot structures are also common in scenario planning literature, and they are a consistent recommendation to help make scenarios effective. While a standard set of plot types is typically given (provided later in this chapter), scenario writers would be well served by a review of some key texts on the topic (Kress, 2011).

Conflict and resolution. Another consistent element in guidance for writers concerns the nature of conflict within the story (Goldman, 1983; Lamott, 1994). While some texts keep this technique within the context of characters, others separate it out, giving it more consideration (King, 2000). Conflict is another major driver of plot, and the way characters respond to conflict will be based in their qualities (Schmidt, 2012). The challenges with which characters are confronted shape the narrative and draw the audience more completely into the microcosm of the story (Lamott, 1994; Truby, 2008).

Economy of words. The final consistent piece of advice from resources on writing is to be thrifty with language (Bradbury, 1990; King, 2000; Lamott; Strunk, 1918). Over and over, authors recommend keeping language simple and precise. The outcome is that the story will be easier to understand, as well as more effective (Strunk, 1918). Overblown or grandiose language corrupts the story, confusing the point and belaboring the action (King, 2000; Lamott, 1994). Brevity ensures the story is more pleasantly readable.

These broad guidelines for writing good stories help inform the practice of writing scenarios by providing techniques that can be used specifically for the writing itself. Some additional details are available with regard to genre-specific writing techniques for short stories, science fiction, and theater.

Effective writing – genre specific. In this section, each of the three genres is broken out, with brief recommendations from key sources provided.

Short stories. In the writing of short stories, economy of language becomes even more significant, since the writer has only a limited space in which to execute the entire plot. A pivotal piece of guidance for short stories, beyond the information for general writing guidelines, is to work and rework the shorter story so that unnecessary content can be eliminated.

Science fiction. Recommendations in the science fiction genre add to the general recommendations significant exposure to advances in technology information. Writers should saturate themselves with the genre, but also with news and research on scientific breakthroughs (Asimov, 1991, Gunn, 2006). Additionally, science fiction writers should look back to see how people responded to advances that have already occurred; "Science fiction is not simply fantasy…. The efforts of the author to present the events as believe able leads the reader to consider under what circumstances the fantastic can be brought into the natural world" (Gunn, 2006, p. 6). The ambition, ultimately, is "to help…readers suspend their disbelief and transfer innovative political concepts from the imaginary society into the real one" (Gunn, 2006, p. 6).

Theater.The key additional recommendation in the theater genre is to focus on the actors themselves, to provide a framework for them to act without having to carry the entire plot (Goldman, 1983; Seger, 2010). Further, theatrical works place a greater emphasis on dialogue, so that the actors are able to deliver information naturally, rather than narrating events (Seger, 2010).

Writing guidelines summary. With a solid underlying framework for understanding the nature of writing, the next section delves more deeply into scenario-specific writing guidance as provided in the Shell/GBN/2x2 matrix sources.

Pre-Writing

Described ubiquitously in the literature as the "breathing in" process (Wack, 1984), the pre-writing stage of scenario writing is important because it contributes content that will be used during the actual drafting. Breathing in is an exploratory process for the author. It is similar to pre-writing activities described in any composition and rhetoric course, and it helps prepare the

writer with details, language, and imagery to use in the stories. Pre-writing is subdivided into three components: workshops with participants, interviews with key stakeholders, and research.

Workshop Work with Participants

The process for generating a scenario consistently begins the same way – with the identification of critical uncertainties and predetermined elements (Chermack, 2011; Schwartz, 1991; van der Heijden, 1996; Wack, 1984). Predetermined elements are events which have either already happened or are going to happen, "but whose consequences haven't yet unfolded" (Wack, 1984, p. 27). Scenarios must accurately observe the facts at hand; in order to do that, they must be composed as precisely as possible from descriptions of "reality" as articulated by the participants. Ultimately, all the guidelines convey the same point: the scenarios begin through dialogue with and among the participants. Framing questions (Chermack, 2011), business purposes (van der Heijden, 1996), and problematic decisions (Flowers, 2003; Wack, 1984) are all drivers for this conversation.

One of the core goals of the workshops is also to expose underlying assumptions among participants and generate a common language to describe the assumptions and uncertainties (Ringland, 1998). For the writing of scenarios, what comes out of this workshop process is a list of topics for inclusion in the stories, framed in the language of the organization (Chermack & Coons, 2012). These will be ranked by the participants and can be sorted according to most uncertain and most impactful. In some situations, this pre-writing step will also produce the titles and key imagery to use as frames for the different scenarios (Chermack, 2011; Schnaars & Ziamou, 2001; Schwartz, 1991; van der Heijden, 1996).

Interviews

Another step in the pre-writing phase is interviewing key stakeholders from the organization. This helps provide "sticky" images (Flowers, 2003) from decision makers that will help add meaning and relevance to the scenarios (Chermack, 2011). For writers, the purpose of the interviews is to gain an understanding of the mental model – the microcosm (Wack, 1984) – of the participants and their leaders. These conversations result in additional details to be included in the stories. Interviews will reveal how the organization sees itself along with the language used by members to describe the organization and its position within its environment (Schwartz, 1991; Wack, 1984). Scenario writers should take vernacular cues, shared imagery, and pressing worries and concerns from these exchanges to use in the scenarios.

Research

Either before, during, or after the first workshops and interviews occur (or at all three points), research should occur (Schwartz, 1991; van der Heijden, 1996). Writers should familiarize themselves with current and historical information about the organization, its industry, and the framing question (Chermack, 2011; Schwartz, 1991; van der Heijden, 1996). The purpose of this step is to assimilate contextual information that might not have come up during the workshops or interviews. By researching, a scenario writer will have additional fodder for fleshing out the stories; these details from the world will help contribute relevance, plausibility, and richness, all of which help the participants believe the stories as they read or hear them (Chermack, 2011; Chermack & Coons, 2012; Ogilvy & Schwartz, 1998; Schwartz, 1991; van der Heijden, 1996).

Different recommendations abound for best practices during the researching process. For example, Schwartz (1991) recommended developing a precise filter for information – being open

to as wide a range of content as possible without letting in totally unreasonable concepts. While more esoteric advice like this frequently appears in the earlier texts, it can be conceptualized more pragmatically for writers as a series of steps within the researching phase of pre-writing. More recent publications have provided more specific guidance (Chermack, 2011; Chermack & Coons, 2012; Schoemaker, 1993). Writers can rely on frameworks to guide their research, such as STEEP (science, technology, environment, economic, and political forces review) (Chermack, 2011; Schwartz, 1991) or SWOT (strengths, weaknesses, opportunities, and threats) (Chermack, 2011.

Once pre-writing is complete, drafting commences. Important to note is that the pre-writing process involves teams of people – workshop participants, interviewer and interviewee. In several sources, the writing process begins with the assignment of the writer. Most sources recommend appointing either a single person (Chermack, 2011) or team from among the workshop participants (Schwartz, 1991; van der Heijden, 1996), using the scenario planner(s) as author (Ringland, 1998; Wack, 1984), or hiring a professional writer to step in to construct the stories (Chermack, 2011; Ringland, 1998). Once the writer is designated, the following information is available to help craft the stories.

Writing

Schwartz (1991) provided one of the most colorful descriptions of writing scenarios, saying that doing so is spinning myths of the future. Most of the guidance for this part of the writing process is akin to statements like that – have fun, flesh out the stories, combine the elements into consistent tales, write the scenarios (Ogilvy & Schwartz, 1996; Schwartz, 1991; Ringland, 1993; Wilson & Ralston, 2006). There is a distinct tension in the literature between the art of writing a story and the detail required to map out the process for writing scenarios. As

Chermack (2011) suggested about the scenario planning process, there is no reason scenario writing cannot "remain artful, but it must also evolve into a theoretically and scientifically grounded art" (p. 29).

Two works in the available literature provide explicit guidelines for writing scenarios: Chermack (2011) and Chermack and Coons (2012). In his book, Chermack (2011) offered thorough guidance to an author, including rubrics writers could use to check their scenarios, verifying the inclusion of core elements. In their article, Chermack and Coons (2012) actually mapped out the writing process itself, providing details about the steps authors should take as they set about the task of writing scenarios. While both of these are excellent as starting-point resources, this project suggests the next step is to dive deeper into the writing, providing more detail about what goes into the stories and how to create them.

Relevant works that provide more general guidelines for writers tend to begin at the end – by describing meta-level considerations for scenarios, like what the finished product will look like. This project also seeks to invert that content, starting at the point of more specific detail and working up to the overall characteristics. As such, the writing process is broken into three units: scenario content, scenario structure, and scenario characteristics.

Scenario Content

Drafting the scenarios requires crafting the pre-writing materials into stories. From the pre-writing activities, scenario writers will have: predetermined elements (ranked according to level of impact and degree of uncertainty), critical uncertainties (also ranked according to level of impact and degree of uncertainty), language and syntax common to the organization, insight into decision makers' anxieties and assumptions, details about the environment and potential drivers (from research, SWOT and STEEP analysis), the framing question or business purpose,

and titles or frames for the scenarios. For a writer, this material is like the output of a brainstorm. It is presently unorganized and unstructured, but it all relates to the organization for which the scenarios are being written.

In order to begin tying the materials together, available literature recommends using a series of devices around which to develop the pre-writing content. These contents include myth, archetypes, challenges, characters, and assumptions (Chermack, 2011; Ogilvy & Schwartz, 1996; Schwartz, 1991; Wack, 1984).

Myth and archetypes. Myth is related in the literature to the notion of global frameworks or metaphors that will make content connect to other content in a meaningful way (van der Heijden, 1996; Wack, 1984). Archetypes, similar in some ways to myth, are connected to the same idea – recognizable themes or types of imagery that help make sense of the story details (Flowers, 2003; Schwartz, 1991). For writers, the essence of myth and archetype is that the materials amassed during pre-writing can be connected to universal, common stories that organization members (or really any reader) will recognize. These are standard storylines – interactions between forces, expectations and disappointments, inverted outcomes (Flowers, 2003; Wack, 1984). They connect closely to plot, explored more in the next section, but they are ways to think about linking the pre-writing content.

Challenges, drama, and conflict. Much of the available literature suggests that scenarios must be challenging so that they are engaging (Chermack, 2011; Flowers, 2003; Schnaars & Ziamou 2001; Schwartz, 1991); however, they should not be so challenging that participants feel threatened to the point of disengaging (Ogilvy & Schwartz, 1996). When developing pre-writing content around the notion of challenge, some authors recommend connecting predetermined

elements to the critical uncertainties – connecting them in either a sequential or causal way that leads to trouble or unrest of some kind (Ogilvy & Schwartz, 1996; Porter, 1985; Wack, 1984).

Challenges are also described as drama or conflict: tensions between story elements that remain unresolved (Chermack, 2011; Ogilvy & Schwartz, 1996; Schwartz, 1991). These recommendations typically center on the idea that the writer should not take all story elements through to a conclusion. In other words, scenario writers can start some interactions moving without saying what the ultimate outcome for the organization will be. The intention with such story content is to provoke different thinking among participants about what might happen if such interaction continues (Chermack, 2011; Schwartz, 1991).

Characters. Characters take on different shapes in the recommendations. Wack (1984) described using human character analysis to ensure details from the stories would be meaningful for the whole organization rather than only the workshop participants. Chermack (2011) suggested that predetermined elements or critical uncertainties might be the characters of the story. Ogilvy and Schwartz (1996) contended that characters should be the driving forces in scenarios. Generally, the consensus is that characters will encourage readers to empathize, thereby voyeuristically experiencing the events of the scenario (Bowman et al., 2013; Flowers, 2003; Ogilvy & Schwartz, 1996; Schwartz, 1991). Such interaction between the reader and the story content suggests the interactive, theatrical nature of scenarios (Flowers, 2003; Schwartz, 1991). Ultimately, scenario writers should incorporate characters, making specific entities responsible for actions that occur to move the story.

Assumptions. The final common content element is assumptions. Assumptions actually come in some way out of the pre-writing, because the critical uncertainties, pre-determined elements, and framing questions are value-laden by those who articulate them (Flowers, 2003;

Porter, 1985; Wack, 1984). Since the scenarios are intended to take participants out of their mental "inner space" (Wack, 1984) where their worldview dominates their thinking, assumptions are best served in the scenarios when they are somehow inverted, exploded, or framed in a new light (Bell, 1993; Ringland, 1998; Schwartz, 1991; Wack, 1984). Writers can accomplish these ends by reversing presumed outcomes, developing interplay between elements the participants do not see as connected, and characterizing painful or uncomfortable points of conversation (Porter, 1985; Schwartz, 1991).

As the scenario content takes shape, the next unit writers must consider is the structure to be built within the story to organize it and make it meaningful. Scenario structure helps unite the content within each scenario and between the scenarios of a set.

Scenario Structure

Scenario structure emerges from the scenario content. While some of the literature suggests structure is a starting point (Ogilvy & Schwartz, 1996; Ralston & Wilson, 2006), the assertion of this project is that, without a working knowledge of the materials that will become the storylines, it is difficult to determine which structure will best facilitate the scenario. The elements that comprise scenario structure are frames and titles, plots, and story organization – sometimes referred to as the story beginning, middle, and end or the story design.

Frames and titles. In many cases with this particular scenario planning approach, writers will come out of the pre-writing phase with titles for the scenarios they are to create (Chermack, 2011; Schwartz, 1991). Those titles are linked back to the concept of the global framework (Wack, 1984) and the shared language of the organization (Flowers, 2003). These titles capture the sticky imagery the participants generated to encapsulate their first understanding of what a scenario will end up being (Chermack, 2011; Chermack & Coons, 2012; Flowers, 2003;). They

are also a means of ensuring memorable scenarios (Chermack, 2011; Schwartz, 1991; Wack, 1984). Scenario writers use these titles as foundational structure into which they embed scenario content. This is a way in which, interestingly, writing scenarios is different from other types of creative writing; so often, titles are the last part of an author's activity – the crown placed atop a finished work. Here, titles play the part of groundwork instead.

The scenario content will also, however, imbue the titles with more significant meaning (Chermack & Coons, 2012; van der Heijden, 1996;). Using the metaphor created by the title as a guide, scenario writers can develop content that will fulfill the expectation implied by the title – showing interconnections between predetermined elements and critical uncertainties that meet the assumptions of the participants (Schwartz, 1991; Wack, 1984). They can also subvert those expectations, highlighting underlying pressures between elements, introducing the tensions and conflict described above (Flowers, 2003; Schnaars & Ziamou, 2001).

At least one caution about framing devices comes from van der Heijden (1996) who urged writers to be economical with the inclusion of feelings associated with those titles. Since the participants may see the scenarios during pre-writing as either "good" or "bad," the frames they provide during the workshops may be overwrought with those value judgments. It is the writer's aim to neutralize either/or propositions in the stories (van der Heijden, 1996). If the framing results in a story that feels too good or bad, the audience will internalize that as they read the scenario, and that can skew their experience.

Plots. Within this school of scenario planning literature, there is a standard recommendation about plots because only a few plots really make sense for scenarios (Schwartz, 1991). Plots are described as the logic that unites all the scenario content (Ogilvy & Schwartz, 1996; Schwartz, 1991). The plots described in the literature are always the same: winners and

losers, challenge response, evolution, revolution, cycles, infinite possibilities, the lone ranger, and my generation (Chermack, 2011; Ogilvy & Schwartz, 1996; Schwartz, 1991). Examples are provided, and writers can use these to help order the scenario content around a series of actions and relationships.

The plots mentioned in the literature also connect back to the concept of myth and archetype. Each recommended plot draws on a classic, recognizable story in order to help scenarios link quickly to participant sense-making interpretation processes. By relying on storylines with which more people are familiar, scenario writers can make their stories more easily digestible, as well as easier to believe; this will be important as a scenario characteristic, since scenarios must be plausible (Chermack, 2011).

Connected to the notion of the plot is the guidance that scenarios should have a clear beginning, middle, and end (Chermack, 2011; Ogilvy & Schwartz, 1996; Schwartz, 1991). For writers, this means the scenario should open with an introduction, something to preview the details to come. The middle is the specific actions that take place throughout the story: the characters, the interplay between predetermined elements and critical uncertainties, the drivers and driving forces from the environment. Scenario endings can do a few different things: they can pose questions about unresolved tensions developed in the content; they can suggest impending opportunities or calamities of the next phase of the future (Chermack, 2011; Flowers, 2003). Essentially, the end should provide a sense of closure. However, scenarios are intended to provoke discomfort in the readers. As such, it stands to reason that the "end" should not feel tidy or conclusive. Rather, scenario endings are more like episodes that conclude with "to be continued." Furthermore, where a typical story reaches its apex during the course of the action, scenarios may instead remain at that apex level through to the last words.

Schwartz (1991) cautioned writers that plots should not result in the "unbroken line" – that is, a feeling that the story is inevitable, that there is nothing to stop the action within it from coming to pass. The goal of the scenario is to compel the readers to action. If the storyline feels inevitable – because there are no unresolved tensions, because interactions happen with total certainty, because the contents are framed too positively or too negatively – then the audience is likelier to freeze (Schwartz, 1991). To avoid the unbroken line plot, authors can use the techniques described for creating conflict, tension, and drama, so long as they are careful to include balance.

As scenario structure takes shape, scenarios will take on their overarching characteristics. These are the qualities that make scenarios scenarios and not another type of story.

Scenario Characteristics

At a meta level, scenarios should demonstrate theatricality (Flowers, 2003; Schwartz, 1991) plausibility and relevance to the organization members (Chermack, 2011; Ogilvy & Schwartz, 1996; Schwartz, 1991; Wack, 1984), and internal consistency (Porter, 1985; van der Heijden, 1996).

Theatricality. The concept of theatricality is linked to the idea that scenarios are meant to be role playing activities (Schwartz, 1991). A key consideration for writers is how to integrate performance elements into the stories. Characterizations, driving actions, and other dramatic devices help achieve this end.

Plausibility and relevance. Plausibility and relevance are characteristics echoed in just about every publication on scenarios. For writers, this means the stories must be believable and they must clearly contain attributes of the organization. Authors can achieve both qualities by infusing the stories with details from their research about the environment, STEEP and SWOT

forces, and by using the common language of the organization (Chermack, 201; Schwartz, 1991;). Basing occurrences in the scenarios on historical fact – changes that have happened before, interrelationships and interactions from the past – also helps create plausibility and relevance. Moreover, to maintain plausibility, authors must avoid severe extremes; Porter (1985) cautioned that, while scenarios should push on the boundaries of expectation, they should not go so far that they become frightening to the point of shutting down readers' thinking.

Internal consistency. Internal consistency was critical to Porter's (1985) description of scenarios, but since then, others have provided similar guidance under different names. Schwartz (1991), Ogilvy and Schwartz (1996) and Chermack (2011) recommended using a "beginning, middle, and end" within the scenarios in order to make them internally consistent. Additionally, authors can think about each scenario as part of the complete set (Schwartz, 1991). This will help maintain consistency between stories as well, since some content can be repeated throughout (Chermack, 2011).

Scenario writers should round out their writing with these features in mind: theatricality, plausibility and relevance, and internal consistency. These guiding constructs will ensure the materials selected for inclusion within the stories meet the requirements of scenarios. Writers should be able to look at their finished scenario drafts and ask themselves Schwartz's (1991) guiding questions: (1) What are the driving forces? (2) What is uncertain? (3) What is inevitable? (4) How would these elements interact in one story or another?

Other characteristics. There are a few other characteristics suggested in the literature which bear inclusion here, though they are brief and can be grouped together. Chermack (2011) recommended writing the first round of drafts in the 3rd person and then switching into 1st person for later drafts. These perspectives help ensure the audience will engage with the stories in a

progressive fashion – first seeing the stories as happening to other people, and then, as they gain acceptance for the scenarios, as happening to them (Chermack, 2011). Verbs should all be present tense rather than subjunctive mood. This helps create a sense of reality rather than fantasy with the language (Chermack, 2011).

Additionally, Schwartz (1991) suggested writers think continuously about how each scenario relates to all the other scenarios in the compendium. Such mindfulness will help writers repeat some meaningful story elements and change up others as they progress through the drafting process (Chermack, 2011; Schwartz, 1991).

Finally, most authors reviewed here comment at some point about making the stories feel "real" so that readers can suspend their disbelief (Frittaion et al., 2010; Schwartz, 1991) and have deeply moving experiences as they read (Bowman et al., 2013; Chermack, 2011; Chermack & Coons, 2012; Ogilvy & Schwartz, 1996; Wack, 1984). For any writer, this is a tall order. To create stories that are lively, dynamic, and enthralling enough to provoke suspension of disbelief requires artful application of all the steps identified here, not to mention some skill with language. Plausible, relevant stories are the likeliest to permit readers to suspend their disbelief (Bowman et al., 2013; Frittaion et al., 2013). This is an element of the story process that warrants further exploration.

To create the model, it was important to keep in mind that these recommendations are for a very specific group of people: those who wish to write scenarios for scenario planning activities. These are not professional writers; in fact, they may write scenarios just once. So the guidelines are a way to consolidate massive amounts of information about how write impactful scenarios for scenario planning.

Scenario Writing Model

After extensive review of literature on best-practices for writing, as well as the available literature for scenario writing techniques, a model was generated to help guide the process of writing scenarios. This model includes a visual depiction of the scenario writing process, as well as two resources for writers: (1) a set of scenario-writing guidelines, and (2) a checklist to use in the review of completed scenarios to ensure strength and quality. First, the visual model of scenario writing is presented and explained.

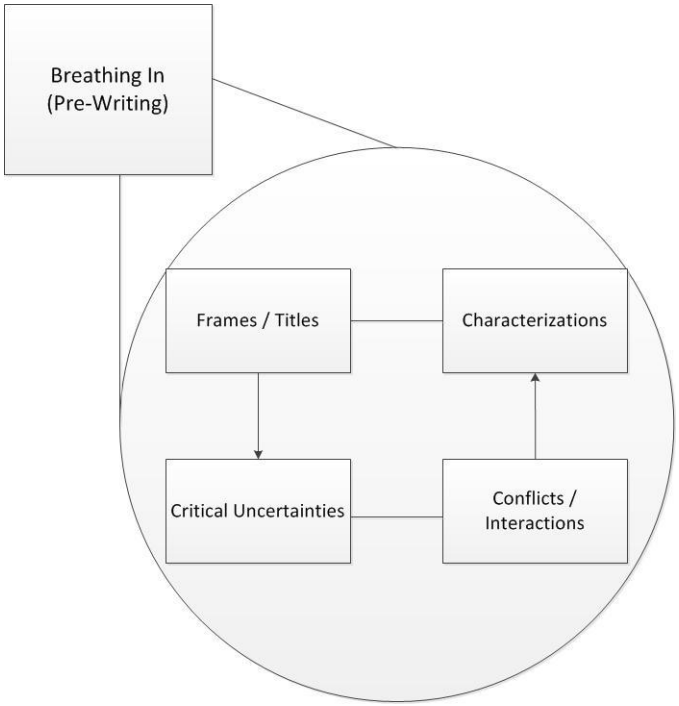


Figure 2.2: Scenario Writing Model showing key elements of writing process

In the model, the major scenario writing elements are identified. First, authors must undergo the breathing-in phase of researching, familiarizing themselves with the organization and its environment, learning the organizational vernacular, and understanding the driving business need or question for the scenario project. For the writer, breathing-in truly also includes

all of the workshops that generate content for the stories: the brainstorming of critical uncertainties, the ranking exercise, the creation of the matrix labels, and the guiding metaphor for the narratives.

The major outcome for writers from the breathing-in phase is the frames or titles generated through the workshop activities. These provide the basis for the creation of the scenarios. Much like lenses, the frames and titles focus the direction of the story for each scenario, providing insight into the tone and theme, the major actions, and the direction of the relationships between the critical uncertainties within the story.

With the frames in place, the writer can begin situating different critical uncertainties under each one. Because the frame provides some overarching tone for the story, the writer has clues about how the uncertainties will play in the narrative. Working through the list of uncertainties, the author can create bite-sized paragraphs explaining what is happening with each variable in the story. Systematically, the stories are crafted out of these lists of concerns.

To connect the critical uncertainties, as well as to move the story, the author leverages conflicts and tensions between the variables or between assumptions and realities in each of the stories. Drama is created by inverting assumptions, making seemingly "positive" variables fail or act negatively and vice versa (Chermack, 2011). Conflicts can be both good and bad – damaging, unexpected, destructive actions from the environment or variables, as well as challenges that offer promise or provide hidden opportunities to succeed despite adversity.

From all these elements, characters grow out of the content. Sometimes, the characters are traditional – real people from the organization or team. This can also be a placeholder person who represents the decision makers or organization members. Other times, the characters are really characterizations of the environmental elements: the company may be characterized and

shown to have human-like qualities. Uncertainties may "act out" different behaviors to move the story along.

To write scenarios, these five major components interact, guiding the writer in the creation of meaningful and impactful stories. From this model, a set of guidelines has been created to support the writer in the process, shown in Table 2.6. Additionally, a checklist for writers aids them in verifying the necessary components are included for successful scenarios, shown in Table 2.6.

Table 2.6

Scenario Writing Guidelines

Scenario Writing Guidelines	
Name	**Actions and Outcomes**
Breathing In	Initial interviews Research about the organization, its environment, its history Research about adjacent industries Study of organizational vernacular and dialogue tendencies Familiarization with organization members and structure Study of key issues, questions, business purpose Workshop #1: Brainstorming, Ranking, Naming Matrix, Metaphor
Frames / Titles	Situate critical uncertainties under each frame Write short sentences or paragraphs about how the uncertainty behaves in this frame, based on tone Expand sentences and paragraphs with details about the uncertainties in the environment
Critical Uncertainties	Develop statements about each uncertainty as related to a frame's tone Expand statements into paragraphs with detail about environment
Conflict / Interaction	Generate statements to connect the uncertainties within the frame Make the uncertainties interact with each other Use positive and negative interactions Create conflict and challenges Invert expected outcomes where possible
Characterizations	Bound the developing story with a character or character's perspective Characterize the organization, the environment, the competitors Give the uncertainties character-based qualities, archetypal or mythic

Breathing In	Workshop #2: Editing of scenarios, feedback loop Integrate feedback and refine scenarios

This guidelines for the writing process illustrates the basic steps and content areas of which writers must be mindful, as well as actions and outcomes for each.

The checklist, intended to be used once the scenarios are drafted, offers the writer insights into whether or not the vital elements are included.

Table 2.7

Scenario Writing Checklist

Scenario Writing Checklist – Each Scenario Contains:
Element
Clear Frames and Subtitles
Predetermined elements (from the workshops or breathing in)
Critical uncertainties
Environmental factors (from SWOT and STEEP analysis)
Interactions between uncertainties
Conflict between uncertainties, org and environment, other
Challenges (positive) with potential for success
Organizational language (vernacular, dialogue)
Inverted assumptions (from workshops and breathing in)
Internal consistency (story elements are not contradictory)
Plausibility
Relevant (from breathing in – research and awareness)
Consistent verb tense

The checklist provides a kind of rubric for writers to ensure effective scenario elements are included in the scenarios.

Summary of scenario model. From the literature reviewed both from writing instruction and scenario planning-specific scenario writing, the model presented here provides new guidance to authors who create scenarios for this process. With a consistent, replicable process for writing, scenario quality should be ensured. But how will we know that quality has

been achieved? While the guidelines for writing and the checklist should aid the writing process, it would be useful to measure participant reactions to stories of varying qualities in order to understand how quality affects their experience. The next section discusses a measure for this purpose and presents the study's hypotheses.

Suspension of Disbelief

One theoretical concept that fits an inquiry into whether or not participants engage completely with and enjoy the experience of hearing or reading scenario stories is *suspension of disbelief*, which is typically investigated through the measure of *sense of presence*.

Presence. The concept of suspension of disbelief was first proffered by Benedictus de Spinoza (1670): "If the human body is affected in a manner which involves the nature of any external body, the human mind will regard the said external body as actually existing, or as present to itself, until the human body be affected in such a way, as to exclude the existence or the presence of the said external body" (p. 132). This conceptualization suggested that humans naturally assume anything they see or experience is "real."

Another conceptualization was offered by Samuel Taylor Coleridge (1817), in his *Biographia Literaria*. In a discussion of storytelling, and what makes stories better or worse in the mind of a reader, he explained that effective stories will "transfer from our inward nature a human interest and a semblance of truth sufficient to procure for [the] shadows of imagination that willing suspension of disbelief for the moment, which constitutes poetic faith" (pp. 168-169). In other words, when a story resonates with the reader, when she is able to believe it and find herself invested in it, she will suspend her sense that it is artificial, engaging completely with the work. This inverts Spinoza's definition, and given the time between the two definitions

– 1677 to 1817 – and the development of popular literature, Coleridge's definition stands the test of time for researchers today who study experiences with media.

As researchers have worked to understand suspension of disbelief, the construct that emerged to capture the experience is *presence*. While a unified definition of the concept has yet to emerge from the research, some standard categories are accepted as accurate (van Baren & Ijsselsteijn, 2004). Presence is divided into physical and social conceptualizations; the former referring to the perception of being physically in a space, and the latter referring to the sensation of being with other people and communicating with them (van Baren & Ijsselsteijn, 2004). To study presence, both subjective and objective measures exist. Subjective measures typically ask participants to self-identify their suspension of disbelief experiences (Sheridan, 1992). Objective measures involve psychophysiological observations – like heartbeat, blood flow, reactions of the eyes, and muscular reactions (Dillon et al., 2000; van Baren & Ijsselsteijn, 2004). Both subjective and objective measures provide information about participants emersion or lack thereof with a variety of media. Stories, movies, and videogames are the most common types of media under investigation (van Baren & Ijsselsteijn, 2004).

Presence and scenarios. When participants are able to suspend their disbelief and have a strong sense of presence with a medium, their enjoyment increases, and they are also better able to engage with the environment of that medium (Dillon et al., 2000). More successful media elicit this reaction, and participants report feeling immersed, like they are really in the environment of the medium, and like they believe the stories of it (Dillon et al., 2000). For scenarios, in order to affect the changes in participants, they first must experience this sensation, of belief in the story, of being in it, so that they can begin to envision themselves taking actions

based on the futurescape. As scenario scholarship turns its focus on the scenarios themselves, these concepts become valuable to further understanding.

One study explored the relationship between scenarios and participants in scenario planning exercises, specifically in the process of participants suspending of disbelief regarding story elements (Frittaion et al., 2010). The authors asked how participants actively respond to scenarios, so they are able to suspend disbelief. Their study is a case study on the Sustainable Forest Management Network of Canada, which conducted the Forest Futures Project (FFP). Their procedure included collaborative construction of scenarios and presentation of the narratives in 15 workshops across Canada. To explore this topic, the lead author conducted interviews with 30 individuals participating in the FFP at various levels – either attending one meeting or many, up through facilitators of the sessions. The question asked was: What is the role of stories and storytelling in your life?

They report on "factors that influenced the ability of participants…to set aside their present known reality to engage effectively in speculation about possible futures" (Frittaion et al., 2010, p. 1156). If scenarios are to be effective, the writers must engage the readers' capacity and readiness to believe. These authors suggest that literature provides a road map for authors to create excellent, compelling stories – though this is not necessarily the case. The sources they cite are overviews of the process at large, not specifically about writing the scenarios (Frittaion et al., 2010, p. 1157). For example, they cite A.W. Shearer: "…a scenario is not simply the description of some alternative future end state, but also illustrates the end state with some notion of the means to achieve that state" (Frittaion et al., 2010, p. 1157).

This study is the only scenario planning-focused discussion of suspension of disbelief, though, interestingly, the authors did not set out with that focus. Originally, they were

investigating storytelling as an aspect of scenario planning (Frittaion et al., 2010). Once underway, however, they saw suspension of disbelief as a core theme throughout the process. To frame the conversation around suspension of disbelief, these authors referenced Coleridge (1817) as the first to use the term storytelling in the context of pushing the audience to challenge mental models (Frittaion, et al., 2010). Table 2.8 provides a summary of their work to categorize the key story elements that assist in the suspension of disbelief.

Table 2.8

Key Story and Personal Characteristics of Participants Linked to Suspension of Disbelief in Frittaion et al., 2010)

Story Component	Personal Characteristic
Enable discussion of social concepts – beyond facts and figures	Conscious effort to be "present" in the "future" story
Abstract, complex information was "humanized" in the stories – made easier to digest	Situating stories into personal lifespan – will I be alive when this future occurs? More effective suspension of disbelief occurred when they believed they would be.
Information in narrative form facilitates future thinking where facts and figures would not	Filling in narrative gaps/Adding onto the stories – some participants admitted to going further with the story in their minds, building more into the narrative to help them immerse and believe; in some instances, participants told story elements to each other when they couldn't see the reality of the future depicted
Not all participants felt like the narratives were really stories – they felt like they described settings and possibilities, but they could've been more effective as full-blown stories	Facilitators occasionally opened workshops with historical predictions that turned out to be inaccurate; this helped primed participants to think about how things we believe today might not be true
Verb tense – present tense verbs helped participants lose association with the immediate present	Participants tap into other future stories they know already – Star Trek – and into their own family stories from older family members about their past-into-present future thinking

	(like when a grandparent talks about seeing cars for the first time)
Use of actual places, names the participants recognized made the stories feel more real	

Another focal point for the study was the role narrative played in the lives of the participants, outside the context of scenario planning. These roles included: conveying knowledge/learning; shaping identity – connecting to culture, tradition; exploring thoughts and feelings; connecting to the environment (Frittaion, et al., 2010). Additionally, narrative seemed to play a negative role in participant experiences, particularly if a participant felt storytelling was an antiquated form of information sharing (Frittaion, et al., 2010). Ultimately, the authors called for future research specifically to set out to study suspension of disbelief.

While this particular study was, by the authors' own admission, measuring something they had not intended to measure, it raised some interesting and exciting ideas about the ways in which scenario writers might better understand their craft. Sense of presence measures would help scenario planners and scenario writers understand if the stories were effectively working on participants.

Sense of Presence Instrument – the ITC-Sense of Presence Inventory (SOPI)

The instrument identified for this study is the ITC-Sense of Presence Inventory (SOPI). Created to measure sense of presence with a variety of media, the instrument initially contained 63 items (Lessiter et al., 2001). The items were developed based on content areas from literature on presence, including "sense of space, involvement, attention, distraction, control and manipulation (autonomy), realness, naturalness, perception of time, awareness of behavioral responses, sense of social interaction (parasocial and copresence), personal relevance, arousal, and negative effects" (van Baren & Ijsselsteijn, 2004, p. 8). Using principal axis factoring, the

authors noted four factors: spatial presence, engagement, ecological validity, and negative effects (van Baren & Ijsselsteijn, 2004).

The first, spatial presence, indicates the participants' experience of being in the environment of the media (Lessiter et al., 2001). Engagement equates to enjoyment of the environment and medium experience, as well as to the intensity of the experience – as in how completely the participant experiences being drawn into the medium. Believability is captured by ecological validity; participants have a strong sense that the environment is real or plausible. Finally, negative effects captures the experience of physical or cognitive discomfort – anything from a nauseated feeling to a sense of distress over what is happening in the medium (Lessiter et al., 2001).

This first version was tested with 604 participants who were given a media experience. Of the initial questions, eight failed to load for any of the factors, and were consequently eliminated from the instrument (Lessiter et al., 2001; van Baren & Ijsselsteijn, 2004). Further, eleven other questions were removed due to inconsistency with or reduction of the alpha (Lessiter et al., 2001; van Baren & Ijsselsteijn, 2004). The revised instrument had good alphas (ranging between .76 and .94) on all four factors (van Baren & Ijsselsteijn, 2004). Correlations between factors were also calculated, and sense of physical space, engagement, and ecological validity inter-correlated significantly (Lessiter et al., 2001; van Baren & Ijsselsteijn, 2004). Only negative effects was different, correlating with sense of physical space (van Baren & Ijsselsteijn, 2004).

The revised version of the instrument contains 44 items, and the questions are well suited to an investigation of scenario experiences. Measuring sense of presence during exposure to scenarios of different quality levels would help scenario planners understand if these quality

levels are in fact accurate. Further, such knowledge would advance the practice of scenario planning by providing better understanding of how to make more effective scenarios.

Scenarios and the ITC-SOPI

In scenario planning literature, the case has been made that effective scenarios will transmit the outcomes of the workshop experience throughout the organization – to those who did not undergo the entire process (van der Heijden, 1996). High-quality scenarios should ensure such transmission is possible. This connection supports the first hypothesis of this study:

H0: There will be a difference between scenario planning workshop participants and non-participants with regard to sense of presence scores.

Equivalent scores between groups would indicate that the quality of the scenarios does consistently create the same outcomes for those who undergo the full scenario planning process and for those who do not. Stories written to meet the identified quality standards should reliably and predictably have the same effect on any organization member.

Scenario quality and the instrument. In addition to understanding whether scenarios have the same impact on both participant and non-participants from an organization, measuring sense of presence may shed light on how the quality of the stories impacts participant experience. Since scenarios are one of the key drivers of scenario planning outcomes, it stands to reason that better-quality scenarios that produce higher sense of presence will connect to stronger overall outcomes for the process. So far, however, no research has attempted to clarify how to produce high-quality scenarios or whether quality influences participants in any way. Thus, the second hypothesis of this study is:

H1: There will be a difference between high- and low-quality scenarios on the four factors of sense of presence scores.

If quality is altered, such that some scenarios contain high-quality content based on the model presented here, and some contain low-quality content, participants will have differing experiences with regard to sense of presence. High-quality scenarios will produce higher sense of presence scores, and low-quality scenarios will produce lower sense of presence scores. Such an outcome would help verify that the quality measures, as synthesized from available literature, are in fact accurate.

Scenario workshop participation and the instrument. Finally, as quality and participation are explored, it is logical to consider an additional interaction between the variables at play in this study. The third hypothesis is:

> *H2*: *There will be an interaction between workshop participation and scenario quality on the four factors of sense of presence scores.*

It is reasonable to predict that participation in the full process may produce higher sense of presence scores, since those who experience all the workshops will have helped construct the narratives through their activities. Thus, the sense of presence scores for high-quality scenarios for those who undergo the full process may be higher than the sense of presence scores for high-quality scenarios for those who do not.

Summary

This chapter provided an overview of the history of the Shell/GBN/2x2 matrix scenario planning process, including a model for understanding the outcomes of that process. It provided a review of current research into each of the domains in the model and illustrated how scenario writing has not yet been considered as a major or separate element of the model. With a review of literature from scenario planning and writing instruction, the chapter presented a model for scenario writing, including guidelines for writers and a checklist for completed scenarios.

Finally, the chapter covered sense of presence as a construct to be used to measure quality in scenarios.

CHAPTER THREE: METHODS

This chapter discusses the procedures and research methods used in this study. First, an overview of the research design and research questions is presented. Second, the chapter describes the population and sampling strategy employed, as well as resulting limitations. Third, both the scenario planning intervention and the ITC-Sense of Presence Inventory (SOPI) are described in detail, including explanations for the reliability and validity of the instrument. Fourth and finally, data collection and analysis procedures are provided.

Research Design

This study employed a quantitative, quasi-experimental design to investigate the effects of scenario quality on both scenario workshop participant and non-participant sense of presence (suspension of disbelief) by analyzing results of the ITC-SOPI survey. Prior to conducting the study, IRB approval was acquired. Two active independent variables were considered: workshop participation and scenario quality. The first, workshop participation, had two levels: participant and non-participant. This was a between-groups variable. The second independent variable, scenario quality, also had two levels: high and low. Since subjects received either high- or low-quality scenarios, this variable was also between-groups. Given the nature of independent variables under investigation, the general design for this study is a 2x2 factorial design.

Table 3.1

Illustration of 2x2 Factorial Design

	Scenario Quality	
Workshop Participation	High	Low
Participant	O	O
Non-Participant	O	O

The specific design was a quasi-experimental non-equivalent comparison group design, which can be diagrammed as shown in Table 3.2:

Table 3.2

Diagram of Non-Equivalent Comparison Group Design

Workshop Participation	High Scenario Quality	I.V.	Low Scenario Quality
Participant	O	X	O
Non-Participant	O	~X	O

Since the study included two between-groups independent variables, the most appropriate statistic was the two-way ANOVA because its output provides two main effects and an interaction effect to address the research questions. Additional information about the choice for this statistic is provided in the data analysis section of this chapter.

Research Questions

Four research questions framed this study. The first of those questions is covered in detail in chapter 2. It focused on synthesizing guidelines from scenario planning and relevant writing literature. Again, this question was:

> *Research Question 1* (*RQ1*): What does existing scholarship suggest are the critical components of good scenarios?

As explained in chapter 2, the result of the literature review was a cohesive set of scenario writing guidelines. Those guidelines were also integrated in a scenario quality checklist.

Beyond classifying the qualities of strong and weak scenarios, this study explored how scenarios affect participants. Measurements of sense of presence were used to quantify this effect. Further, the study investigated differences between those who participate actively in

scenario planning workshops and those who do not. To address these focal points, the following research questions were asked:

Research Question 2 (RQ2): Is there a difference between scenario workshop participants and non-participants in regard to the sense of presence scores?

Research Question 3 (RQ3): Is there a difference between high- and low-quality scenarios in regard to the sense of presence scores?

Research Question 4 (RQ4): Is there an interaction of workshop participation and scenario quality in regard to sense of presence scores?

Population and Sample

The accessible population for the study was a team engaging in scenario planning, located in the same organization as the researcher. The total sample for this study consisted of 165 people. Roughly half (83) of the people participated in scenario planning workshops, and the other half (82) did not. For the workshop participants, the group of 83 employees came from a Consumer-Packaged Goods organization in the state of Colorado. Approximately 6,500 employees work for this company in North America. Participants in this group were selected because they are members of an intact team, and that team was going through a scenario planning workshop experience as part of their annual strategic planning process for 2018. While Participants were recruited into the study through the scenario planning workshop they were attending as part of their year-end activities.

The non-participant group of 82 participants were from outside the team and organization. 11 people were from other teams in this company's Colorado offices, and 71 people were from outside the organization. The participants in this group were selected because they volunteered to participate in the study by reading scenarios. This group of participants did

not participate in the scenario planning workshops but should the employees in the non-workshop participant group have expressed interest in scenario planning activities for their organizations, they could inquire about such support through the researcher.

A non-probability sampling design was employed. Random assignment could not be achieved because the workshop design was specifically for the team, so only those employees experienced the scenario planning workshops. Moreover, random assignment into the second group also is not possible since participants in the second group are volunteers who opt into the group. This sample was a convenience sample. Sampling was also purposive since participants were sorted as workshop participant and non-participant.

The sample chosen for this study raises several external validity concerns. Because the theoretical population cannot be estimated, it is not possible to speak to the representativeness of the selected sample. The theoretical population for this study includes two groups: organization members who participate in scenario planning workshops prior to reading scenarios and organization members who do not participate in workshops before reading scenarios. Estimating the size of the theoretical population poses a challenge since it is impossible to know exactly how many firms engage in scenario planning.

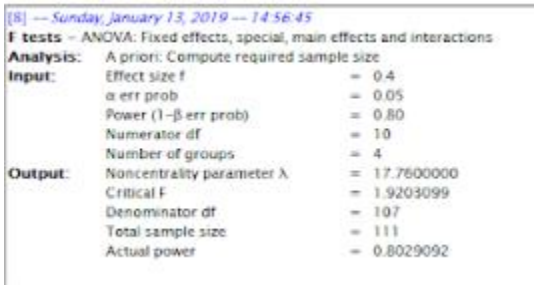
However, it stands to reason that the first group should be smaller than the second; fewer organization members participate in scenario planning workshops than those who do not. Teams engaging in the scenario planning process are typically composed of managers and others responsible for strategy and decision making within organizations. Even with such approximations, the sampling strategy is ultimately a limitation of the study. Though power analysis, described below, indicates the size of the population is adequate for the chosen statistics, the results cannot be generalized because of the small size of the population with

regard to the potential theoretical population. Further study is needed to substantiate these results beyond this limited sample.

Additionally, the sampling method introduces sampling bias to the design. From an ecological perspective, the naturalness of the setting for the intervention is high since this type of activity might be conducted even if the site were not under study. The researcher attempted to create an adequate rapport with the groups through interactions natural to co-employment within the same company. Due to constraints of the researching process, the timing for delivery is potentially not adequate; moreover, study of the effect of the scenarios beyond the scope of the study timeframe is not possible. It would be beneficial to understand how participants respond to the scenarios after time has passed from the conclusion of the workshop series. Finally, the results obtained with this sample may be restricted to this specific time, on this specific team, again meaning the results most likely are not generalizable.

Power Analysis

A power analysis using G* Power (Faul, Erdfelder, Lang, & Buchner, 2007) revealed that 111 total participants would be required across the four groups to achieve a power rating of .80 for statistical analyses with alpha at .05 and the effect size $f = .40$. The sample size of 165 participants total exceeded this requirement. The calculation was conducted using F-tests and ANOVA: Fixed effects, special, main effects and interactions. This analysis was conducted a priori to control for Type I and II errors.



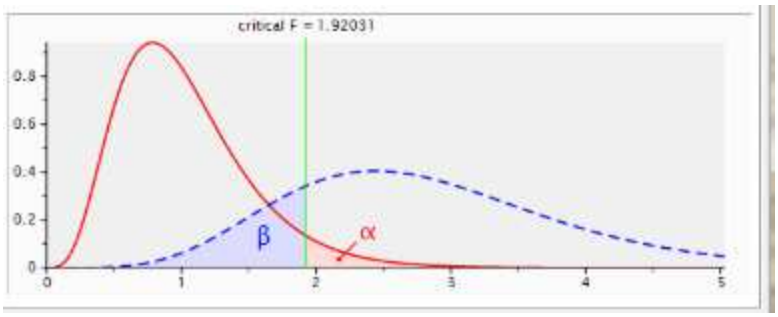


Figure 3.3: Power Analysis

Instruments and Measurement

For this study, the primary instrument is the ITC-Sense of Presence Inventory (SOPI); however, to create the scenarios for which the ITC-SOPI was used, two other processes were employed: the scenario planning process and the scenario writing guidelines and quality checklist. Because it preceded the ITC-SOPI in the study, the scenario planning process is described in detail immediately following. Within this description, a review of the guidelines and checklist, as explained in Chapter 2 is provided. Finally, the ITC-SOPI (Sense of Presence Inventory) is discussed.

Scenario planning process. There are many methods for scenario planning, but the standard approach discussed in chapter 2 is the technique described by Chermack (2011), which is made up of several distinct phases of work. This process was selected because of its clear outline and specific procedural guidance. This process is based on the work of Pierre Wack at Royal Dutch/Shell. It was later recorded by the Global Business Network (GBN) (Schwartz, 1991), but in recent years it has been refined to be a replicable process with reliable and replicable results (Chermack, 2011; Ramirez & Wilkinson, 2014).

Five primary phases make up the complete scenario planning process: project preparation, scenario exploration, scenario development, scenario implementation, and project assessment (Chermack, 2011). This study followed four of the five, excluding project assessment

due to changes in the organizational structure of the Team. A description of each phase is provided here, followed by an explanation of the isolated scenario writing component created for this work.

Project preparation. During the project preparation phase, scenario planning consultants engage with the client to determine the purpose and scope of the intervention. Consultants work with key leaders from the organization at this point in the process to articulate a precise statement of purpose for the scenario project. Frequently, the purpose statement takes the form of a framing question – an issue of significant concern to the leaders. In addition to the purpose statement, this phase produces a clear scope and time frame for the project, outlined in a project proposal. This proposal usually contains information about who will participate, as well as specific outcomes for the project. Finally, measures for those expected outcomes are articulated (Chermack, 2011).

For this study, a doctoral student (referred to here as "the researcher") from Colorado State University acted as the scenario planning consultant. She has been trained in scenario planning through coursework in her PhD program and through her work with her advisor. She is also a Senior Manager of Learning and Culture in the organization participating in the study and would facilitate team sessions like scenario planning through the regular course of her work. The researcher met with two leaders from the Team in their offices in Broomfield, CO. Project preparation occurred in a single meeting, during which the two leaders outlined their framing questions. They also provided guidance on the desired scope and time frame for the project. Since the process required two workshop sessions, dates and times were finalized. Participants were identified to participate in the workshop.

Scenario exploration. The second phase of the scenario planning process involves research and investigation required to prepare for the upcoming scenario development phase (Chermack, 2011; Ogilvy & Schwartz, 1996; Wack, 1984). During scenario exploration, consultants deepen their awareness and understanding of the organization's external environment, history, and critical issues (van der Heijden, 1996; Wack, 1984). This requires external analysis, sometimes in the form of STEEP or SWOT forces (Chermack, 2011). Consultants may also read literature on current industry trends, as well as documentation on the background of the organization. With the key leaders, consultants conduct interviews to gain insight into the way these integral organization members think, speak, and focus. From these interviews comes an initial exposure to the organizational vernacular – the internal vocabulary used by the organization in its own way. Additional understanding of critical concerns and areas of worry come from these conversations.

The researcher for this project interviewed the same two leaders who were contacted for Project Preparation. The procedure for these interviews was as follows: in this case, the researcher will meet with both leaders together for a one-hour conversation. Recruitment of these leaders was because they are the Vice President and Senior Director in the team– so they are the top two leaders in the team. In their roles, they are best able to provide the information that will frame the rest of the scenario planning process.

This team is conducting scenario planning as part of their annual end-of-year activities, and as such, the interviews are included as part of the overall process. Consent was acquired using the same consent to participate form used for the scenario planning workshop, since the interview was the first phase of that workshop process. The purpose of the interviews is to generate the framing question used in the scenario planning workshop with the rest of the team.

The researcher asked the leaders the following questions: (1) What are the looming challenges facing your organization? (2) If you could focus your team on any critical area for the future, what would that be? Once the interviews were completed, the scenario workshops were scheduled.

Scenario development and implementation. Phases three and four typically occur together, since they require a series of interactive workshops with participants. Perhaps the most dynamic of the phases, scenario development and implementation ultimately produce a variety of materials used to craft and hone the organization's scenarios. Usually structured over several meetings (from two to five sessions), the workshops are engaging, lively conversations and activities (Chermack, 2011). For this project, the schedule only permitted two workshops and they had to occur on back-to-back days; additionally, half the participating team could not attend the two-day workshops, so the leaders requested a modified format one-day workshop be delivered to them after the first workshops finished. Table 3.3 provides a high-level outline of the activities for each workshop; it is followed by more in-depth explanations for each.

Table 3.3

Scenario Workshop Structure

Workshop Number	Primary Activities	Output / Products Created
1	Brainstorm critical uncertainties, predetermined elements, and key concerns (all together referred to as "forces"); Rank forces by impact and uncertainty on a 2x2 matrix; Identify primary forces as labels for 2x2 matrix;	List of all forces Ranking of forces according to impact and uncertainty Matrix labels for scenario writing Metaphor/imagery to frame the scenario writing ** Consultants consolidate all output to craft four scenarios

	Designate metaphor/imagery to label quadrants	
2	Read scenarios;	Guided editing of scenarios
	Respond to plausibility, accuracy, issues of concern	** Consultants use the reviews to fine tune the scenarios
	Identify key signals from the scenarios;	List of signals
	Generate options based on scenario signals (also referred to as "wind tunneling");	List of options Initial list of strategic actions for future potentialities
	Describe potential actions in the face of signals	
	Rank options through consensus building around "best" actions for signals;	Ranking of all options
	Plot options graphically	Visual display of ranking
		** Consultants combine all project materials into final scenario book for the organization and prepare for the final workshop
2B	1-day format for 42 team members unable to attend full 2-day version:	Strong alignment from second group on stickies, themes, and ranking
	Modified Brainstorm Activity: review sticky notes + themes, add ideas	Strong alignment on the frames and metaphors; rich dialogue about the process and how it prompts thinking
	Modified Ranking: review ranking and provide additional insights	Nearly identical outputs for signals ITC-SOPI results
	Modified Metaphor Generation: review metaphor, check for understanding	Nearly identical outputs from actions exercise – a few new options

	Consistent signals activity: in small teams, identify key signals from each scenario Read high- and low-quality scenarios Consistent ranking activity: best signals identified, best actions aligned	
3 (or electronic) ** Not completed – potentially unable to do so with the integration process now underway	Presentation of results, including recommendations for next steps; Assessment of project; Delivery of packaged scenario workbook	Conclusion of scenario planning process; Feedback on project and success measures; Finished scenario project book

Workshop 1. During the first workshop session, the researcher presented an overview of the scenario planning process and anticipated outcomes. She described the research objectives. Participants brainstormed critical uncertainties and predetermined elements, the forces affecting the framing question. Participants wrote each item on a sticky note and put all their ideas up on the wall in front of the room. The researcher led the group in a discussion to categorize all the sticky notes around shared themes or concepts, ultimately reducing the number of categories down to about 20.

The participants then ranked the themes, first according to level of impact and second on degree of uncertainty. Ranking was displayed on the wall across a grid with four quadrants. Once ranking was completed and consensus was reached about where each category of sticky notes should reside, the researcher explained how scenarios are to be created from the content produced on the sticky notes and the ranking exercise.

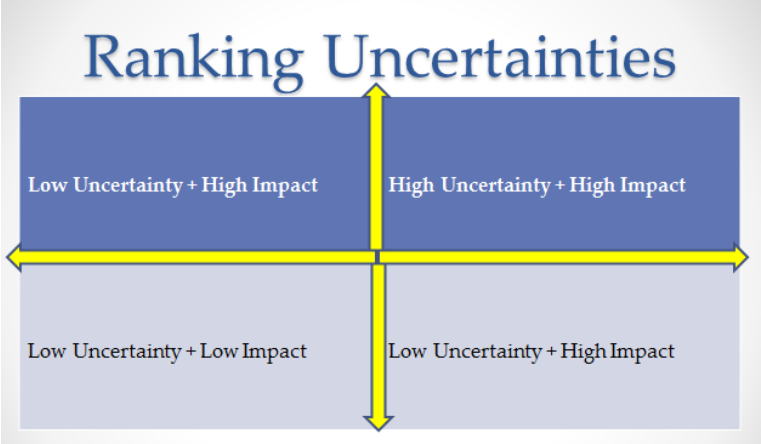


Figure 3.4: Grid of Axis Labels

In the last part of the first workshop, participants identified the two critical uncertainties to form the axis labels for the scenarios, and give the scenario quadrants names – sticky, memorable metaphors. The researcher asked the participants to select two of the most impactful and uncertain categories as the story frames. After several examples were provided, the group brainstormed in small teams.

Scenario writing. After the conclusion of first workshop, the researcher wrote the scenarios using the scenario writing model, guidelines, and checklist. The writing process is described below. Two versions of the scenario sets were generated – one set according to high-quality standards and the other without those standards.

The writing process occurred according to the process outlined in the scenario guidelines: breathing in, combining forces and matrices from workshop one, structuring the scenarios according to organizationally meaningful frames and plots, locating critical uncertainties within those frames, crafting conflicts and interaction between the critical uncertainties, and imbuing the developing story components with characterization. The guidelines are described in greater detail in chapter 2 but are presented here as well.

Table 3.4

Scenario Writing Guidelines

Scenario Writing Guidelines	
NAME	**Actions and Outcomes**
Breathing In	Initial interviews Research about the organization, its environment, its history Research about adjacent industries Study of organizational vernacular and dialogue tendencies Familiarization with organization members and structure Study of key issues, questions, business purpose Workshop #1: Brainstorming, Ranking, Naming Matrix, Metaphor
Frames / Titles	Situate critical uncertainties under each frame Write short sentences or paragraphs about how the uncertainty behaves in this frame, based on tone Expand sentences and paragraphs with details about the uncertainties in the environment
Critical Uncertainties	Develop statements about each uncertainty as related to a frame's tone Expand statements into paragraphs with detail about environment
Conflict / Interaction	Generate statements to connect the uncertainties within the frame Make the uncertainties interact with each other Use positive and negative interactions Create conflict and challenges Invert expected outcomes where possible
Characterizations	Bound the developing story with a character or character's perspective Characterize the organization, the environment, the competitors Give the uncertainties character-based qualities, archetypal or mythic
Breathing In	Workshop #2: Editing of scenarios, feedback loop Integrate feedback and refine scenarios

The scenario writing guidelines are explained in greater detail in chapters 2 and 4. Briefly, the guidelines provide a step-by-step guide for writers to ensure quality in scenarios.

To ensure the high- and low-quality versions truly fell into those ranges, the researcher also used the scenario quality checklist, as shown in Table 3.5.

Table 3.5

Scenario Writing Checklist

Scenario Writing Checklist – Each Scenario Contains:
Element
Clear Frames and Subtitles
Predetermined elements (from the workshops or breathing in)
Critical uncertainties
Environmental factors (from SWOT and STEEP analysis)
Interactions between uncertainties
Conflict between uncertainties, org and environment, other
Challenges (positive) with potential for success
Organizational language (vernacular, dialogue)
Inverted assumptions (from workshops and breathing in)
Internal consistency (story elements are not contradictory)
Plausibility
Relevant (from breathing in – research and awareness)
Consistent verb tense

Again, the checklist is described in more detail in chapters 2 and 4, but briefly, it provides a rubric for writers to ensure they have included all essential elements of high-quality scenarios.

Scenarios were then packaged into two booklets. Each booklet was high- or low-quality scenarios. The next day, the participants were reconvened for the second day of the workshops, during which they reviewed the scenarios, leveraged the scenarios to generate tactics for a focusing question, and finally read either high- or low-quality scenarios and respond to the ITC-SOPI.

Decisions and options**.** At the end of day one, the researcher connected briefly with the two leaders to align on a handful of decisions they are facing in the near future. Based on the discussion from day one, they both agreed that their most important question was: how does Consumer Engagement become strategic thought leaders across the organization for brand building? They requested that instead of ranking against risk and reward for specific decisions and options, the group should generate tactics for achieving that objective in each scenario. They

felt this was more appropriate given the incredibly uncertain future of the broader team, since integration was still pending at the time of the workshops.

The researcher agreed this would be possible and a good use of the second workshop time and format. It is a modification of the process described by Chermack (2011) as wind tunneling, but it could be operated fairly similarly – just without a ranking or rating exercise. The researcher adjusted the slides for day two. Instead of rating options against risk and return for each scenario, participants would read each scenario and generate a brainstorm of tactics for way to accomplish "becoming the organizational strategic thought leaders for brand building" within the context of the narrative.

Workshop 2. The focus of the second workshop was reviewing the scenarios and generating tactics in each possible future for making Consumer Engagement a strategic thought leader for brand building. The researcher provided an overview of the session: to review the scenarios for accuracy, plausibility, relevance, and challenge, and provide feedback for revisions. The researcher guided the participants through each scenario, reinforcing for each its location in the 2x2 matrix and its major themes. Participants discussed initial reactions, areas of discomfort, and challenges and surprises in the scenarios. The researcher asked the participants to provide feedback on any story components that feel implausible, wholly unrealistic, or uncomfortable. This feedback was captured by the researcher during the session for use in scenario revision and production of the final scenario book.

Final presentation of content. The final content for a scenario project is typically presented to the team either in an additional workshop or electronically to the leaders for distribution to the group. This step has not yet been completed for this project, because the team began its integration process, and the time constraints and immense structure shifting taking

place for the team has made reconvening impossible. The leaders asked that the final step be held off until an undetermined time in the future when the team can be reassembled and is not under such duress.

The preceding section described the data collection completed through the scenario planning process. The next section describes the data collection completed through the Sense of Presence Inventory.

ITC-Sense of Presence Inventory

To measure the effect of scenario quality on participant perceptions, the ITC-SOPI was employed. Presence has been used in media studies to establish levels of interaction and engagement among audience members, such that media developers are better able to understand how to amplify the audience's experience (Freeman & Avons, 2000; Freeman, Avons, Pearson, & Ijssel-steijn, 1999; Lessiter, Freeman, Keogh, & Davidoff, 2001; Slater, Usoh, & Steed, 1994). In such studies, presence is described as the sense an audience member has of being part of the medium – being in the story, being the actor on the screen, or being the character in a video game (Lessiter et al., 2001; Barfield, Zeltzer, Sheridan, & Slater, 1995). Most importantly, presence is also defined as the suspension of disbelief (Slater, Usoh, & Steed, 1994), or "being located in a world other than the physical one" (Lessiter et al., 2001, p. 282).

This instrument was selected because it measures the constructs most relevant to the research questions. To measure presence, specifically as suspension of disbelief, several instruments exist that were also considered. However, none of these were as translatable to the scenario-reading experience as the ITC-SOPI. The language in the ITC-SOPI includes terms that work for audience members who are reading rather than viewing the medium.

The ITC-SOPI was developed to measure media users' self-reported experiences of such suspension of disbelief. It is a 44-item, 4-factor cross-media post-test questionnaire. All items use a five-point Likert scale (1 = Strongly Disagree – 5 = Strongly Agree). Using exploratory factor analysis, the authors identified the four factors as: Spatial Presence (sense of physical space), Engagement, Ecological Validity, and Negative Effects (Lessiter et al., 2001).

Constructs. Sense of Physical Space, also called Spatial Presence, is a user's sensation of being pulled into the media (Lessiter et al., 2001); for example, the experience a reader has when he is so engrossed in the literature that the actual room in which he is reading seems to fall away represents spatial presence. Engagement is the experience of enjoying the medium (Lessiter et al., 2001) or feeling intensely involved in the medium. Ecological Validity relates the user's experience of the material being believable or natural (Lessiter et al., 2001). Finally, Negative Effects are those experiences the user has if the content makes her uncomfortable; this might take the form of nausea or headache when watching a high definition 3-D movie, or physical discomfort from an upsetting idea in a piece of literature (Lessiter et al., 2001).

Reliability and validity. Originally, the ITC-SOPI consisted of 63 items, created based on the authors' review of existing presence questionnaires and literature for "sense of space, involvement, attention, distraction, control and manipulation (autonomy) realness, naturalness, perception of time, awareness of behavioral responses, sense of social interaction (para-social and co-presence), personal relevance, arousal, and negative effects" (Lessiter et al., 2001, p. 287). The instrument was given to 604 participants immediately following a media experience (van Baren & Ijsseltsteijn, 2004). The sample was divided based on type of media experience (Lessiter et al., 2001).

The authors computed the data for all 63 items through a principal axis factoring analysis, and as a result, four factors were identified (Lessiter et al., 2001). Items that failed to load significantly on any of the four factors were deleted from the instrument; additionally, any items that remained statistically or conceptually inconsistent were excluded, leaving 44 items intact (Lessiter et al., 2001; van Baren & Ijsseltsteijn, 2004).

The authors computed internal reliability coefficients (Cronbach's alphas) for each of the four constructs. Alphas indicated higher than the threshold for reliability. They are shown in Table 3.6.

Table 3.6

Cronbach's alphas for the four Sense of Presence constructs

Construct	α
Sense of Physical Space	.94
Engagement	.89
Ecological Validity	.76
Negative Effects	.77

Strong correlations among the constructs, as well as between the ITC-SOPI and other established presence questionnaires (Slater et al., 1994; Witmer & Stinger, 1998) offered evidence for the validity of the measure. Correlational studies have since found corroborative evidence for validity (Brogni, Vinayagamoorthy, Steed, & Slater, 2006; Nunez & Blake, 2006; Lin & Morishima, 2008).

Data Collection

Data were collected in several ways for this study. For the construction of the scenario guidelines and quality checklist, an integrative literature has been used (Torraco, 2005; Passmore & Chermack, 2005). More extensive information about that collection procedure is provided in chapter 2; however, a brief summary is provided here. For the creation of scenarios of both high-

and low-quality, the first scenario planning workshop was facilitated, and information gathered to inform the writing process. To measure scenario reader response to both high- and low-quality scenarios, the ITC-SOPI was administered to workshop participants after they read the scenarios during workshop two, and to non-participants after the workshop series had concluded. This section provides more detail about these collection strategies.

Scenario Guidelines and Checklist – Integrative Literature Review

As described in greater detail in chapter 2, the literature search was conducted using a research university's library system, including the databases LexisNexis, Business Source Premier, Academic Source Premier, and the multiple database search engine WorldCat. GoogleScholar was also used to broaden the results. Two sets of searches were conducted: the first for scenario writing specifically, and the second for writing quality guidelines. Search terms are described in chapter 2. No specific time period was identified during the search. To focus on the research purposes and ensure reliability of the data, popular publications, unpublished dissertations or theses, and conference proceedings were excluded from the results.

The criteria for inclusion of texts in this review are also provided in chapter 2, along with the resulting number of sources. The list of sources included for final review each provides some form of instruction on how to write scenarios or how to strengthen writing in short, scenaric-type formats. Further, some of the sources offer general quality guidelines for effective or "good" completed scenarios.

Creation of Scenarios – Workshops

The workshop procedure described above will be employed to collect information for the content used to write the scenarios. This data collection occurs throughout the phases of the

scenario planning process, beginning in project preparation and carrying on through scenario implementation. Table 3.7 illustrates the specific data gathered during each of these phases.

Table 3.7

Scenario Content Collected during Scenario Planning Phases

Phase Name	Data Collected for Scenario Inclusion
Project Preparation	Framing question and purpose Intended outcomes and measures
Scenario Exploration	STEEP and SWOT analysis Industry information Company background and key themes Initial institutional vernacular Critical questions from leaders and areas of concern
Scenario Development	Critical uncertainties and predetermined elements (Forces) Ranking of forces according to impact and uncertainty Expanded institutional vernacular Characterization concepts Initial connection to broader myth categories Initial connection to relevant plots and frames Framing metaphor and titles
Scenario Implementation	Signals Options Ranking of options Visual depiction of options Final revised content for scenarios

These data were collected predominantly from participants, though also from industry and trade publications as needed. Collection procedures include structured interviews during scenario exploration and workshop participation during development and implementation.

ITC-SOPI – Survey

Survey data were collected after participants read the scenarios. At the time of collection, the researcher provided a brief description of the background of the ITC-SOPI and explained

how to read the questions. For example, in the ITC-SOPI, the term "displayed environment" is used to describe the medium under analysis. The researcher clarified that the scenarios are the displayed environment in this situation.

Data Analysis

Data analysis occurred in two parts for this study. First, the integrative literature review results were analyzed and synthesized to answer research question 1, leading to the creation of the scenario guidelines and quality checklist. More significant detail about that analysis process is provided in chapter 2, and a brief description is given here. Second, the ITC-SOPI was be administered to participants and non-participants, and the data analysis technique chosen to answer research questions 2, 3, and 4 was the two-way ANOVA. Assumptions were checked and found not to be markedly violated. A more detailed explanation of that process follows.

Analysis – Integrative Literature Review

To analyze the results of the literature review, a systematic review and extraction process was used. Table 3.8 shows the steps and outcomes for this process.

Table 3.8

Steps in the Review and Extraction Process

Step Number	Actions	Products/Outcomes
1	Read sources; Flag initially relevant passages	Researcher awareness of content; Identified passages for integration into guidelines and checklist
2	Re-read sources; Thoroughly annotate and cross reference sources to each other	Improved awareness of content; Developing list of passages for integration; References for content appearing in multiple sources
3	Re-read sources; Review annotations for accuracy, fit, and relevance	Thorough awareness of content; Developing list of passages for integration

4	Re-read sources, focusing on shared passages	Thorough awareness of connections between sources
5	Re-read sources for symmetry, cohesiveness, and applicability to guidelines and checklist	Expert-level knowledge of sources; Finalized list of passages for integration
6	Build guidelines and checklist	Completed Scenario Writing Guidelines; Completed Scenario Quality Checklist

Each source was read a minimum of five times, sometimes more depending on the quantity of information or scope of the text. During each reading, the researcher made annotations within the texts to identify key passages relevant to the scenario writing process or overall scenario quality. An integral step in this analysis was the cross-referencing of source material, ensuring the researcher had a thorough knowledge of points of interconnection between sources. Ultimately, the final product from the data analysis in the literature review was the scenario writing guidelines and scenario quality checklist.

Analysis – Two-Way ANOVA

Research questions 2, 3, and 4 inquire into the effects of scenario quality and workshop participation on participant experience of sense of presence while reading the scenarios. The two-way ANOVA will compare the mean difference between groups divided on the two independent variables for this study. The independent variables are: workshop participation with the levels participant and non-participant, and scenario quality with the levels high and low. Using the two-way ANOVA allows for analysis of the effects of workshop participation and scenario quality on sense of presence scores, as well as whether or not there is an interaction between the two independent variables on the dependent variable. This design is advantageous because this study sought to investigate treatment variations. Additionally, the two-way ANOVA

is more efficient since it enables inquiry into more than one relationship at a time. Finally, the two-way ANOVA provides an examination of interaction effects.

Assumptions. Three assumptions must be met for the ANOVA: (1) independence of observations, (2) equal variances across groups, and (3) normal distribution of the dependent variable for each group (Morgan, Leech, Gloeckner, & Barrett, 2011). These assumptions are explained in more detail in the following section.

Independence of observations. To meet this assumption, there can be no relationship between the scores for participants (Morgan et al., 2011). Such relationships may occur between scores if the participants themselves have a relationship – such as in family groups or if a snowball sampling procedure is employed (Morgan et al., 2011). None of these conditions existed for this study.

Equal variances across groups. To determine variances across groups, initial descriptive statistics were performed. First, the 44-items in the survey were computed into the four constructs that make up sense of presence: Spatial Presence, Engagement, Ecological Validity, and Negative Effects. Then, the test of homogeneity of variances was performed using a one-way ANOVA against both independent variables: workshop participation and scenario quality.

There were statistically significant differences on the two levels of workshop participation on all four constructs: Spatial Presence, F (1, 163) = 39.71, p = .00; Engagement, F (1, 163) = 44.86, p = .00; Ecological Validity, F (1, 163) = 28.33, p = .00; Negative Effects, F (1, 163), 4.95, p = .03. Similarly, there were statistically significant differences on the two levels of scenario quality: Spatial Presence, F (1, 163) = 12.49, p = .00; Engagement, F (1, 163) = 18.74, p = .00; Ecological Validity, F (1, 163) = 10.71, p. 001; and Negative Effects, F (1, 163) = 37.84, p = .00. The Levene's test was not significant for any construct, so the assumption is not violated.

Normality of the data. Because this is a parametric statistic, data should be normally distributed – that is, neither skewed nor having kurtosis – to meet this assumption (Morgan et al., 2011). Descriptive statistics were computed to check for normality. The data fell within the acceptable range to meet this assumption, as shown in table 3.9.

Table 3.9

Descriptive Statistics across Four Constructs

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	
						Statistic	Std. Error
Spatial Pres.	165	1.42	4.58	2.63	.83	.72	.19
Engagement	165	2.08	4.62	3.40	.53	-.16	.19
Ecol. Valid.	165	2.40	5.00	3.60	.70	.45	.19
Neg. Eff.	165	1.00	3.17	1.94	.65	.37	.19

Reliability and Validity

Cronbach's alpha was used to establish data reliability for this study. Reliability tests helped assess internal consistency across the constructs measured by the ITC-SOPI. Further, validity was established through exploratory factor analysis, including descriptive statistics to examine the data for accuracy, completeness, min and max values, and skewness.

Limitations

This study design presents limitations that are addressed here. These include the self-reported nature of the data, non-equivalent groups, and internal validity.

Self-reported data. While both objective and subjective tests exist to measure sense of presence, this study employs only a subjective measure, relying on participants to self-report their experiences with the scenarios. Challenges with self-reported data include test bias and social desirability of responses. Additionally, perception-based measures present potential bias.

Non-Equivalent Groups

Randomization is not possible for this study since the company specified which participants would experience the scenario planning process and which would read the scenarios only. Non-randomized studies run the risk of non-equivalent groups, which impairs the generalizability of results.

Internal validity. Finally, because this study is quasi-experimental rather than experimental, it is challenging to account for all external influences that may interact with the variables under observation. While this study does not aim to find causality, internal validity concerns mean it is more difficult to say without doubt that the intervention influences the outcomes.

Summary

This chapter presented the study design, the rationale for that design and two-way ANOVA, and an overview of the instrumentation required to conduct the study. The results and analysis are presented in chapter 4.

CHAPTER FOUR: RESULTS

The purpose of this study was to investigate the potential effects of scenario quality and workshop participation on sense of presence. To perform this investigation, the researcher used three data collection strategies: (1) an integrative literature review to analyze available research and practice on how to produce quality scenarios; using this information, a framework for producing high-quality scenarios was generated. (2) Scenario planning workshops, through which scenarios could be written in both high- and low-quality versions; and (3) the ITC-SOPI (Sense of Presence Inventory), which was used to measure four constructs of sense of presence: spatial presence, engagement, ecological validity, and negative effects. These efforts are intended ultimately to inform both scholarship and practice. In scholarship, the research aims to add to the theory work about scenario planning, specifically the process of crafting scenarios and understanding how scenarios affect participants. Moreover, it is generally held true in scenario planning literature that workshop participation should not affect people's experience with scenarios (Chermack, 2001; van der Heijden, 1996, Wack, 1984). For practice, the research seeks to provide stronger replicable guidelines for the production of scenarios that will have a measurable effect on participants, such that the other outcomes of the process can be achieved. To focus both aims of the work, the SOPI provides a means of understanding that effect through the concept of sense of presence.

The study had two independent variables: scenario quality and workshop participation. Each had two levels: high and low for quality and participant and non-participant for the workshops. The research questions that framed this study were:

Research Question 1 (*RQ1*): What does existing scholarship suggest are the critical components of good scenarios?

Research Question 2 (RQ2): Is there a difference between scenario workshop participants and non-participants in regard to the sense of presence scores?

Research Question 3 (RQ3): Is there a difference between high- and low-quality scenarios in regard to the sense of presence scores?

Research Question 4 (RQ4): Is there an interaction of workshop participation and scenario quality in regard to sense of presence scores?

To answer the first questions, the integrative literature review was completed. The scenario writing model provides a framework for creating high-quality scenarios. To answer questions 2, 3, and 4, a two-way ANOVA was used to analyze the data collected from the SOPI.

In this chapter, results are presented. The updated scenario planning model and the writing framework are provided first. Then, descriptive statistics for the SOPI results are displayed and discussed. Reliability and validity information for the SOPI and for these results are shown. Finally, the two-way ANOVA results are given.

Scenario Writing Model

As presented in greater detail in chapter 2, the scenario writing model created through the integrative literature review is shown again here. This model is composed of three key components: (1) a visual depiction of the scenario writing process, and two resources for writers: (2) a set of scenario-writing guidelines, and (3) a checklist to use in the review of completed scenarios to ensure strength and quality. The visual model is shown in Figure 4.1.

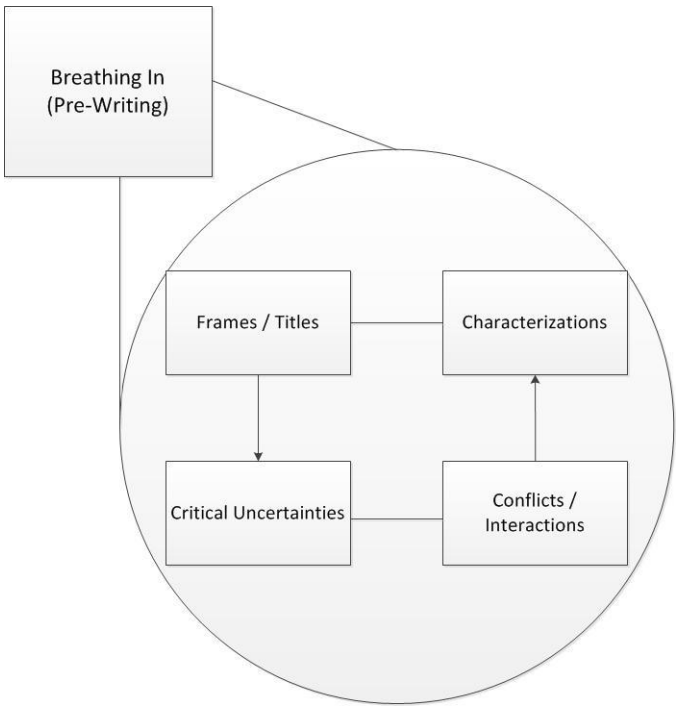


Figure 4.5: Scenario Writing Model

The model identifies the major scenario writing elements. Breathing in, the phrase coined by Wack (1984), is the initial step any author of scenarios must take. To breathe in is to conduct research, become familiar with the organization and its context, saturate in the language used by people in the business and its environment, and build a clear picture of the needs and pressures driving the business. The scenario workshops are also a part of this process, since the products of the exercises become fodder for the scenarios: the brainstorm, ranking activity, matrix labels, and sticky metaphor (Chermack, 2011; Ogilvy, 2005; Ramirez & Wilkinson, 2014; Ringland, 1998; Schwartz, 1991; Wack, 1984).

Breathing in is situated in this model outside the cycle of writing activities because it is a foundational component of the writing process, and a scenario writer may pivot back into breathing in at any point in the writing process (Wack, 1984). The primary outputs of breathing in are the frames, which are distilled from the workshop process and informed by the

organizational context research. The frames set up the primary narrative drives of the scenarios (Chermack, 2011; Chermack & Coons, 2012). Providing focus and direction for each story, the frames drive the remaining details, which come from the critical uncertainties (Chermack, 2011; Ramirez & Wilkinson, 2014; Schwartz, 1991).

Critical uncertainties are set to action within the frames (Chermack, 2011; Ogilvy & Schwartz, 1996). In this model for the writing process, the scenario author should create small paragraphs of information build on each of the themes from the critical uncertainties. Again, the tone of the uncertainties and the paths they take are dictated by the frames. These paragraphs come together to shape the scenario. Conflict and tension between the uncertainties help move the story (Goldman, 1983; Lamott, 1994), as do assumptions and key points of challenge from the workshops. The writer can imbue the scenarios with a sense of drama by inverting assumptions and challenges (King, 2000; Schmidt, 2012); for example, an item that seems positive may be set up to fail, or seemingly insurmountable challenges may drive positive results for the team.

Through these steps in the writing process, characters may grow out of the content (Chermack, 2011; Flowers, 2003; Schwartz, 1991; Ogilvy & Schwartz, 1996; Bowman et al., 2013). In some scenario projects, characters may take on a more traditional shape – such as people with names. In others, characters may be the organization or the team, key unnamed leaders, or major driving forces. Ultimately characters help drive the scenarios because they act within and are affected by the environment of the story (Flowers, 2003; Burnham-Fink, 2014).

With the model as a macro-level guide for the major steps in the writing process, the Scenario Writing Guidelines and Scenario Writing Checklist provide more micro-level instruction and support to scenario authors. First, the scenario writing guidelines provides a

project structure; each component of the Scenario Writing Model is described in more detail, and writers might leverage this tool as a map or step-by-step guide for each phase of the writing process. It is illustrated in Table 4.1.

Table 4.1

Scenario Writing Guidelines

Scenario Writing Guidelines	
Name	**Actions and Outcomes**
Breathing In	Initial interviews Research about the organization, its environment, its history Research about adjacent industries Study of organizational vernacular and dialogue tendencies Familiarization with organization members and structure Study of key issues, questions, business purpose Workshop #1: Brainstorming, Ranking, Naming Matrix, Metaphor
Frames / Titles	Situate critical uncertainties under each frame Write short sentences or paragraphs about how the uncertainty behaves in this frame, based on tone Expand sentences and paragraphs with details about the uncertainties in the environment
Critical Uncertainties	Develop statements about each uncertainty as related to a frame's tone Expand statements into paragraphs with detail about environment
Conflict / Interaction	Generate statements to connect the uncertainties within the frame Make the uncertainties interact with each other Use positive and negative interactions Create conflict and challenges Invert expected outcomes where possible
Characterizations	Bound the developing story with a character or character's perspective Characterize the organization, the environment, the competitors Give the uncertainties character-based qualities, archetypal or mythic
Breathing In	Workshop #2: Editing of scenarios, feedback loop Integrate feedback and refine scenarios

As described for the Scenario Writing Model, Breathing In is captured in the Guidelines more than once, and it would be added at different points throughout the process, depending on the project and the needs of the writer.

Once scenarios are written, the Scenario Writing Checklist functions as a rubric for the writer – a resource to ensure that the essential elements of high-quality scenarios are included. The Checklist is displayed in Table 4.2.

Table 4.2

Scenario Writing Checklist for Scenario Writers

Scenario Writing Checklist – Each Scenario Contains:
Element
Clear Frames and Subtitles
Predetermined elements (from the workshops or breathing in)
Critical uncertainties
Environmental factors (from SWOT and STEEP analysis)
Interactions between uncertainties
Conflict between uncertainties, org and environment, other
Challenges (positive) with potential for success
Organizational language (vernacular, dialogue)
Inverted assumptions (from workshops and breathing in)
Internal consistency (story elements are not contradictory)
Plausibility
Relevant (from breathing in – research and awareness)
Consistent verb tense

These thirteen effective scenario elements are listed for writers to verify inclusion in the scenarios. The Checklist is intended to serve as an initial measure of completeness, and a means of briefly assessing basic quality. This tool aims to help writers gauge their scenarios for effectiveness before participants would review them, but this may also be a useful tool to use during the second or subsequent workshops, so participants could help determine if all the crucial elements are included in the stories. This model was used in the production of the scenarios for this project, so that both a high-quality and low-quality version could be generated,

as well as to test drive the model and tools to ensure they met with the writing process the researcher has used in past projects.

Scenario Planning Project

In addition to the model for scenario writing, the researcher facilitated a scenario planning project a team at a consumer-packaged goods company in Colorado. This project was part of the regularly scheduled end-of-year team building and strategizing activities for the team, and they allowed the researcher to leverage the process for the study. As noted previously, the researcher is a Director of Learning and Culture at the organization and would have been facilitating the workshop as part of her regular duties to support the team. The project is described in greater detail in the ensuring sections.

Scenario Interviews. The first step in the scenario project was to interview two senior leaders for the team. The interview was a scheduled one-hour meeting with both the Vice President and Senior Director. During the meeting, the researcher inquired with the leaders about two key questions: (1) What are the looming challenges facing your organization? (2) If you could focus your team on any critical area for the future, what would that be?

The discussion was robust, as there are a range of critical challenges facing the function in which the team is situated. Most importantly, as of the time of the interviews, the full function had yet to begin integration. This company is roughly 2.5 years into a major integration between two companies – one originally based in Colorado, and another originally based in New York. As is the case with mergers and acquisitions, the integration process has presented unique obstacles, not the least of which is the new dual headquarter reality. Some team members are still in Colorado while others are in New York. For this team, an added layer of difficulty has been created because theirs is the last function in the organization to go through the integration

process, so there are two fully distinct operating models in place. Partnerships across legacy organizations have been challenging. This project focused on the team members based in Colorado. The leaders wanted to be sensitive to the anxieties of team members regarding their future, but they also wanted to leverage the scenario planning experience to exteriorize the pain points and "get everything out on the table."

Through the discussion, the researcher generated options for the framing question: How will we thrive through integration? How do we want our organization to look in 2021? What does best-in-class global approach look like for our team? Through the course of the discussion about options, the leaders aligned on the framing question: What will our team look like in 2021? This question combined elements of team structure, vision, and purpose with a shorter timeline; 2021 felt to the leaders like the furthest into the future the team could realistically contemplate given the fact that they would going through integration soon. With the question in place, the researcher moved into the next stage to prepare for the workshops.

Workshop 1. The first workshop was scheduled for a Thursday full-day session in late September. To start the session, the Vice President presented his hopes and expectations for the program. He spoke to the team about the need for agility and flexibility in the times of uncertainty currently facing their organization. He shared personal information about previous experiences in mergers and acquisitions, stating that typically for organizations of this size, the process takes at least five years. The group had a variety of reactions to this information; some vocalized stress and anxiety about the fact that such a timeline means the company is only about halfway through the integration process. Others said it helped them feel better knowing that there is still time for everything to settle down. These opening conversations were helpful to set the

stage for scenario planning, since the focus was on the future, uncertainty, and the role the team and each individual can play to bring out the best for everyone.

After the kickoff, the researcher took over and provided an overview of the scenario planning process, including the history of the concept and its intended impact on mental models. She described the intended outcomes of this workshop: to help the team contend with intense uncertainty as well as to team build. The team responded positively to the concept of scenario planning and approached the program with open mindedness. The researcher also explained the research she was conducting and thanked the team for being willing to participate.

Focusing question. The framing question was presented on a slide, and the first activity was started. Participants were asked if the focusing questions makes sense. They were asked to think about any changes or adjustments to the question to help it feel like a clear driver for conversation about the future of the team and their work. The group agreed that the question made sense and that they had no changes.

Figure 4.6: Focusing Question Slide

Critical uncertainties brainstorm. Next, the researcher set up the brainstorming of critical uncertainties activity. She explained that for the next ten minutes, each participant was to

think of as many items as they could that have some bearing on the question. These could be fears, concerns, or anxieties; they could be questions that need to be answered or problems that need to be solved; they could be key issues in their organization, team, or external markets that warrant consideration. The researcher took time to ensure everyone understood, and then directed them to use the sticky notes and sharpie markers that were provided for them on the tables.

The participants brainstormed for the next ten minutes individually, and the researcher walked around the room to collect the sticky notes and put them on a rolling white board set up in the front of the room. As participants slowed down their writing, they also started coming to the board to affix their sticky notes. At the end of the brainstorm, there were roughly 250 sticky notes on the board.

Grouping uncertainties into themes. Next, the researcher explained the group would review all the sticky notes together and look for themes. Their task was to use bigger sticky notes to capture the themes and line up the smaller sticky notes under the theme. The goal was to get to about 20 themes in total. The researcher invited the group to stand up and come up to the board, and to talk through the themes together.

As often happens in this stage in the process, the initial conversation was a little slow to get going. People arranged themselves around the board, and it was a little crowded with just over forty people standing. Soon a few people started to step forward to the board and grab sticky notes and start putting them with others. Discussion started flowing at this point and small sub teams formed across the room, as people talked through key themes and how to describe them. The researcher stepped in periodically to help when there seemed to be disagreement about a theme or whether it was important. At this stage, the goal is to get the themes on paper and not

to worry about importance. More meaningful is that there is enough content in the small sticky notes to warrant a theme.

At the end of the activity, the team had aligned on only twelve themes. The researcher pushed on some of the areas – asking probing questions to see if there were further breakdowns possible. The team stood fast on their decision for the most part, though through this discussion, they asked to create two themes that had no small sticky notes under them. They felt like some of the sticky notes could live in two places, and they wanted these other two themes to capture that. Ultimately, the team landed with fourteen themes. These are presented in Table 4.3.

Table 4.3

Major Themes with Key Sub Points

Theme Label	Key points from small sticky notes
What are well called (as a team)	Integrated marketing
	Brand – how we incorporate
	Activation-ish
Brand	How we interact with brand teams
	What role do we play for brand
	What role does brand play for us
What we don't do	Manage time well – too many meetings
	Budgeting
	Manage vendors
What we do now	Drive results
	Create solid brand guidelines
	Own our fate by creating it
What we do in 2021	Highly flexible
	Large scale thinking
	Less legal constraints
What is our relationship with others	Share learnings across organization
	Leader
	Different across functions – sales / legal
Vision	Diverse
	Equal to brand
	Strategic visionaries
Impact	Inspirational
	Meaningful to consumers
	Bigger dividends for company
What we believe	Making leaders nervous

	Consumers deserve transparency
	We are storytellers
Who we are	Experts in all marketing vehicles
	Idea drivers
	Innovators
Team culture	Room to experiment
	Trust of the entire company
	Stretched thin – need more headcount
Worst case scenario	Integration ends our jobs
	We are outsourced
	We take on brand responsibilities
Roles and responsibilities	Captures some key ideas from Brand, Who we are, and Team Culture
Collaboration with cross functional teams	Captures some key ideas from What we believe, Who we are, and What we do in 2021

Though the group did not have 20 themes, as is more common for this part of the workshop, they felt strongly that they had distilled their critical uncertainties as far as was meaningful for them. As such, the researcher moved the workshop into the next step: ranking.

Ranking for impact and uncertainty. The ranking activity occurs in two stages. First, participants rank the themes according to impact. In other words, they are asked to think about the level of impact – high, medium, or low – that the theme has on the focusing question. For example, what is the level of impact that Team Culture has on what their team will look like in 2021? The researcher led the group in this discussion and moved the themes horizontally across the white board. Impact was written on the bottom of the board, which high impact at the far right side and low impact at the far left.

Once participants aligned on the impact rankings, they ranked the themes according to uncertainty. This tends always to be a bit more confusing at first for participants, since the ranking is phrased in terms of *un*certainty rather than certainty. The researcher asked the group to think about how uncertain the theme is, again on a scale of high, medium, and low. Another way to think about uncertainty is whether or not the participants believe they can "tell the story" of

the theme (Chermack, 2011). If they feel they know what will happen with the theme as it impacts their focusing question, then the degree of uncertainty is low. If they feel they cannot know what will happen with the theme, then it is more uncertain.

After the group felt clear about the ranking, the researcher led them through each theme, and moved the sticky notes up and down on the board. So the theme would stay where it was located according to impact, but move vertically according to level of uncertainty, with high uncertainty themes moving to the top of the board, and lower uncertainty themes moving to the bottom. Areas where there was more discussion and disagreement about the level of the theme – either for impact or uncertainty – the researcher made note. These themes tend to be essential in the scenario writing, as they are points around which there is not clear alignment for the group. They indicate greater anxiety, underlying assumptions, and can be particularly meaningful drivers of the stories. The finished ranking is displayed in Figure 4.3.

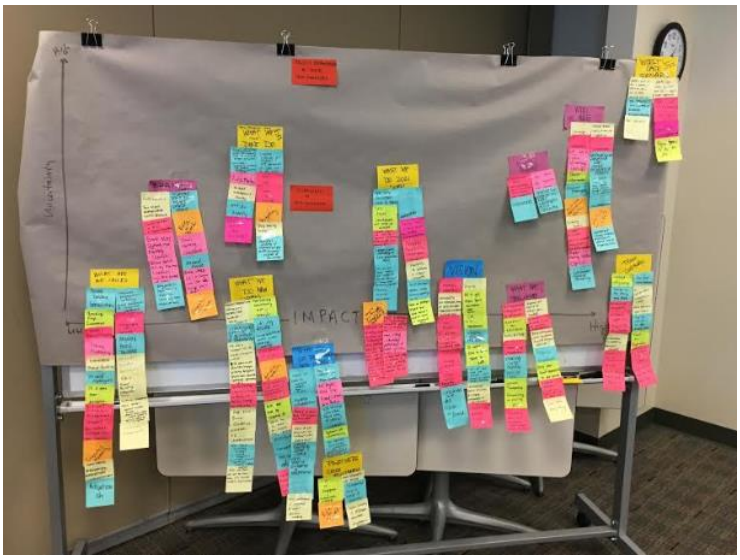


Figure 4.7: Photo of displayed ranking

Once ranking was completed and consensus was reached about where each category of sticky notes should reside, the researcher explained how scenarios are to be created from the content produced on the sticky notes and the ranking exercise.

Frame labels and metaphor. In the last part of the first workshop, participants identified the two critical uncertainties to form the axis labels for the scenarios, and give the scenario quadrants names – sticky, memorable metaphors. The researcher asked the participants to focus on the top right quadrant of the board – the themes that landed in both the high-impact and high-uncertainty section. Of the three to four themes that were in that section, participants were instructed to identify the two that feel the most compelling. In other words, which two of those variables are the most interesting, the most frightening, or the most inspiring when they think about their framing question. The researcher provided examples from previous projects, as shown in Figure 4.4.

Figure 4.8: Example frame labels

As part of the example, the researcher explained that the intention once the two themes are selected is to stretch them to their extreme ends. This provides a driver of the action in the story. In the example provided, the two sample themes are Community and Economy. To stretch them to their extreme states, the labels might become: Close Knit Community versus Fractured Community, and Volatile Economy versus Stable Economy.

After everyone seemed to understand the activity, the group brainstormed in small teams. This process always takes some time; often, participants are concerned that they are eliminating

any of the themes they do not choose. The researcher reinforced that the two themes selected become story drivers – like conditions for reality. All the other themes populate the stories.

At the end of the brainstorm, teams presented their ideas for the frames. After 4 teams had presented, there were clear leader frames: Who we are and What is our Relationship with Others. The researcher then led the group through the exercise to describe the extreme ends of each frame. After discussion, the group aligned that *who we are* had the two states of being *Tactical Executors* and *Strategic Allies*. For *what is our relationship with others*, the states were: *Irreplaceable Ally* and *Outsourceable Work*. Finally, the researcher asked participants to work in teams to create a unifying metaphor to label the scenarios. A short ten-minute brainstorm produced a range of (often hilarious) options, including types of meats, superheroes, products from the organization's own portfolio, and ultimately the most popular: types of alcohol. The final choice from the group was to label the scenarios as shown in Table 4.4

Table 4.4

Frame Labels from Workshop Participants

Vodka: Tactical Executors + Irreplaceable Ally	Whiskey: Strategic Partners + Irreplaceable Ally
Gin: Strategic Partners + Outsourceable Work	Tequila: Tactical Executers + Outsourceable Work

This concluded the first workshop, and participants were dismissed for the day. The second workshop was to reconvene the following morning.

Setup for Workshop *2*. As explained in chapter 3, the leaders met with the researcher quickly at the end of the first day's activities to request a small modification to the program flow for day two. Based on the conversation they observed and participated in through the session,

they felt it would be more beneficial to the team to brainstorm tactics for how to activate against another key question: how does the team become strategic thought leaders across the organization for brand building? They felt this would be a better use of the team's time, since it would give the group actionable behaviors that might help them as they face their impending integration.

The researcher agreed to this and adjusted the slides and setup for the program's second day. Instead of rating options against risk and return for each scenario, participants would read the scenarios and generate tactics for "becoming the organizational strategic thought leaders for brand building" within the context of the scenario.

Writing the Scenarios

During the evening between day one and two of the workshop, the researcher wrote the scenarios using the model, guidelines, and checklist as described above. In addition to high-quality scenarios that followed the model, a set of low-quality scenarios was produced. Using the checklist in reverse, the researcher took the high-quality scenarios and made them shorter and less cohesive. She also added grammatical mistakes in the form of inconsistent verb tense and a sentence structure. She removed the subheading frames from the scenarios.

Workshop 2

At the start of day two, the researcher presented a quick recap of the work completed in workshop one. An overview of the work for day two was presented, and participants had a chance to ask any questions or raise any concerns. Then, the participants saw the primary focus for the day's activities, to brainstorm tactics in each scenario for the question How does the team become strategic thought leaders across the organization for brand building? The two leaders

kicked off the session by providing context for their thinking about this question and why it is important for the group to consider.

Participants all received high-quality versions of the scenarios for the workshop activities. Since the second workshop requires participants to read and respond to the scenarios for the purpose of fine tuning them, only the high-quality versions were viable for the exercises. Participants read scenarios one at a time, and then engaged in activities following a set direction: provide feedback on the scenario – is there anything that absolutely must be changed; align on whether the scenarios are challenging, plausible, and relevant; brainstorm at tables to generate tactics to activate the question: How does CE become strategic thought leaders across the organization for brand building.

Feedback and tactics. Feedback on the scenarios was minimal, and the group agreed that all four met the thresholds for accuracy, relevance, plausibility, and challenge. After each scenario was read and tested for those qualities, the group brainstormed by table for the tactics. The first scenario, Vodka, took the most time for the brainstorm, as is typically the case. The tables shared out and the researcher captured all the key themes on flip charts in the front of the room. Saturation of ideas started happening after about half the group had shared, and the researcher guided the team to choose their most preferred tactics for the scenario. Then, the researcher moved the group on to Whiskey, Gin, and Tequila sequentially. The output of the brainstorm is displayed in Table 4.5.

Table 4.5

Tactics by Scenario to Activate the Goal of becoming Strategic Partners for Brand Building

Vodka: Tactical Executors + Irreplaceable Ally	Whiskey: Strategic Partners + Irreplaceable Ally
- Show partnerships	- Continue educating other functions

- Act strategically about yes / no - Digital / social leadership - Keep doing some of what we are already doing - Invest in learning for the team	- Avoid getting stuck in crisis management - Partner with internal teams more assertively – not necessarily just with brands - Speak up to build off opportunities
Tequila: Tactical Executers + Outsourceable Work	Gin: Strategic Partners + Outsourceable Work

- Ask why on all projects – pursue the answer relentlessly
- Define roles, boundaries
  o Revisit our purpose
  o Describe our values and share them
- Engage assertively in strategy conversations across functions – brand, PMO
	- Implement growth program
	- Hire entry level and grow talent internally for higher-level leadership positions
	- Highlight capabilities in tactical execution – don't shy away from this
	- Find versatility; say no with accommodations
	- Dan (VP) does his job
	- Create case studies of success – share as best practices

Clear themes started to develop in the conversation about tactics, and that setup the transition into the final exercise nicely.

Signals. The last activity for the workshop was to brainstorm signals for each scenario. Signals are the indicators the team would see in the real-world environment that hint to them that a scenario or part of a scenario is actually coming true (Chermack, 2011). The researcher explained the concept of signals and the full group did a practice one together, and then each table spent the next ten minutes brainstorming. Again, reporting out happened around the room while the researcher captured notes on flip charts. Once trends started to develop in the conversation, the group was able to identify specific signals for each scenario. The output of this activity is shown in table 4.6.

Table 4.6

Signals for Each Scenario.

Vodka: Tactical Executors + Irreplaceable Ally	Whiskey: Strategic Partners + Irreplaceable Ally
- Not included in strategic conversations - Increase requirements for new tactical actions without strategies - Us versus Them with departments - Teams question us - Saying no to too much or to the wrong requests	- Physically sit with the brands - Automatically included with the brands - Brand manifesto - Support White Plains brands - Less units / more centralized
Tequila: Tactical Executers + Outsourceable Work	**Gin:** Strategic Partners + Outsourceable Work
- Leaders departing – the ones who championed our structure - Dictate our plan without our voice - Fewer meetings / conversations - Brands do without us - Budget cuts - Agencies encroach on us	- Leader changes - Agency audits result in outsourcing executional work - Split physically – seating arrangement may be nonsensical to us

To round out the discussion, the researcher explained that the signals and tactics work together. When the team detects the signals in their environment, they should engage the tactics they crafted in the workshop as a means of continuing to activate against the driving question: how does CE become strategic thought leaders across the organization for brand building?

Workshop conclusion and ITC-SOPI. This concluded the workshop, so the researcher thanked participants for attending. About thirty minutes before the conclusion of the day, an emergency had occurred with a project, and the Vice President had to leave the room. As such, the Senior Director provided closing comments about ongoing team development, and how they would revisit these themes and the work from these sessions in upcoming first quarter touch points in 2019. The researcher reminded everyone about the study and provided a quick refresh on the research project. She gave an overview of the Sense of Presence Inventory and explained how it is typically used to measure participant experiences with video game or movie-type

media. She clarified that she had permission from the creators of the survey to use it in this context. She also explained that in the questions, the "displayed environment" should be considered the scenarios. She did not say that there would high- and low-quality versions. She passed out new packets of scenarios to everyone and asked them to read these packets and then answer the questions on the survey. She reinforced that they should think about the scenarios as they read them in this instance. Participants completed their surveys and left the workshop.

Workshop 2B

As explained briefly in Chapter 3, the organization could not land dates for the workshops that would work for all 83 team members. Their work schedule did not permit the full group to be offline for two days at the same time. To accommodate this situation, the leaders asked the researcher to provide a secondary version of the workshops for the other half of the group. Time constraints meant another two full days would not be possible, so they asked if it would be feasible to run a modified format one-day program with much of the same activity. Their request was to ensure everyone got at least some of the same experiences and could share the learning together.

The researcher was able to accommodate this request by creating a short format version of the workshop. Since the scenarios would be written during the regular two-day program, she was able to adjust the activities. Table 4.7, which is also shown in chapter 3, recaps the way the workshop structure was adjusted.

Table 4.7

Workshop Structure including Modified Structure for Version 2B.

Workshop Number	Primary Activities	Output / Products Created
1	Brainstorm critical uncertainties, predetermined elements, and key concerns (all	List of all forces

	together referred to as "forces");	Ranking of forces according to impact and uncertainty
	Rank forces by impact and uncertainty on a 2x2 matrix;	Matrix labels for scenario writing
	Identify primary forces as labels for 2x2 matrix;	Metaphor/imagery to frame the scenario writing
	Designate metaphor/imagery to label quadrants	** Consultants consolidate all output to craft four scenarios
2	Read scenarios;	Guided editing of scenarios
	Respond to plausibility, accuracy, issues of concern	** Consultants use the reviews to fine tune the scenarios
	Identify key signals from the scenarios;	List of signals
	Generate options based on scenario signals (also referred to as "wind tunneling");	List of options Initial list of strategic actions for future potentialities
	Describe potential actions in the face of signals	
	Rank options through consensus building around "best" actions for signals;	Ranking of all options Visual display of ranking
	Plot options graphically	** Consultants combine all project materials into final scenario book for the organization and prepare for the final workshop
2B	1-day format for 42 team members unable to attend full 2-day version:	Strong alignment from second group on stickies, themes, and ranking
	Modified Brainstorm Activity: review sticky notes + themes, add ideas	Strong alignment on the frames and metaphors; rich dialogue about the process and how it prompts thinking
		Nearly identical outputs for signals

	Modified Ranking: review ranking and provide additional insights Modified Metaphor Generation: review metaphor, check for understanding Consistent signals activity: in small teams, identify key signals from each scenario Read high- and low-quality scenarios Consistent ranking activity: best signals identified, best actions aligned	ITC-SOPI results Nearly identical outputs from actions exercise – a few new options

After the two-day version was complete, the researcher connected with the leaders and shared the updated program outline as shown in Table 4.7.

Participants in the one-day workshop still received the same overview of scenario planning. For the brainstorm, ranking, and metaphor generation activities, a modified format was presented. Participants reviewed the key themes and ranking from the first workshop group. Then, they brainstormed to add content with the option to put a check mark on any theme or sticky note they agreed with. This activity went much faster than the typical brainstorm activity; participants read the sticky notes and themes and put check marks next to all themes. Through discussion, they determined there was nothing of meaning they wanted to add to the themes. A similar modification was offered for the ranking exercise. The ranks from the previous workshop were displayed, and the participants had an opportunity to agree with, disagree with, and discuss any ranking. Conversation quickly arrived at alignment. There was some discussion around the

impact ranking for "Who are we and what do we do," and interestingly, this conversation echoed the dialogue very closely from the first workshops.

Since the scenarios were already written, and there would not have been time to craft new ones for this one-day workshop group, the frames and metaphors activities were the most heavily modified. The processes for choosing the frames and the brainstorm for selecting the metaphor from the previous workshop were presented, and the final frame labels and metaphor of types of alcohol was shared. The participants responded very positively to both. Next, the participants brainstormed signals for each scenario. This activity was not modified, so it was an equivalent experience.

Finally, participants received the revised high-quality scenarios as updated after the first workshop. This is modified from the original activity, as they did not need to edit or provide feedback on the stories. The researcher did provide time for them to do so if they wanted to, but no one requested changes. The other difference at this point in the process was how much these participants had already heard about the scenarios from the first group. They were excited to read them, and they had a quicker sense of understanding about how to think about the scenarios. The participants then generated their tactics and signals in the same way as participants in the first workshops. At the conclusion of the program, participants received the same overview of the SOPI, and also received new scenario packets with either high- or low-quality scenarios. They were not informed about the quality levels. They read the packets and responded to the SOPI. Then they were dismissed for the session.

This section has described the scenario portion of the data collection process. The need to split the participants from the workshop into two essentially unequal groups presents validity

concerns. These concerns are discussed in the upcoming sections. Next, the target population is described.

Target Population and Categories

The target population for this study was 83 members of a team at a consumer-packaged goods company in Colorado, and 82 people from other teams in the company or people from outside the organization to represent the non-workshop participant group. Due to time constraints, not all 83 people could attend the full 2-day version of the workshops, so roughly half of the participants (42) attended a modified format 1-day version of the experience after the full 2-day program was delivered. This presents validity concerns, since there was not equivalence across both groups. Unfortunately, there was not a solution that would provide for full equivalence of the workshop participation group; the 42 participants who could not attend the original two-day workshop did not have two days available at any point during the study time frame, and there were not other members of the Team who could be participants in the study. Therefore, despite the concerns, the researcher proceeded with the modified format one-day workshop and endeavored to provide as many equivalent experiences in that session as possible.

In addition to the workshop participants, a control population of 82 people who did not attend the workshops received either high- or low-quality scenarios and responded to the ITC-SOPI. Due to sensitivity concerns within the organization, most of the control population (71) were from outside the company. As noted in chapter 3, the organization under study is in its second full year of integrating two companies. Once the scenarios were written and reviewed by the first workshop participants, the leaders requested that the content not be shared outside the Colorado team or HR. When the researcher sent the request email for volunteers, eleven of the Colorado-based HR team members responded they would be willing to participate. That left the

researcher to find 71 people outside the organization who would volunteer. She reached out with the same email to her own network and collected the necessary group of volunteers. Again, the equivalence of groups presents a challenge to the study validity; this is discussed further in a later section.

Demographic Data

Specific demographic information was not collected from the participants, as it was not needed to answer the research questions. However, the in-team, in-organization, and external categories for the population is displayed in Table 4.8.

Table 4.8

Population categorization

Population	Categorization
41 Team Members	Attended Workshops 1 and 2 Read both high- and low-quality scenarios and responded to the SOPI
42 Team members	Attended Workshop 2B Read both high-and low-quality scenarios and responded to the SOPI
41 Non-Employees	Did not attend workshops Read low-quality scenarios and responded to the SOPI
30 Non-Employees	Did not attend workshops Read high-quality scenarios and responded to the SOPI
11 Employees from other teams	Did not attend the workshops Read high-quality scenarios and responded to the SOPI

Sample Size and Power

As explained in chapter 3, a power analysis using G* Power (Faul, Erdfelder, Lang, & Buchner, 2007) revealed that 111 total participants would be required across the four groups to achieve a power rating of .80 for statistical analyses with alpha at .05 and the effect size f = .40. The sample size of 165 participants total exceeded this requirement. The calculation was conducted using F-tests and ANOVA: Fixed effects, special, main effects and interactions. This analysis was conducted a priori to control for Type I and II errors (Faul, Erdfelder, Lang, & Buchner, 2007).

Data Coding and Checking

For the independent variable Workshop Participation, the two levels were coded into the SPSS data view as: 1 = Workshop Participation, and 2 = Non-Participant. The independent variable Scenario Quality was coded into SPSS as: 1 = High Quality and 2 = Low Quality. Then the SOPI results for each group were input into SPSS, associated with their appropriate independent variable categories. Data were checked during this input process for completeness. All surveys were complete. In some cases, participants had crossed out one answer and identified another, but there were no instances of multiple answers for one question or missed questions.

Descriptive Statistics and Assumptions for Two-Way ANOVA

Once data were entered into SPSS, descriptive statistics were generated to check the data set. All variables had minimum and maximum as expected, and skewness was within the range of -1 and 1 on all but 2 items: "I felt dizzy" (1.044) and "I felt involved in the displayed environment" (-1.025). Since ANOVA is the statistic used to answer research questions 2, 3, and 4, normality is not required (Morgan et al., 2011), and these two variables are only moderately

skewed. Since the data are normal, the variables were left as scale in the measure column in SPSS variable view.

Next, the variables needed to be computed into the four primary factors of Sense of Presence: Spatial Presence (items: B4, B7, B12, B13, B18, B19, B22, B23, B24, B25, B28, B29, B31, B33, B34, B35, B36, and B38), Engagement (items: A1, A3, A4, A5, A6, B1, B2, B3, B8, B16, B17, B30, and B32), Ecological Validity (items: B5, B11, B15, B20, and B27), and Negative Effects (items A2, B10, B14, B21, B26, and B37).

For the four factors, means, standard deviations, and skewness are presented in Table 4.9.

Table 4.9

Means, Standard Deviations, and Skewness across Four Factors of Sense of Presence

Variable	*M*	*SD*	Skewness
Spatial Presence	2.6923	.830	.718
Engagement	3.4093	.526	-.160
Ecological Validity	3.5927	.695	.447
Negative Effects	1.9404	.646	.368

As explained in chapter 3a one-way ANOVA was used to test the homogeneity of variances against both independent variables: workshop participation and scenario quality. There were statistically significant differences on the two levels of workshop participation on all four constructs, and there were statistically significant differences on the two levels of scenario quality on all four constructs. The Levene's test was not significant for any construct, so the assumption is not violated.

Assumptions were met: observations are independent; variances on the dependent variable are equal across groups; and the dependent variable is normally distributed for each group.

Reliability

Cronbach's alpha was used as a measure of reliability for the results collected through the ITC-SOPI. This measure of variance determines the extent to which respondents consistently answer questions due to a latent variable (Morgan et al., 2011). Alphas can range from 0-1, and the reliability threshold is generally accepted at .69 (Morgan et al., 2011). The results of the alpha analysis are shown in Table 4.10 below.

Table 4.10

Reliability Coefficients

Measure	Number of Items	α
Spatial Presence	19	.95
Engagement	13	.79
Ecological Validity	5	.73
Negative Effects	6	.77

The reliability coefficients are within the range for reliability (Gliner, Morgan, & Leech, 2009). There were no omitted items.

Validity

As part of the data coding and descriptive statistics processes, data were reviewed initially for errors. Once data were entered into SPSS, they were reviewed twice to check for accuracy of input and ensure there were no mistakes transferring the information from the completed surveys to the data view. Using descriptive statistics as explained above, minimum and maximum values were checked and fell within expected ranges (Gliner et. al., 2009). Means and standard deviations also looked reasonable given what was clear from the data during the input process. *N* came back consistently correct through the descriptive process as well.

Score validity for the ITC-SOPI was checked using factor analysis (Leech, Barrett, & Morgan, 2005). The Kaiser-Meyer-Olkin measure of sampling adequacy was evaluated prior to

factor analysis. The KMO should be greater than .70 and would be inadequate if less than .50 (Leech et al., 2005). The Bartlett test of sphericity should be significant (Leech et al., 2005), and for this data, it was at .00. Table 4.11 summarizes the results and shows that sampling was adequate.

Table 4.11

KMO Measure of Sampling Adequacy

	Items	Factors	KMO Measure of Sampling Adequacy	Bartlett Test of Sphericity
SOPI	44	4	.80	.00

Principal axis factor analysis with varimax rotation was conducted to assess the underlying structure for the 44 items of the SOPI (Leech et al., 2005). Four factors were requested because the instrument is designed to measure four constructs: spatial presence, engagement, ecological validity, and negative effects (Lessiter et al., 2001). After rotation, the first factor accounted for 20.23% of the variance, the second accounted for 17.18% of the variance, the third for 9.05% of the variance, and the fourth factor accounted for 5.78% of the variance (Leech et al., 2005). Table 4.12 displays the items and factor loadings for the rotated factors, with loadings less than .40 omitted to improve clarity (Leech et al., 2005).

Table 4.12

Factor Loadings for the Rotated Factors

Item	Factor Loading				
	1	2	3	4	Communality
B4-I felt I could interact with the displayed environment	.53				.92
B5-The displayed environment seemed natural	.58				.71
B7-I felt that the characters and/or objects could almost touch me	.65				.95
B9-I felt I was visiting the places in the displayed environment	.59				.89

B13-I had the sensation that I moved in response to parts of the displayed environment	.76			.85
B18-I had a sense of being in the scenes displayed	.55			.88
B19-I felt that I could move objects (in the displayed environment)	.80			.94
B22-I could almost smell different features of the displayed environment	.83			.90
B23-I had the sensation that the characters were aware of me	.78			.91
B24-I had a strong sense of sounds coming from different directions within the displayed environment	.82			.91
B25-I felt surrounded by the displayed environment	.51			.89
B28-I felt I could have reached out and touched things (in the displayed environment)	.67			.94
B29-I sensed that the temperature changed to match the scenes in the displayed environment	.63			.93
B31-I felt that all my senses were stimulated at the same time	.47			.75
B33-I felt able to change the course of events in the displayed environment	.65			.79
B34-I felt as though I was in the same space as the characters and/or objects	.46			.88
B35-I had the sensation that parts of the displayed environment (e.g. characters and objects) were responding to me	.79			.94
B36-It felt realistic to move things in the displayed environment	.66			.91
B38-I felt as though I was participating in the displayed environment	.41			.88
B6-It felt like the content was 'live'		.45		.84
B11-The content seemed believable to me				
B12-I felt I wasn't just watching something		.58		.85
B15-I felt that the displayed environment was part of the real world		.44		.73
B16-My experience was intense		.51		.78
B20-The scenes depicted could really occur in the real world		.43		.82
B27-I had a strong sense that the characters and objects were solid		.60		.92
A2-I felt disorientated			.48	.61
B10-I felt tired			.52	.87
B14-I felt dizzy			.57	.88
B21-I felt I had eyestrain			.48	.83

B26-I felt nauseous			.57		.92
B37-I felt I had a headache			.75		.92
A6-I'd recommend the experience to my friends				.40	.70
A4-I would have liked the experience to continue				.80	.69
A3-I had a sense that I had returned from a journey				.77	.63
A5-I vividly remember some parts of the experience				.73	.67
A1-I felt sad that my experience was over				.65	.55
B1-I felt myself being 'drawn in'				.64	.81
B2-I felt involved (in the displayed environment)				.62	.87
B3-I lost track of time				.40	.74
B8-I enjoyed myself				.47	.78
B17-I paid more attention to the displayed environment than I did to my own thoughts (e.g., personal preoccupations, daydreams etc)				.40	.88
B30-I responded emotionally				.73	.90
B32-The content appealed to me				.58	.81
Eigenvalues % of variance	20.23	17.18	9.05	5.78	

Extraction method: principal axis factoring
Rotation method: varimax with Kaiser Normalization
Rotation converged in 7 iterations

Per the ITC-SOPI scoring instructions, the questions should load into four factors, with specific items grouped into each factor. Table 4.13 shows the grouping of items into the factors.

Table 4.13

ITC-SOPI Items Grouped by Factor

Spatial Presence	Engagement	Ecological Validity	Negative Effects
B4	A1	B5	A2
B7	A3	B11	B10
B9	A4	B15	B14
B12	A5	B20	B21
B13	A6	B27	B26
B18	B1		B37
B19	B2		
B22	B3		
B23	B8		
B24	B16		
B25	B17		

B28	B30
B29	B32
B31	
B33	
B34	
B35	
B36	
B38	

Based on the anticipated distribution of items across the four factors, factor 1 contains the items for spatial presence, and factor 4 contains the items for engagement. Factor 2 aligns with ecological validity, and factor 3 with negative effects.

As mentioned earlier in this chapter, there are internal validity concerns raised by the non-equivalence of groups and resulting inability to control for "extraneous experience and environmental variables" (Gliner et. al., 2009, p. 351). Because random assignment was not possible, participant characteristics are the best equalizer that can be used to assess this aspect of validity (Gliner et. al., 2009). Due to constraints on time within the business, workshop participants had to be divided into two groups: those who experienced the two-day version of the workshops and those who experienced a modified format one-day program. Non-workshop participants were largely from outside the organization. While these conditions were the best the researcher had to work within, they definitely present challenges to the validity of the study, as well as to the generalizability of the results. This is discussed further in chapter 5.

Results by Hypothesis

Research questions for which ITC-SOPI data collection applied:

Is there a difference between workshop participation and non-participation in the four factors of sense of presence scores?

Is there a difference between high- and low- quality scenarios on the four factors of sense of presence scores?

Is there an interaction of workshop participation and scenario quality on the four factors of sense of presence scores?

Rewritten as hypotheses:

H0: There will be a difference between scenario planning workshop participants and non-participants with regard to sense of presence scores.

H1: There will be a difference between high- and low-quality scenarios on the four factors of sense of presence scores.

H2: There will be an interaction between workshop participation and scenario quality on the four factors of sense of presence scores.

Multi-way ANOVA Results

To assess whether workshop participation and scenario quality each seem to have an effect on sense of presence, and if there is an interaction between workshop participation and scenario quality on sense of presence, a two-way ANOVA was conducted. Sense of presence as measured by the ITC-SOPI is described across four constructs: Spatial Presence, Engagement, Ecological Validity, and Negative Effects. According to the authors of the instrument, scores cannot be represented as a whole and must be described across the four constructs. As such, the two-way ANOVA was repeated across the constructs. Results are described below.

First, Spatial Presence was analyzed. Table 4.11 shows the means and standard deviations for Spatial Presence for the participation and scenario quality groups.

Table 4.11

Means and Standard Deviations for Spatial Presence against Workshop Participation and Scenario Quality

	High Quality Scenarios			Low Quality Scenarios			Total	
Workshop Participation	*n*	*M*	*SD*	*N*	*M*	*SD*	*M*	*SD*
Participant	41	2.98	.68	42	2.99	.670	2.99	.67
Non-Participant	41	2.71	.95	41	1.80	.144	2.26	.82
Total	82	2.85	.83	83	2.41	.77	2.63	.83

Table 4.12 shows there were statistically significant results for workshop participation, scenario quality, and there was a statistically significant interaction between workshop participation and scenario quality on spatial presence, F (1, 161) = 18.69, p = .00.

Table 4.12

Participation/Quality Between Subject Analysis – Spatial Presence

Variable and Source	*df*	*MS*	*F*	*p*	eta^2
Workshop Participation	1	22.12	48.12	.00	.230
Scenario Quality	1	8.30	18.06	.00	.101
Workshop Participation x Scenario Quality	1	8.60	18.69	.00	.104
Error	161	.460			

The estimated means plots are presented in Figure 4.5.

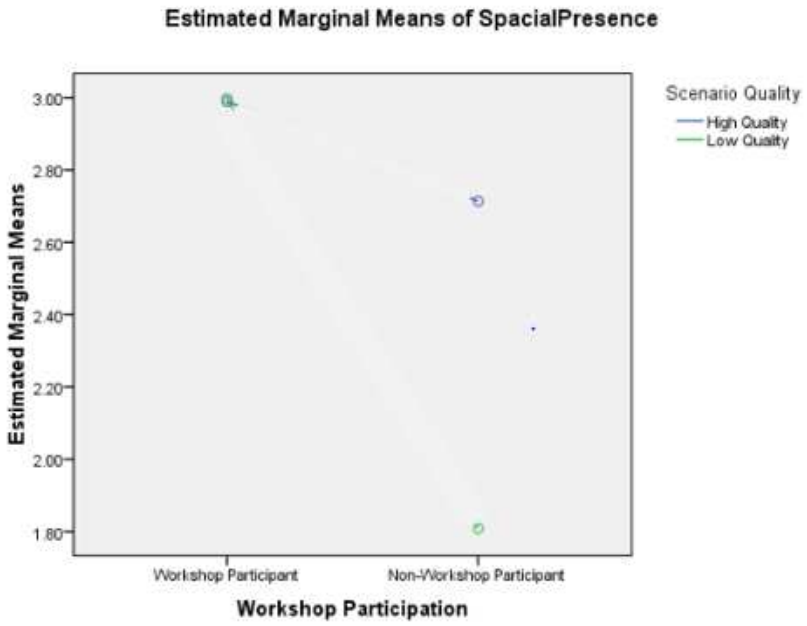


Figure 4.9: Workshop Participation and Scenario Quality on Spatial Presence Plot Analysis

This Marginal Means plot analysis examined the impact of workshop participation and scenario quality on the sense of presence construct spatial presence. Note that the plotted means shows that workshop participants had very similar scores for both high- and low-quality scenarios, while non-participants had lower scores for both types of scenarios than participants and had a much larger difference between high- and low-quality scores for spatial presence. Eta for Workshop Participation was .230, which is a medium or typical effect (Cohen, 1988). For Scenario Quality, the eta is .101, which represents a small or smaller than typical effect (Cohen, 1988). And finally, for Workshop participation and Scenario Quality, the eta is .104, which is also smaller than typical (Cohen, 1988).

Second, Engagement was analyzed. Table 4.13 shows the means and standard deviations for engagement across participation and scenario quality groups. Interestingly, the standard

deviations are smaller here than for the other three constructs, suggesting perceptions are more similar across the groups.

Table 4.13

Means and Standard Deviations for Engagement, Workshop Participation and Scenario Quality

	High Quality Scenarios			Low Quality Scenarios			Total	
Workshop Participation	*n*	*M*	*SD*	*N*	*M*	*SD*	*M*	*SD*
Participant	41	3.76	.49	42	3.54	.35	3.65	.43
Non-Participant	41	3.40	.38	41	2.93	.49	3.16	.49
Total	82	3.57	.47	83	3.24	.52	3.40	.52

Table 4.14 shows there were statistically significant differences between engagement scores for the different workshop participation and scenario quality levels. But there was not a statistically significant interaction between workshop participation and scenario quality on engagement.

Table 4.14

Participation/Quality Between Subject Analysis – Engagement

Variable and Source	*df*	*MS*	*F*	*P*	Eta^2
Workshop Participation	1	9.84	52.55	.00	.246
Scenario Quality	1	4.78	25.53	.00	.137
Workshop Participation x Scenario Quality	1	.66	3.52	.062	.021
Error	161	.187			

Estimated means plots are presented in Figure 4.6.

Figure 4.10: Workshop Participation and Scenario Quality on Engagement Plot Analysis

This Marginal Means plot analysis examined the impact of workshop participation and scenario quality on engagement. The plotted means show that engagement scores differed for both participants and non-participants related to high- and low-quality scenarios. The difference here is greater than for spatial presence for workshop participants. Eta for Workshop Participation was .25, which is a medium or typical effect (Cohen, 1988). For Scenario Quality, the eta is .14, which represents a small or smaller than typical effect (Cohen, 1988). And finally, for Workshop participation and Scenario Quality, the eta is .021, which is also smaller than typical (Cohen, 1988).

The third construct in sense of presence is ecological validity. Results for means and standard deviations are shown in Table 4.15

Table 4.15

Means and Standard Deviations for Ecological Validity, Workshop Participation and Scenario Quality

	High Quality Scenarios			Low Quality Scenarios			Total	
Workshop Participation	*n*	*M*	*SD*	*n*	*M*	*SD*	*M*	*SD*
Participant	41	3.85	.61	42	3.86	.60	3.85	.61
Non-Participant	41	3.67	.76	41	2.97	.30	3.32	.67
Total	82	3.76	.69	83	3.42	.65	3.59	.69

Table 4.16 shows there were statistically significant difference on ecological validity scores for participants and non-participants, as well as for high- and low-quality scenarios. There was also a statistically significant interaction between participation and quality on ecological validity.

Table 4.16

Participation/Quality Between Subject Analysis – Ecological Validity

Variable and Source	*df*	*MS*	*F*	*p*	Eta^2
Workshop Participation	1	11.73	32.98	.00	.170
Scenario Quality	1	5.03	14.16	.00	.081
Workshop Participation x Scenario Quality	1	5.28	14.84	.00	.084
Error	161	.356			

Figure 4.7 illustrates the plotted means for this construct.

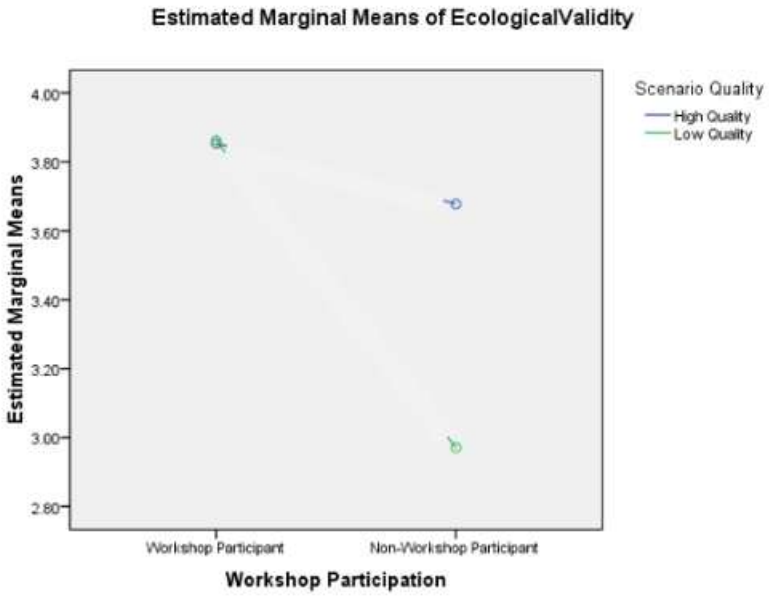


Figure 4.11: Workshop Participation and Scenario Quality on Ecological Validity Plot Analysis

This Marginal Means plot analysis examined the impact of workshop participation and scenario quality on ecological validity. Here we see scores more similar to the results for spatial presence, where workshop participants have similar means for both high- and low-quality scenarios, but non-participants have a larger difference. All eta scores represent smaller than typical effect sizes, with workshop participation at .170, scenario quality at .081, and the interaction between participation and quality at .084.

Finally, negative effects means and standard deviations are shown in Table 4.17

Table 4.17

Means and Standard Deviations for Negative Effects, Workshop Participation and Scenario Quality

	High Quality Scenarios			Low Quality Scenarios			Total	
Workshop Participation	*N*	*M*	*SD*	*n*	*M*	*SD*	*M*	*SD*
Participant	41	2.05	.61	42	2.04	.63	2.05	.62
Non-Participant	41	2.38	.44	41	1.27	.18	1.82	.65
Total	82	2.22	.55	83	1.66	.60	1.94	.64

Table 4.18 shows that there were statistically significant differences on negative effects scores for both workshop participation and scenario quality. And there was a statistically significant interaction between participation and quality on negative effects.

Table 4.18

Participation/Quality Between Subject Analysis – Negative Effects

Variable and Source	*df*	*MS*	*F*	*p*	Eta^2
Workshop Participation	1	2.01	7.92	.005	.047
Scenario Quality	1	13.09	51.51	.00	.242
Workshop Participation x Scenario Quality	1	12.49	49.12	.00	.234
Error	161	.25			

Figure 4.8 provides the means plots for negative effects.

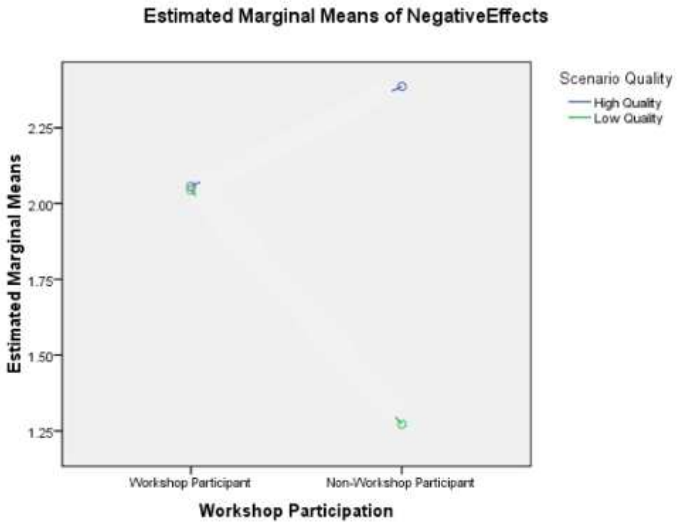


Figure 4.12: Workshop Participation and Scenario Quality on Negative Effects Plot Analysis

This Marginal Means plot analysis examined the impact of workshop participation and scenario quality on negative effects. Again, scores are more similar for workshop participants on both high- and low-quality scenarios, but non-participants have a larger difference. Interestingly, this is the one construct for which means are higher in the non-participant group for one of the measures – high quality scenarios. Workshop participation has an eta with a smaller than typical size at .047, but the effect sizes are both medium or typical for scenario quality and the interaction between participation and quality, at .242 and .234 respectively.

Given these results, the first hypothesis, *there will a difference between participants and non-participants with regard to sense of presence scores*, is accepted. There are clear differences between participants and non-participants in all four construct measurements. The second hypothesis, t*here will be a difference between high- and low-quality scenarios on the four factors of sense of presence scores*, is accepted, as there were statistically significant differences across all measures of sense of presence with regard to scenario quality. And the third hypothesis, *there*

will be an interaction between workshop participation and scenario quality on the four factors of sense of presence scores, is partially accepted. There were statistically significant interactions between workshop participation and scenario quality on three of the four sense of presence constructs, spatial presence, ecological validity, and negative effects. However, for engagement ($p = .062$), there is not a statistically significant interaction between participation and scenario quality.

Conclusion

This chapter provided the results of the study, with the findings that workshop participation does seem to have an effect on sense of presence scores, and scenario quality does seem to have an effect on sense of presence scores. Discussion of these results is provided in chapter 5.

CHAPTER FIVE: DISCUSSION

This study sought to add to existing research on scenario planning by distilling existing literature into a usable framework for writing scenarios, and to explore whether workshop participation and scenario quality affected study participants' sense of presence. To date, this is the first study to attempt to measure participant reactions to the scenarios specifically, and to use that information to help inform both the theory and practice of scenario planning. This chapter provides discussion of the results and recommendations for next steps and further study.

Scenario Writing

The first aim of this work was to create a model for writing scenarios. The gap in existing literature on this point is increasingly a focal point of inquiry (Burnham-Fink, 2015; Chermack & Coons, 2012; Derbyshire & Wright, 2017; Ramirez & Wilkinson, 2014) and the researcher's own experience in scenario planning contributed to the belief that stronger guidelines for writing scenarios are needed. The three-part model created through this study were usable in terms of setting up the writing process and giving writers clearer guidelines to follow to generate scenarios. This model builds on the foundational works of Wack (1988), Ogilvy and Schwartz (1998), van der Heijden (1996), and Chermack (2011). Whether or not this contribution is unique may not matter, but upon leveraging the model to write the scenarios for this study, it definitely felt as though more could be done to streamline the instructions. It seemed reasonable to question to what extent the framework would benefit someone who has absolutely no exposure to scenario planning. It would be interesting as a next step to test the tools on a scenario planning participant who wants to write the scenarios, and who does not have a background in the field, to see if these guidelines may help in the creation of stronger scenarios in such a context.

Informing the writing process. As mentioned in chapter 2, the materials leveraged to inform the best practices for general writing were limited to a degree that may have impacted the writing process outputs. However, it does seem that the three genres included – short stories, science fiction, and theater – are the right starting points for information to build scenario writing practice. This is one of the most intriguing aspects of potential future study in this space. The growth of interest on science fiction in scenario planning literature is telling; this genre is potentially the most fruitful for further exploration. But short stories and theater do contribute to the structure and content elements of the scenario writing process. While science fiction may be right for perspective setting and helping writers unleash their creative future orientation, theater provides rich content for characters and their interactions, and short stories provide support to the economical use of language required for highly impactful scenarios.

Beyond the genre focus, the attempt to collect information from authors on their writing process seems to be a good step toward building the writing process and providing guidance that goes beyond the traditional "have fun" and "be creative" (Schwartz, 1991). However, as noted earlier, so many of the authors cited here also walk a fine line between describing writing as a science – something with clear steps that can be replicated – and an art – something that requires a certain indescribable something to make it happen. In the effort to refine the scientific aspects of scenario writing, the researcher found herself confronted with a realization. Whether it is art or science, creating good scenarios takes practice – lots and lots of practice. That reality may mean it is better for organizations to contract with writers to produce scenarios, since writers will have more practice. In the field of scenario planning, scenario writing may need to be its own subfield or specific track for learning.

Another potential gap in this component of the work is the situation of scenario planning in a fairly western, euro-centric context. It would be useful to understand the impact and potential limitations such a situation creates. While scenario planning is explored at great length in the west, its potential uses in other and more global contexts would be useful information for the field. The different insights that might be gained from understanding cultural precursors to and outcomes for scenarios would help expand the field in a meaningful way. There is a whole world of other possible informants to scenario writing – and scenaric thinking in general – that could open up and improve the process.

Scenario quality and sense of presence. It also seems that this study raises more questions with regard to the writing framework. Though the ITC-SOPI does appear to be a valid instrument for measuring participant experience with scenarios, the conceit to create low-quality scenarios felt problematic from the moment of attempting to apply that concept in the real world. First, ego was a challenge; as a researcher, working with people from within the same organization, and since one of the future aims of the researcher is to make scenario planning part of the regular leadership development and strategy processes, it felt nearly paralyzing at first to imagine creating low-quality scenarios. What would participants think of the writer when they read a "bad" scenario? Beyond that personal sensitivity, another problematic question arose around the possible impact of low-quality writing on the image of scenario planning participants had after they experienced the process.

Ultimately, though, the results for scenario quality and workshop participation do seem to suggest at least two things. First, scenarios that adhere to the guidelines outlined here in the model do result in higher sense of presence scores, regardless of workshop participation. Consequently, there is some degree of confidence that the scenario writing model and tools do

lend themselves toward the production of quality scenarios. Second, regardless of scenario quality, workshop participation clearly influences sense of presence. For both participants and non-participants, high-quality scenarios tended to produce equivalent sense of presence scores, while low-quality scenarios scored markedly differently based on participation. While it would be risky to generalize too quickly, this does seem to suggest that workshop participation has a kind of mitigating effect on poorly written scenarios.

On three of the four constructs – spatial presence, ecological validity, and negative effects, the scores for workshop participants for both high- and low-quality scenarios are almost identical. For the fourth construct, engagement, there is a gap between high- and low-quality, and this is interesting. Since engagement measures participants' sense of enjoyment in the medium – their feeling of pleasure as they read – it feels like it makes sense that poorer quality writing would diminish the experience. The standard deviations for engagement are also interesting, since they are smaller. Perceptions among participants for this construct were more similar than for the other three constructs.

For non-participants, the gaps between high- and low-quality sense of presence scores are also exciting. It seems to be the case that if one does not go through the workshop, sense of presence scores are strikingly lower when the writing is poorer. Perhaps the most exciting result in the non-participant group was for negative effects, where the high-quality scenarios group had higher scores than the workshop participants for either quality level. Negative effects measure the difficult parts of the experience – things like eyestrain or nausea. Since it is well established that scenarios are meant to push people – to jolt, shock, change, and force readers – the negative effects should be, at least in some small way, part of the experience. These results suggest that high-quality scenarios can create more negative effects for people who do not go through the

workshop. Does this mean the workshops also provide a moderating effect on the negative aspects of the scenario reading experience? If so, is that the way the workshops ought to operate? Since the aim is to create some amount of discomfort, perhaps there is more to explore in the way workshops might weaken the intended negative experiences of the process.

Future work on scenario writing. As a next step in this work, it would be interesting to measure the impact of the writing model on people who want to write scenarios. Regardless of whether they have a background in the writing or scenario planning, it would be useful to know whether the tool works for someone other than the researcher. How might the scenario writing guidelines or checklist support someone who is engaging in organizational or team scenario planning for the first time? Hopefully, the guidelines and checklist could be further refined to provide targeted, meaningful support to would-be writers. Through the process of this project, the researcher also came to wonder about the field of scenario planning itself, and whether there is something to be gained from carving out scenario writing as a separate space entirely. Scenario planning is an area of study today – something students can learn in coursework. Maybe scenario writing warrants its own courses. To that end, is there space in the field of writing for a focal point in crafting scenarios? Might it one day be possible to consider scenario writing its own genre of literature?

Beyond application of the tool, it would also be interesting to dig deeper into the concept of scenario quality – potentially in a more contained way. It might feel less stressful to study scenario quality outside the setting of an actual scenario planning intervention. Perhaps separating the quality measure from the real-world workshop for strategy development would provide a means of measuring quality without potentially negatively affecting participants' lived experience with scenario planning as a whole.

Scenario Planning Workshops

Despite the angst induced by the quality component of the study, the workshops were quite effective and very well received by the team. One of the best moments of the whole study experience was having a workshop participant come to exclaim, "Vodka is happening! We were all just talking about how vodka is coming true!" This is a consistent experience across various scenario planning interventions – having participants loop back to say with surprise that something they remember from the scenarios is coming to pass in the real world. But having it happen within this organization was especially gratifying. The leaders felt the program was worthwhile, and the next steps they aligned on as a team were described as concrete, tactical, and real-world relevant. Of course, everyone who participated in the two-day workshop said it would be better if there were a way to run it in a shorter format. This is a consistent and aggravating theme, not just for scenario planning, but for team development overall.

Because of the immense time pressure on the team, not all 83 participants actually could attend the two-day workshop. As such, the creation of an ad hoc work was necessary. This is described in both chapters 3 and 4. It was a modified format, one-day version of the program. This worked because the scenarios were already written, and because it was the only way to get the sample size up to the required threshold. But it presents some internal validity concerns, and ultimately calls into question some of the results in the answers to research questions 2, 3, and 4. Most importantly, the equivalence of groups is not achieved through the workshop design. While every effort was made to maintain integrity in the activities conducted in the one-day format, the loss of the overnight and next day experiences for participants cannot be ignored.

Ultimately, to collect data for the study, these were the conditions. While they assuredly affect the ability to generalize these results, they do not fully undermine the results. This work

can still serve as a useful starting point for future inquiry into scenario quality and workshop participant experiences.

Participation versus non-participation. The differences in means between participants and non-participants across the four constructs of presence also suggest further study is needed to validate the standard assumption in the literature that participating in the workshop is not required to benefit from the scenarios (Chermack, 2011; Ogilvy & Schwartz, 1996, Schwartz, 1991). The concern with making a stronger assertion, however, is that for this study, the non-participants were almost all from outside the organization (87%). The pressures on the organization made it necessary not to share the scenarios outside the immediate team experiencing the workshops. This complicated the originally intended design of the survey mid-process.

While it was relatively easy to find participants from outside the organization, the impact to the research questions cannot be ignored. When the study asks whether there will be a difference between participants and non-participants with regard to sense of presence scores, it is aiming to understand whether there would be difference between people in the same organization. Since this is the primary assertion from the literature – that participation should not matter, and people from within the same organization should have the same basic experiences reading scenarios – the need to go outside the company affects the usefulness of this part of the results for the field.

It is interesting that even with non-participants coming largely from outside the organization, high-quality scenarios still scored similarly for three of the four construct for sense of presence (spatial presence, ecological validity, and negative effects). People from fully different organizational contexts had similar responses to high-quality scenarios. Without

overreaching on potential implications, it feels plausible that following quality criteria for scenario writing helps the scenarios transcend organizational context. The difference of scores for engagement on high-quality scenarios, as noted above, is interesting because non-participants had lower scores, meaning their sense of enjoyment – even with high-quality scenarios – was lower than the sense of enjoyment experienced by participants. The smaller standard deviations indicate the perceptions are more similar, but the difference in means here compared to the other constructs seems interesting.

It would be interesting to be able to have all non-participants from the same organization; since the literature generally asserts that scenarios have the same impact on non-participants from the organization, these results do not necessarily confirm or disconfirm the assertion. But they do tantalizingly suggest there *is* a difference between participating and not participating on sense of presence.

Summary of Two-Way ANOVA Findings

Beyond crafting a scenario writing model, this research aimed to understand differences on sense of presence scores between workshop participants and non-participants, and between high- and low-quality scenarios. It also explored whether or not there is an interaction of workshop participation and scenario quality on sense of presence. Results for research questions 2, 3, and 4 are presented in Table 5.1. Since sense of presence cannot be measured by the SOPI as a whole, this table divides out the questions across the four constructs: spatial presence, engagement, ecological validity, and negative effects.

Table 5.1

Summary of Research Questions 2, 3, and 4

Question	Statistically Significant	Significant Interaction

Is there a difference between workshop participation and non-participation on sense of presence scores – spatial presence?	Yes	Yes
Is there a difference between workshop participation and non-participation on sense of presence scores – engagement?	Yes	No
Is there a difference between workshop participation and non-participation on sense of presence scores – ecological validity?	Yes	Yes
Is there a difference between workshop participation and non-participation on sense of presence scores – negative effects?	Yes	Yes
Is there a difference between high- and low-quality scenarios on sense of presence scores – spatial presence?	Yes	Yes
Is there a difference between high- and low-quality scenarios on sense of presence scores – engagement?	Yes	Yes
Is there a difference between high- and low-quality scenarios on sense of presence scores – ecological validity?	Yes	Yes
Is there a difference between high- and low-quality scenarios on sense of presence scores – negative effects?	Yes	Yes
Is there an interaction of workshop participation and scenario quality on sense of presence scores	Yes – across all four constructs	Yes – excluding for engagement

Based on the results, it appears there is a relationship between workshop participation on sense of presence scores, such that participants tend to have higher scores than non-participants. Further, it appears there is a difference between sense of presence scores based on whether a

participant received high- or low-quality versions of the scenarios. And the interaction between workshop participation and scenario quality appears to occur on three of the four constructs of sense of presence, with engagement being the one construct excluded.

The ITC-SOPI and Scenario Planning

Potentially the most exciting part of this project was finding an instrument that may work for future research into scenario writing, participant experiences, and scenario quality measures. The ITC-SOPI, while designed for movies and video games, does seem to work quite well in the space of scenario writing. During the workshops, participants commented on the odd nature of some of the questions – especially ones focused on interacting with the medium as one would with virtual reality. The researcher is interested in further exploring refining the instrument to fit scenarios more closely. Perhaps it would be beneficial to remove some of the questions; this may help alleviate any confusion respondents experience when they read language that feels like it does not align with reading.

Overall, the ITC-SOPI does provide four constructs that fit logically with scenario writing and participant experiences. When developing the concept for this study, one of the initial barriers was finding an instrument that connected the various pieces of information in the literature today about what "good" scenarios should do. These four constructs – spatial presence, engagement, ecological validity, and negative effects – come the closest to bringing together a complete picture of what good scenarios should be capable of doing. In particular, negative effects stands out as an interesting point for further consideration. The consensus that good scenarios should push on participants, and that this pushing should be uncomfortable, means the negative effects are definitely a necessary part of the process.

Of the four constructs, engagement is potentially the most impactful when considering the quality of scenario writing, since it measures enjoyment, but also because it measures how fully consumed a reader is by the story – how much their sense of time, space, or self seems to fall away, because they are absorbed in the reading. Perhaps the short format of scenarios – just two pages each, double spaced – has bearing on this outcome. It also stands to reason that, since scenarios are intended to "jolt" or "push" (Wack, 1984; van der Heijden, 1996) readers into new ways of thinking, their sense of enjoyment or pleasure may be lower if they are uncomfortable with the plot details in the stories.

Implications and Recommendations for Future Research

Ultimately, these results are promising, and they warrant further study. A larger sample size would be beneficial, as would isolating the questions under investigation. It would be valuable to study scenario quality as a discrete concept, and it seems the SOPI is a tool that works for this exploration. It would also be interesting to understand workshop participation and non-participation differently – specifically with all study participants being from the same organization.

The development of an instrument specifically designed to measure scenario reading experience may be worthwhile as well. The starting point provided by the SOPI is a helpful one; to continue improving the measurement of outcomes from scenario planning, it seems logical that a technique for gauging participant experiences with the stories would improve both theory and practice.

It would also be beneficial to supplement this work with qualitative inquiry. Through follow-up interviews with participants, it would be helpful to hear exactly what they remember from the stories. Recall is an important part of the scenario planning experience, since the

intention is that participants would be able to notice signals in their environment, and then act on the tactics or decisions they practiced in the scenario planning workshops. It would be interesting to interview participants at different time points after the workshops – for example, one month, three months, or six months in the future. To inquire with them about what they remember and compare that information against the scenario content would help further inform the writing process. Specifically, this might help writers understand how to make content more memorable.

Another point for consideration would be how participants talked about or reflected on the stories after the workshops, and how their thinking evolved as a result. While it would be ambitious, it would be fascinating to observe a team for an extended period of time after a scenario planning experience. Understanding how the language of the scenarios becomes or does not become part of their day-to-day vernacular would also inform the writing process, as well as the workshops process. Such insights would provide information about how the content and experience become a living aspect of the team's day-to-day operations. Even just the single instance of someone saying, "this scenario is happening!" hints at the rich possibilities for longer-term studies of the affect the scenarios have on participants.

Implications for Theory and Practice

Chapter 2 presents the theory of scenario planning from Chermack (2011), and it is provided again here with a quick recap.

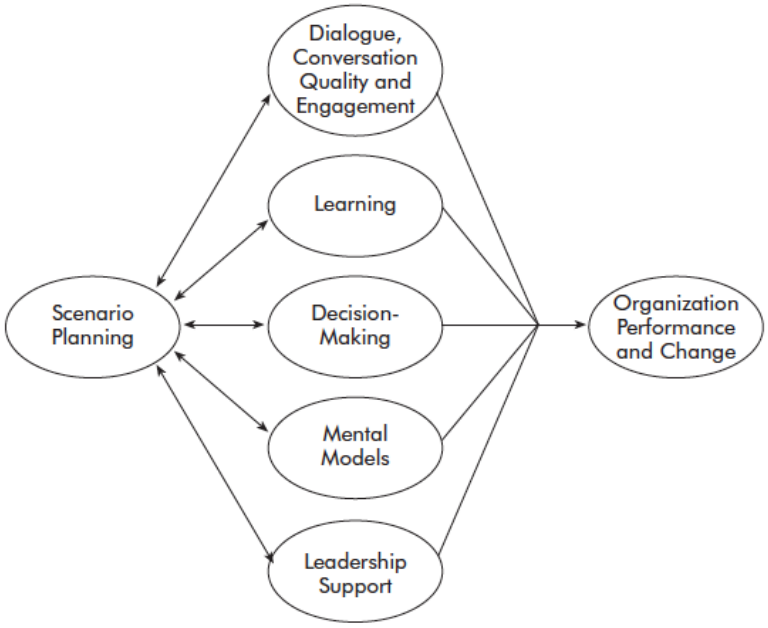


Figure 5.1: Theory of Scenario Planning

This theory identifies the major outcomes of scenario planning, all ultimately leading to organizational performance and change. This project seeks to add to the theory of scenario planning by identifying the writing process as a discrete stage through which the scenarios, as the drivers of the outcomes, are produced. Scholarship has focused on proving these outcomes do occur after scenario planning. It is the assertion of this project that, without a finer focus on the writing process and the scenarios themselves, the potential for these outcomes is impacted. Without high-quality scenarios, it is more difficult to drive the development of the five domains.

Writing Model – Toward Higher-Quality Scenarios

The scenario writing model is, hopefully, a contribution to the theory of scenario planning as well as to the practice of scenario writing; it requires further testing and further development. As research on scenario planning continues to evolve, the particular role the scenarios themselves play is one that warrants further exploration and discussion (Burnham-Fink, 2015; Chermack & Coons, 2012). The stories are the vehicle for the rest of the of the

asserted outcomes of the experience (Burnham-Fink, 2015; Chermack & Coons, 2012). The stories are the path to changed thinking. As such, they should be a central focus in ongoing investigation – how can they be better? How can it be certain they achieve their aims?

After creating and using the writing model, the researcher has two new insights: (1) it is incredibly difficult to separate oneself from the background experiences that inform the writing process, and (2) the need for extensive practice with writing is always going to be a factor in the quality of the product. These insights also raised some new questions for the researcher. Given the results on workshop participation for both high- and low-quality scenarios, does the writing quality actually matter? It is difficult to ignore the possibility that participating in the workshops mitigates any poor quality of writing that might otherwise affect the outcomes of scenario planning. If that result remains true across future studies, the quality of writing may not be as important as participating in the workshops. And while this study cannot comment on people from the same organization who do not participate in the workshops reading scenarios, the results here do raise a question about how quality would matter for this group. Perhaps quality matters when workshop participation is not possible.

Ultimately, the results here suggest that scenario quality can be measured through sense of presence. Likewise, it does seem like scenario quality can be improved using the writing guidelines and checklist. With these as starting points, more work can be done on improving scenario quality as a means of improving scenario planning outcomes.

Workshop Participation and Outcomes

This work also suggests more understanding is needed to hold up the assertion that participation in the workshops is not required to benefit from scenarios. More work needs to be done to understand exactly what the difference in experiences is between participants and non-

participants when they read a scenario. Potentially, the ongoing development of stronger scenario writing guidelines should include this information. Should scenarios be adjusted for organizational members who read them but did not get to experience the brainstorming, ranking, and wind tunneling exercises? In light of this study, perhaps it is best to be cautious making the assertion; more information is needed to understand whether or not non-participants can truly get the same experience out of scenarios.

Ongoing Scenario Planning Research and the ITC-SOPI

Lastly, it is truly exciting, after what feels like so many years working on this project, to see that the instrument selected here does present possibilities for measuring experiences with scenarios. Along with the gap in the literature around how to write scenarios, there is a commensurate gap in strategies for measuring quality. Work is happening in the space of guidelines and structures to follow for the writing (Burnham-Fink, 2015), and it is ongoing in the space of the scenario development process (Ramirez & Wilkinson, 2014; Spaniol & Rowland, 2018). Sense of presence seems to be a viable option for understanding whether or not participants truly interact with the stories the way the process requires. Future research and practical application can benefit from leveraging this instrument to gain understanding of the impacts and quality of the scenario writing – and ultimately the overall scenario planning process.

Scenario Planning Practice – Scenario Writing

As noted earlier in this chapter, one of the insights the researcher developed through the project is the potential need to carve out scenario writing as a separate aspect of scenario planning – both in terms of education and application. For practitioners of scenario planning, it might make sense to identify stronger writers from the team to engage in the writing process.

Moreover, maybe the fields of both scenario planning and writing could be expanded to include scenario authorship. Scenario quality should be an ongoing point of consideration for practitioners. How quality impacts the other outcomes would be interesting exploration for further research. This work has been a labor of love, and it is bittersweet to see it come to its conclusion. The many possibilities for further research and practical application are exciting outcomes of the process.

Limitations

This study had several limitations. These were related to the literature review, the study design, the sample, the population, and the data. These limitations are described here in greater detail.

Literature review. As noted in earlier sections of this paper and this chapter, the literature review presents limitation to the study. First, the boundaries used to refine search results, both for scenario-specific literature and writing literature, mean that the broadest possible set of sources could not be included. These boundaries were used intentionally to simplify and focus the source material to a manageable amount and also to ensure specificity as much as possible. For the scenario planning works specifically, another limitation is the focus on the Shell/GBN and 2x2 matrix method. For the writing resources, the exclusion of rhetorically focused or genre-theory focused works is a limitation. Both of these provide opportunities for future study. In this study, the inclusion of creative writing resources, including the three genres of short stories, theater, and science fiction were intentional to focus on material that seemed most relevant to the study design.

Sample and population. The sample used in this this study also presents limitations. The theoretical population for scenario planning is difficult to estimate, and as such, it is impossible

to speak confidently to the representativeness of the sample. Additionally, since random assignment could not be achieved, it is not possible to generalize the results. The population presents other limitations. Since the non-workshop participant group did not come from inside the organization, the ability to respond meaningfully to the question of whether there is a difference in sense of presence scores for participants and non-participants is impacted. Ultimately, this also means groups were non-equivalent, which further restricts the ability to generalize results.

Data. Data collected through the ITC-SOPI are self-reported. This means the measure is subjective, since it relies on participants to report their experiences accurately. One of the complications in this study was the researcher's relationship to the participants who experienced the scenario planning workshops. Since she has a long-standing relationship with most of the group, and since that relationship is overall very positive, it is possible that the participants' sense of care and consideration for the researcher influenced their responses. Other challenges with self-reported data include test bias and social desirability of responses. Finally, perception-based measures present potential bias in and of themselves.

Conclusion

This chapter presented overall learning gleaned from the research questions, process, and data analysis. A summary of the findings was provided, and potential future research opportunities were discussed. Implications for theory and practice were also considered. This study did find statistically significant outcomes for most of its inquiry – that workshop participation and scenario quality do influence sense of presence, and that there is an interaction between the two independent variables in most instances.

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