



ST. MARY'S
UNIVERSITY

Digital Commons at St. Mary's University

Theses & Dissertations

Counseling & Human Services Theses and
Dissertations

6-2021

The physics of organizational culture: building a scale to quantify organizational culture

Veronica Bou Onk
St. Mary's University

Follow this and additional works at: <https://commons.stmarytx.edu/dissertations>

Recommended Citation

Onk, Veronica Bou, "The physics of organizational culture: building a scale to quantify organizational culture" (2021). *Theses & Dissertations*. 51.

<https://commons.stmarytx.edu/dissertations/51>

This Dissertation is brought to you for free and open access by the Counseling & Human Services Theses and Dissertations at Digital Commons at St. Mary's University. It has been accepted for inclusion in Theses & Dissertations by an authorized administrator of Digital Commons at St. Mary's University. For more information, please contact egoode@stmarytx.edu, sfowler@stmarytx.edu.

**THE PHYSICS OF ORGANIZATIONAL CULTURE:
BUILDING A SCALE TO QUANTIFY ORGANIZATIONAL CULTURE**

APPROVED:

Gregory J. Pool, PhD, Thesis Advisor

Cody Cox, PhD

Mark Rose, PhD

William Nash, MBA

APPROVED:

Leona Pallansch, Ph.D.
Interim Dean, College of Arts, Humanities and Social Sciences

Date

**THE PHYSICS OF ORGANIZATIONAL CULTURE:
BUILDING A SCALE TO QUANTIFY ORGANIZATIONAL CULTURE**

A
THESIS

Presented to the Faculty of the Graduate School of
St. Mary's University in Partial Fulfillment
of the Requirements
for the Degree of

MASTER OF SCIENCE

in
Industrial/Organizational Psychology

by

Veronica Bou Onk

San Antonio, TX

June 2021

Abstract

THE PHYSICS OF ORGANIZATIONAL CULTURE: BUILDING A SCALE TO QUANTIFY ORGANIZATIONAL CULTURE

Veronica Bou Onk

St. Mary's University, 2021

Thesis Advisor: Gregory J. Pool, PhD

Traditional measures of organizational culture often focus on culture as a static entity, defined by its traits. However, studies have shown that culture is organic and ever-changing. Therefore, organizational culture should also be measured in terms of its shifting nature, what direction this nature is shifting, and how quickly this shift is happening. The following study seeks to develop a scale to measure the physical properties of organizational culture, dubbed Cultural Mass, Cultural Direction, and Cultural Velocity. The pilot survey was conducted through a non-profit organization in Texas, with a sample size of $n = 124$. Exploratory factor analysis, correlation, and multiple regression were used to analyze the data. Based on the data, the original three factors could not be identified. However, four new factors were identified that showed similarities to the theories that were linked to Cultural Mass and Direction. Further testing and validation of the new model should be conducted as next steps in the scale development process.

Acknowledgments

When I decided to start this thesis, I could not have imagined what the world was about to experience over the next year. The process of completing this was not an easy one, but I am forever grateful for the experience it has given me.

This thesis was made possible thanks to the guidance and passion of Dr. G. Pool. I am grateful to him for both his enthusiasm for the field of I/O Psychology and for his patience with me throughout this process. I would also like to thank Dr. C. Cox and Dr. M. Rose for their guidance on both this thesis and throughout my graduate academic career and Mr. Bill Nash for his advice and feedback on the thesis idea and process.

Thank you to my friends and co-workers for their kindness and encouragements throughout this process. Finally, thank you to my family, who have supported me through it all.

Table of Contents

Abstract	iii
Acknowledgments.....	iv
List of Figures	vi
List of Tables	vii
Introduction	8
Literature Review	10
Method	30
Results	32
Discussion	40
Limitations and Future Research	44
References	46
Appendix A: IRB Approval Letter	51
Appendix B: Consent Form	52
Appendix C: Measures	53

List of Figures

Figure 1 Organizational Culture Final Exploratory Factor Analysis	36
---	----

List of Tables

Table 1 Demographics	32
Table 2 Reliability of Subscales	35
Table 3 Organizational Culture Final Scale Items	35

The Physics of Organizational Culture:

Building a Scale to Quantify Organizational Culture

An organization's culture is an important piece of its success. Organizational development efforts are often focused on creating the "right culture" for the organization. Companies take pride in their culture, to the point where they discuss the aspects of their culture when quantifying the value of their organization. Culture can be considered an intangible asset to organizations; similar to the concept of brand or customer loyalty, companies view their culture as an economic factor for future profitability if the culture is strong and well-managed (Flamholtz & Randle, 2012). Starbucks, one of the most successful organizations of our time, attributes a majority of its success to its strong corporate culture (Behar, 2007). An organization that does not monitor and manage its culture successfully will find that a poor culture creates liability and risk that can lead to the decline of an organization's success. Enron is one of the most famous examples of poor culture leading to an organization's decline. While the company-maintained core values like respect and integrity, its actual culture reflected greed and unethical behavior, mirrored most significantly in the actions of their C-suite employees (Burkus, 2011). Organizations have even begun to make their leadership stewards of their culture, expecting top management to maintain and grow the organization's culture to add value to the organization. When CEOs and top leaders in organizations were interviewed, over half considered the CEO to be the main driver and influencer of organizational culture, while almost 18% looked past the CEO to manage the culture (Graham, Grennan, Harvey, & Rajgopal, 2016). CEOs who consider and foster an effective corporate culture can unite their employees under a common goal and help develop stronger relationships between teams in their organization.

Many companies talk about their culture conceptually, but few have actually quantified it to determine if it is developing in a planned and strategic way. Culture is organic and dynamic; it changes as the organization goes through the business lifecycle (Allaire & Firsirotu, 1984). For example, as leadership changes in an organization, they influence a change in culture among the employees. This change happens naturally; the leader is not purposefully enacting policy changes, but influencing a change in behavior among his colleagues. Presently, many measures of organizational culture tend to focus on what an organization's culture currently is and do not measure their ability to change and grow. A qualitative approach can provide a more in-depth look into an organization's current culture. However, the static taxonomy approach fails to encompass the dynamic, changing nature of organizational culture. Leaders who wish to actively manage their organization's culture need a measure that is sensitive to the ongoing changes as they are occurring instead of what the organizational culture has changed into based on qualitative analysis (Cooke & Rousseau, 1988).

The present study purposes a new model for understanding an organization's dynamic culture and develops a scale to measure organizational culture. We believe that there is value in understanding and predicting the overall trajectory of an organization's culture. We assert that there are three factors that can influence the trajectory of organizational culture: Cultural Mass, Cultural Direction, and Cultural Velocity. The study will identify relationships between our measure of organizational culture and important organizational outcome constructs including organizational commitment, innovation, and job involvement.

Literature Review

Organizational Culture

The theory of organizational culture stems from the study of human culture.

Organizations are often described as small societies (Allaire & Firsirotu, 1984) because like societies, they possess social values, norms, and structures that govern the behavior of a group of people. Allaire and Firsirotu (1984) argue that cultures are defined by the myths, rituals, values, and beliefs that are shared and agreed upon by the people that comprise them. In organizations, these myths and rituals often take the form of dress codes, corporate logos, organizational vision and mission statements, and stories of previous leadership (Schein, 1990). The myths of an organization's culture are verbalized through their values. Values are the spoken and written representation of culture; what an organization has stated their culture is. These values are then carried out through behaviors and practices in the organization known as norms. Norms are the unconscious behaviors employees take on that develop out of the organization's culture (Ponnu & Hassan, 2015). For example, employees that work for a company focused on community service might find themselves donating to charities or volunteering their time, despite not having an interest in community service before working for the company. These unconscious behaviors, or norms, are often taken for granted by those in the organization as they are not strictly stated such as an organizations mission statement or code of conduct (Ponnu & Hassan, 2015). However, they are just as, or even more important, to the formation of organizational culture. Organizations display these levels of culture as a method of uniting the members of the organization to work towards a common goal and develop a shared will (Allaire & Firsirotu, 1984; Schein 1990; Kilmann, 1982).

Because organizations function like societies, it is possible to apply societal study methods to organizations. Researchers view culture, even organizational culture, as a societal system that is either static or changing. The theory of historical-diffusion states that cultures are interactive and superorganic (Allaire & Firsirotu, 1984). This means that culture can be changed through interactions with outside forces; a culture is influenced by more than just its existing members. A culture can never be static due to shifts in the societal structure. Therefore, the culture will change due to these shifts in time and place, changes in the values of the group members of the culture, and acculturation and assimilation of outside values and beliefs (Allaire & Firsirotu, 1984). Historical-diffusion theory is more applicable to organizational cultures than most other cultural theories. As leadership and employees change within the organization, the culture shifts to accommodate for those changes. In addition to the internal shifts, organizations also face changes in the external societal structure; anything from a change in legislation in the organization's industry to a financial market crisis can create a shift in the culture of an organization. However, many cultural scales do not focus on the development of cultures, going against what theory suggests about culture. Most cultural scales discuss thematic, taxonomy-based ideas of culture instead of measurable, quantitative constructs of culture.

Organizational Culture Measures

Despite the high potential for organizational cultures to be altered over time, many current organizational culture scales and measures focus on defining the culture statically, using taxonomy to define different classifications of culture and dividing organizations among these classifications. This approach is helpful for defining an organization's current culture. They place culture into different categories, and demonstrate how the culture is in the present.

However, few if any scales measure the shifts in culture that are occurring due to internal and external forces, leaving out the interactive nature of organizational culture.

Edgar Schein developed one of the first models of organizational culture in the 1980s (Burkus, 2014). A professor at MIT, Schein (1990) stated that organizational culture be summed up into three levels: artifacts, values, and underlying assumptions. Artifacts are the visual representations of an organization's culture, such as imagery and explicitly stated rules the organization has provided. An organization's logo or organization-wide events, for example, are extremely visual, so they would be categorized as artifacts of culture. While these visual representations are observable, Schein states that they are difficult to decipher without insider assistance (Schein, 1990). Values provide the explanation for the artifacts. Values are the goals, ideas, and shared ideologies that exist within the organization. Examples of these might be the company's corporate values and their vision statements; these provide written explanations for why an organization would hold certain artifacts. Values are carried out by the unconscious behaviors and underlying assumptions of the employees. Underlying assumptions are the habits and behaviors of employees that are often taken for granted by the organization; these behaviors are ultimately meant to carry out the values of the organization. According to his research, Schein found that every aspect of an organization's culture would fall into one of these three areas, with the deciding factor being how visual or obvious the aspect of culture was to others (Schein, 1990).

Deal and Kennedy (1982) classified culture in terms of risk-taking behavior. For example, there are work hard play hard organizational cultures and what they define as "tough guy" high risk cultures; these organizations are categorized as being high risk high reward, and their behaviors and values align with this high-risk culture. On the opposite end of their research,

they identified process-oriented cultures for organizations that tend to lean towards less risky business behaviors. Another study developed the Double S Cube model; a method of categorizing organizational culture based on the sociability and solidarity of the employees (Goffee & Jones, 1998). In the Double S Cube model, organizations with high solidarity but low sociability have a highly focused culture, those with high sociability and low solidarity have an informal, open-space culture. Having both low sociability and low solidarity creates mercenary, no nonsense culture, while having both high sociability and high solidarity leads to a culture with face-to-face communication (Goffee & Jones, 1982).

In addition, theoretical frameworks on organizational culture tend to divide organizations into groups or use terms to describe an organization's culture. For example, O'Reilly, Chatman, and Caldwell (1990) developed the Organizational Culture Profile based on 54 value statements to determine an organization's structure. They determined 8 factors of culture based on the 54 values: innovation and risk taking, decisiveness, and collaboration were among some of the factors. These factors were then used to paint a picture of the organization's culture based on the responses of its employees (O'Reilly, Chatman, and Caldwell, 1990). On the other hand, Cameron and Quinn (2006) developed a framework that divided culture into quadrants. They determined these quadrants by categorizing companies by whether or not they had an external or internal focus, and whether they valued flexibility or stability. In their research they defined the quadrants through qualitative terms, such as Clan culture and Hierarchy culture (Cameron & Quinn, 2006).

All of these and other organizational culture scales have one thing in common: They do not focus on culture as an organic, changing entity that should be measured overtime. These types of scales tend to measure a culture in its present state. They also express these

measurements by categorizing the culture. A culture is hierarchical, or it is sociable, and it can change to be more clan based or authoritarian. However, these scales have a limited ability to measure culture by its constructs, and how these constructs or constantly evolving. These scales therefore measure taxonomies since they only determine the definition of the type of culture an organization has. This is why a scale that measures the changes in the constructs of culture over time is needed. Therefore, it is important to define the constructs of culture that appear most often in the literature.

Why Does Measuring Organizational Culture Matter?

Organizational Culture is more than just a buzzword phrase that has been arbitrarily deemed as important by management teams. The culture of an organization influences multiple important aspects of an organization's functions and successes. Recent surveys show that leadership teams, C-suite executives, and board members all consider Organizational Culture to be a pivotal aspect of not only the employees' experience of an organization, but also the financial success of that organization (Graham, Harvey, Popadak, & Rajgopal, 2017). Also, organizations seeking to merge or acquire another organization should be conscious of the differences in the organizational cultures and how that might lead to the success or failure of the venture. There are a number of documented instances in which a merger failed due to organizational culture clashes. For instance, the Sprint-Nextel merger in 2005 demonstrated that Sprints aggressive, entrepreneurial culture was domineering compared to Nextel's formal, bureaucratic culture (Bouwman, 2013). This led to Sprint's culture and metrics being adopted across both organizations, leading to a loss in Nextel's culture overall throughout the organization (Bouwman, 2013). Another example of this is the Daimler-Benz and Chrysler Corporation merger in 1998 (Bouwman, 2013). Daimler-Benz was a German-based automotive

company, while Chrysler Corporation was U.S. based; these national differences were also reflected in their organizational culture. Daimler-Benz was authoritative and traditional, while Chrysler focused on innovation and adaptability (Bouwman, 2013). This cultural clash led to reluctance from leadership to cooperate with one another, and eventually resulted in Daimler-Benz selling the Chrysler portion of their business (Bouwman, 2013).

Had leadership been able to analyze their organization's cultures more thoroughly, and had a clear understanding of how culture changes occur over time, it is possible that these failed mergers could have been successful. Understanding the organizational culture, how influential one might be over another, and the direction they are moving could help leaders properly and efficiently merge cultures, or decide which culture is more likely to lead to success for the organization. However, it requires more than just understanding what a culture is doing in the present moment; companies must be able to identify how these cultures are changing, and how they could combine. Therefore, it is also important to measure the physical attribute of organizational culture.

Defining the Physics of Organizational Culture

Imagine you are watching a cart full of bricks rolling slowly down the road. Because the cart is full of heavy bricks, it will take a great deal of force to turn the cart off its current path to travel down a different road. However, if the cart was empty, some of these changes would be easier to obtain, and one would be able to change the cart's path more readily. Also, sometimes the cart is not always traveling down a road. Imagine the cart is being pushed up hill instead, and moving slowly due to the resistance of the direction. How much force would you need to exert on the cart to get it to shift paths? And how quickly would it travel along that new road?

We believe an organization's culture operates similarly to the cart. Culture is not a static concept that remains the same for organizations. It can have mass, direction, and velocity of change, just like any object in motion. The more massive the culture, the more difficult it should be to for leaders to influence the culture down a new path for the organization. As an organization's culture is constantly being influenced by internal and external forces, culture can and will shift over time. We can see allusions to the idea of the physics of culture throughout the research on organizational culture.

Cultural Mass

Cultural Mass is the size, weight, and movability of an organization's culture. A culture can have mass through its lack of change, consistency in practices and norms, strong history or legacy, and the control it holds over the organization's employees. An organization with a massive culture would be difficult to change, have a strong legacy, and have the ability to exert more control over its employees, whereas an organization with a less massive culture would be more susceptible to change, have a less pronounced legacy, and be able to exert less control over the actions of its employees. In order to more firmly define the construct of Cultural Mass, three subdimensions have been identified in the literature that can be used as indicators of Cultural Mass.

Various authors have discussed constructs similar to the idea of mass in organizational cultures. For example, Gelfand, Nishii, and Raver (2006) addressed the potential for society-level culture to have a lack of change and a strong adherence to cultural values and norms, which they defined as tightness. A tight culture, according to Gelfand et al. (2006), is difficult to change because deviating from the culture will lead to strong repercussions within that society. This is paralleled in what they define as a loose culture; this type of culture allows for freedom of

decision among members, and encourages innovation and deviation from the cultural norms. While originally designed to measure the culture of countries, other studies have taken Gelfand et al.'s culture scale and modified it to measure the culture of organizations (Ozeren, Ozmen, & Appolloni, 2013). Ozeren et al. (2013) used the original tightness and looseness scale to determine if this aspect of organizational culture was predictive of innovation. Examining companies in two different countries, they found tightness and looseness to have a significant effect on dimensions of organization innovation (Ozeren et al., 2013). The concept of tightness and looseness contributes to the construct of cultural mass as it ties directly into the lack of change and a consistency of cultural practices. An organization with a more massive culture is more likely to be tight, as mass prevents easy change. Therefore, the first subdimension of Cultural Mass is tightness.

Aspects of Cultural Mass can also be seen in articles that discuss the level of control an organization's culture has over the behavior of employees. Kunda (1992) identified that organizations strive for normative control over their employees. Normative control allows organizations to control the behavior of employees while still allowing employees to identify with the organization's culture. Companies plan and structure events, trainings, and even day-to-day experiences around the culture they are building in order to gain the trust and support of the employees (Kunda, 1992). An organization will strive for internal commitment so employees will authentically identify with the organization. However, in order to obtain this normative atmosphere, organizations run the risk of encroaching on the private perspectives of their employees. An organization's culture is a form of control over employees (Meek, 1988), and it is to the benefit of the company that this control be seen as non-intrusive, to prevent any negative reaction from employees due to an overbearing culture (Kunda, 1992). While a culture can still

be effective while being intrusive, over time this type of culture will lead to fatigue among employees who are seeing the culture and consuming of their everyday life.

Due to this potential fatigue, employees who feel encroached upon by this desire to reach normative control often develop cynical behaviors towards the organization and its culture (Fleming & Spicer, 2003). Employees who dislike the controlling nature of the organization, but do not want to engage in counterculture behaviors, instead surface act the organization's culture in order to slide under the radar of management (Hochschild, 1983; Sturdy 1998). For example, in a study on cynical behavior, Burawoy (1979) determined that employees did not mind engaging in cultural practices so long as they were able to undermine the cultural practices privately, giving them a sense of freedom without needing to break from cultural norms. Ironically, this type of cynical opposition appears to do more to reinforce the control of the organization than it does to undermine it. Žižek (1989) noted that no matter how much ironical distance employees put between themselves and the culture, at the end of the day they still adhere to it. This type of adherence to the organizational culture shows that despite employees desiring a sense of freedom, the power of control organizations have is far greater. This could be due to numerous factors, but more importantly due to the authority organizations hold over their employees, their employee's benefits, and salaries, cynical employees are less likely to speak out for fear of actual repercussions. A culture with a large mass is more likely to have stronger control, as it is difficult for employees to shift their behavior away from the culture in a manner that is not simply cynical. Therefore, the second sub-dimension of Cultural Mass is power of control.

A company's history can also contribute to Cultural Mass. While all companies have a chronological history, a strong culture is much more likely when a company has more of a

legacy history. A company's chronological history refers to the information about the events that have taken place from the conception of the organization to the present. These events may not necessarily be memorable or influential on the company and its organizational culture, however they are pieces of the organization's history. A company may have a chronological history, but not a legacy. The concept of an organizational legacy can be seen in studies regarding organizations with proud histories and well-respected past leadership. Clark (1972) described this legacy as an organizational saga; a collection of accomplishments that are unique to the organization. When members of an organization share experience with each other, and pass down these experiences, they develop a shared history between all members of the organization. Later, Walsh and Ungson (1991) described the concept of an organizational memory. Similar to the organizational saga, they discussed information and experiences that are retained by multiple members of the organization. A key aspect of their analysis was that these past experiences can influence future choices; current employees often look to the legacies of their previous leadership to make business decisions (Walsh & Ungson, 1991). An organizational culture with a large mass is also more likely to have a strong legacy or memory. The shared experiences of the employees add to the weight of the culture. Therefore, the third sub-dimension of Cultural Mass is strength of origin.

Cultural Direction

We believe that an organization's culture is in a constant state of change. Either this change is curated by an organization's leadership or the change occurs on its own. Cultural Direction refers to the pathway of the organization's culture. It focuses on the deviation (or potential for deviation) from the current culture, and the evaluation of how positive the culture or change in culture is for the organization, and how on course the culture is to promote the values

of the organization. Similar to Cultural Mass, the concept of Cultural Direction is prevalent throughout literature regarding organizational culture. Cultural deviation, for example has been observed in multiple organizations in different industries.

Counterculture in organizations can be found in even the most faithful of organizations. Studies indicate that while there is an overarching culture, different groups within the organization can stray from that culture. Countercultures form in organizations when employees push against the norms of the current culture due to a desire to force a change in the culture (Martin & Siehl, 1983; Martin, 1992). Often, countercultures arise in an organization because individuals believe the organization has strayed away from the values it swore to uphold. Countercultures are in direct conflict with the organization's culture (Martin, 1992). This is different from the cynical behavior observed in organizations with strong control over employees; employees attempting to develop a counterculture are actively trying to change the culture in their organization (Žižek, 1989; Martin, 1992). The development of a counterculture is not necessarily negative; it can often encourage growth in a company. Often, cultural norms can stray from the original positive values the organization was developed on. Members of the organization that were more aligned with the original values of the organization may engage in counterculture behavior to shift the cultural norms back towards the values that made up the company's original culture (Martin, 1992). The key aspect of organizations with high countercultures is that there is a development of alternative norms in the organization, driven by the counterculture (Martin & Siehl, 1983; Martin, 1992). The idea of counterculture and the deviation away from the organization's core culture is defined then as Deviation from Culture, which is the first subdimension of Cultural Direction. How the members of the organization

respond to this deviation or lack thereof is the second subdimension of Cultural Direction, Response to Deviation.

Because counterculture's can emerge in organizations where the current culture has strayed from the organization's values, it is important to note that a lack of countercultures could show an organization still retaining their organizational values through their unconscious behaviors, or norms. Social norms have been shown to be a stronger method of behavioral control than laws or regulations (Huang & Wu, 1994). For example, in a study involving social norms and anonymity, Baum, Paciotti, Richerson, Lubell, and McElreath (2012) analyzed if social norms were a stronger influencer on behavior than reputation. The results of the study found that the desire to contribute and assist was not affected by reputation; people are more likely to engage in these positive behaviors due to the social norms encouraging these behaviors (Baum, Paciotti, Richerson, Lubell, and McElreath, 2012). Because norms can influence behavior more effectively than written rules and artifacts of organizations, norms that stray from the organization's values can negatively impact the organization.

According to a survey of top executives in organizations, an organization's culture leads to an organization's success; the stronger the culture is, the better an organization performs in the eyes of its leadership (Graham, Harvey, Popadak, & Rajgopal, 2017). The culture should be driven by the organization's values, and since unconscious behavior is a level of culture (Schien, 1990), the behavioral norms of the employees should be driven by the organization's values. Problems can arise when an organization has strong, positive values, but weak norms for behavior. Graham et al. (2017) provides an example of two banks, both with integrity as one of their core values; however, one bank interprets integrity through its social norms as following the bare minimum requirements in ethical business practices, whereas the second bank interprets

integrity through social norms focusing on going far above and beyond the minimum legal requirements to ensure the safety and security of their customers finances. Of these two banks, research shows that the organization whose values are backed by strongly held cultural norms will a strong culture and is likely to have a higher degree of success than the bank with weakly held norms (Graham et al., 2017). Based on these examples of norms and values influencing culture, the third subdimension of cultural direction is the effectiveness of the values on the norms, referred to as Values to Norms Effectiveness in the study.

Cultural Velocity

Cultural Velocity refers to the speed of cultural change within an organization. Few articles have investigated constructs similar to cultural velocity in the context of organizational culture. However, there is research into the speed of general change that can be extended to suggest how it may work for organizational culture. Because organizational culture is made up of artifacts, rituals and norms (Ponnu & Hassan, 2015), applying studies regarding the speed of change to aspects of culture can better solidify the construct of Cultural Velocity.

In the study of the speed of change, the concept of lean management is a popular theory in business. Lean management, often seen in the production industry, is the theory of eliminating waste to ensure that every step in the production process contributes to the overall production goal (Womack & Jones, 1996). Waste does not refer to trash, but to wasted time or effort in an inefficient process (Arnheiter & Maleyeff, 2005). In terms of cultural velocity, lean management can be defined as a term we have coined as lean change. Similar to lean management, lean change is change done as efficiently and quickly as possible, not allowing for waste in the change process. However, it is a change done to the organization's culture, and how quickly that change is accepted and enacted.

When it comes to cultural change, organizations that have lean change make quick, efficient changes that their culture allows them to make. An aspect of lean change is that, once decided, a change should be put into play immediately. This is stemmed from the thirteenth principal of the Toyota Way, the culture behind Toyota's successful business model that takes its concepts from lean management techniques (Liker, 2004). According to the thirteenth philosophy, actual change should be immediate; it is the decision process on what to change that takes long amounts of time (Liker, 2004). In cultural change, this translates to changes being implemented and supported immediately; in lean change, management begins supporting culture changes and encouraging their implementation as soon as a change is announced or decided on (Liker, 2004). Lean change also incorporates aspects of the fourteenth principal; change should occur constantly and organizations should seek constant growth (Liker, 2004). Therefore, lean change, fast, efficiently implemented change, is the first subdimension of cultural velocity.

In tying in with lean management principals, changes occur constantly within an organization. For example, Keys-Matthews and Fadden (2019) discussed the concept of rapid improvement events. Rapid improvement events are multi-day events that involve the rapid-workshopping of issues contained in small groups (Keys-Matthews and Fadden, 2019). During the rapid improvement events, changes are constantly occurring to analyze and correct issues within groups; these changes build off of one another to create even more changes (Keys-Matthews and Fadden, 2019). This is similar to the lean change concept of change occurring constantly and the need for constant improvement (Liker, 2004). This rapid change can also be applied to an organization's culture. Changes within the organization's culture can accelerate; changes build off of one another until the culture is no longer recognizable within the

organization. This concept forms the second subdimension of Cultural Velocity, rapid transformation.

While there are many examples of the potential change in an organization's culture, there are times where an organization and its members create more obstacles to change than changes themselves. An organization's culture can impede the potential for change by being unnecessarily rigid. Resistance to change can occur in an organization's culture if the culture is tightly packed; Gelfand et al. (2006) observed this in tight cultures that allowed little room for change. In addition to being tightly packed, an organization's culture can be cluttered due to a lack of proper direction from management. This clutter can lead waste to build-up in the organization's culture, preventing change from occurring as easily as it could in an organization with a lean culture (Womack & Jones, 1996; Arnheiter & Maleyeff, 2005). This resistance of change in an organization forms the third subdimension of Cultural Velocity, friction.

Outcomes of Organizational Culture

The impact of organizational culture is visible throughout an organization. Employees often feel a sense of fulfillment when they relate to an organization's culture through their own feelings. When a culture becomes repressive or breaks from the feelings of the employees, there is an effect on the employees and their wellbeing. The inability for employees to "be themselves" within a repressive culture often leads to losing the sense of meaning and fulfillment they have in the workplace. For example, how involved employees are in their roles can be affected by organizational culture. Organizations with a loose culture that allows for freedom of expression, for example, promotes meaningfulness in the roles of employees (Zhou, Chen, & Liu, 2019). This meaningfulness and sense of creative fulfillment can lead to high levels of job involvement (Zhou, Chen, & Liu, 2019). However, a culture where employees feel stifled can lead to less job

involvement because employees believe their work lacks meaning and fulfillment. Members of an organization are prone to rally around that culture of freedom. To fuel this freedom, organizations should focus their operations on innovation and flexibility, allowing employees more freedom to make their own decisions and seek meaning in their work (Zhou, Chen, & Liu, 2019). Based on this, a culture with a flexible atmosphere and steady direction focused on freedom for its employees is likely to have higher job involvement due to the increased meaningfulness in their work.

Organizational commitment is also a construct that has a strong tie with culture. Organizational commitment shows how dedicated employees are to their organization. Some studies define commitment as an overarching concept (Sholahudin, Setiawan, & Alwi, 2019), while others break commitment down into different levels such as affection for the organization, the risk of leaving the organization, and how closely the organization's norms mirror that of the individual (Meyer & Allen, 1991). However, no matter how it is described, the key concept of commitment shows an employee's desire to stay with the organization. Both Sholahudin et al. (2019) and Meyer and Allen (1991) found significant relationships between culture and commitment. Sholahudin et al. (2019) conducted a path analysis to show the effects of culture on commitment among public service employees and found a significant pathway. Meyer and Allen's (1991) research also found significant results, especially when related organizational culture to commitment related to an organization's norms. Based on the level of commitment employees could have, a culture with more mass, a stable direction, and less propensity for change could encourage more organizational commitment.

An organization's ability to innovate and think creatively also ties in to that organization's culture. Cultural tightness and looseness, for example, was shown to have a

significant effect on innovation in organizations, particularly in the innovation of business processes and innovative behaviors (Ozeren, Ozmen, & Appolloni, 2013). Innovation has also been defined differently in multiple studies, from a single concept of creativity to innovative processes, behaviors, and market strategies of the organization (Dobni, 2008). However, while innovation is defined differently, it all stems from originality and creativity, which is more possible through an allowance for free thought and change. Therefore, a loose culture with allowance for deviation and change would more likely to increase innovation.

Perceived organizational support is the extent to which employees believe the organization cares about the wellbeing and involvement of the employees (Kurtessis, Eisenberger, Ford, Buffardi, Stewart, & Adis, 2017). Employees tend to attribute human characteristics to companies, forming an attachment to them (Eisenberger, Huntington, Hutchison, & Sowa, 1986). This attachment creates a sense of belonging to the organization, as employees support the organization and expect that support in return (Rhoades & Eisenberger, 2002). Organizational support is shown to be relate to job involvement as well, as employees are more likely to be involved the more strongly tied to the organization they feel (Kurtessis et al., 2017). Organization's with more dense and directional cultures, with little deviation, should therefore have stronger perceived support, as employees are more likely to have loyalty to a long-standing culture that has been consistently of good value, with little to no change.

Research Questions

Items for the Physical Properties of Organizational Culture scale were developed to assess the three constructs of Cultural Mass, Cultural Direction, and Cultural Velocity. Three sub-dimensions were identified for each construct to link our theory to existing research and concepts in culture literature. These items were developed based on research that we believe ties

to the constructs. Therefore, we also predict that they will correlate with current measures of culture that inspired certain scale items. For example, the items used to develop these items of the Cultural Mass construct were partially based on Gelfand et al. (2006), and the tightness and looseness scale. Based on this, the items in the Cultural Mass scale should relate to tightness and looseness.

In addition to determining if the items load onto the correct constructs, we also expect to see the constructs predict certain outcome variables that we see associated with organizational culture scales. Based on the literature on outcomes of organizational culture, we predict that certain outcomes are more likely to occur based on an organization's Cultural Mass, Direction, and Velocity. We expect that those organizational cultures with less mass and that have a steady direction are likely to have higher job involvement. We predict that organizational cultures with more mass, a steady direction, and a slower velocity are likely to have higher organizational commitment. We also predict that organizational cultures with a larger mass are likely to have lower innovation levels due to the lack of freedom to deviate from the culture, and that cultures with deviant direction and a faster velocity are likely to have higher levels of innovation. Finally, we predict that organizational cultures with a larger mass and a steady direction are likely to have higher perceived organizational support, while organizations with a faster velocity are likely to have lower perceived organizational support. Below is a list of hypotheses intended to test the above research questions.

- H1: The 12 items of the scale that focus on tightness, power of control, and strength of origin will only load onto the construct of Cultural Mass.

- H2: The construct of Cultural Mass derived from the Organizational Culture scale has a positive relationship with Gelfand et al.'s (2006) tightness and looseness scale.
- H3: The 12 items of the scale that focus on deviation, response to deviation, and values to norms effectiveness will only load onto the construct of Cultural Direction.
- H4: The 10 items of the scale that focus on lean change, rapid transformation, friction will only load onto the construct of Cultural Velocity.
- H5-a: Organizational cultures with less mass are likely to have higher job involvement.
- H5-b: Organizational cultures that have a steady direction are likely to have higher job involvement.
- H6-a: Organizational cultures with more mass are likely to have higher organizational commitment.
- H6-b: Organizational cultures with a steady direction are likely to have higher organizational commitment.
- H6-c: Organizational cultures with a slower velocity are likely to have higher organizational commitment.
- H7-a: Organizational cultures with a larger mass are likely to have lower innovation levels.
- H7-b: Organizational cultures with a deviant direction are likely to have higher innovation levels.

- H7-c: Organizational cultures with a faster velocity are likely to have higher innovation levels.
- H8-a: Organizational cultures with a larger mass are likely to have higher perceived organizational support.
- H8-b: Organizational cultures with a steady direction are likely to have higher perceived organizational support.
- H8-c: Organizational cultures with a faster velocity are likely to have lower perceived organizational support.

Methods

Measures

Physical Properties of Culture Scale

A 34-item scale was designed to focus on the three constructs of culture: cultural mass, cultural direction, and cultural velocity. Each construct consisted of 10 to 12 questions each, divided among the subthemes of each concept. The responses were measured with a 5-point Likert type scale with anchors 1 (*Strongly Disagree*) and 5 (*Strongly Agree*). Items 13 through 20 were created as idea-response to idea pairs. The reaction variable of these pairs was calculated by multiplying the idea items (13, 15, 17, and 19) with their response to idea pair (14, 16, 18, and 20 respectively). Then the response variable was standardized across a 5-point Likert type scale to fit the rest of the scale items.

Tightness-Looseness

A modified version of the tightness-looseness culture scale structured for organizations containing 6 items was used (Gelfand et al., 2006). The original scale was created to measure country culture; the version used in this study was adapted to focus on organizational culture by changing any mention of “country” or “nation” to “company” or “organization”.

Job Involvement

Job involvement was measured using a 10-item job involvement scale (Kanungo, 1982). All ten items measure the single construct of job involvement.

Organizational Commitment

An 18-item organizational commitment scale (Meyer & Allen, 1991) was used to measure an employee’s belief in the organization’s goals and a willingness to act on behalf of the organization. The scale measures three different types of Organizational Commitment. For the

intent of this study, we will focus on Affective Commitment that consisted of 6 items, as it is it focuses on emotional attachment to the organization (Shore & Wayne, 1993).

Innovation

A 29-item innovation scale was adapted into a shorter 14-item scale for the purposes of this study (Wang & Ahmed, 2004). The original scale grouped the 29 items into five different categories of innovation: behavioral, product, process, market, and strategic innovation. For the purposes of this study, we focused on behavioral and strategic innovation, as they seemed to be the most relevant in regards to organizational culture and employee behaviors.

Perceived Organizational Support

A 9-item scale on perceived organizational support (Eisenberger, Huntington, Hutchison, Sowa, 1986) was used. All nine items measure the single construct of Perceived Organizational Support.

Participants

Participants of the study were individuals working for a non-profit organization in Texas that focuses on the development and management of affordable housing and providing support services to those residents. Participants from all levels and departments within the organization were invited to participate. The participants were recruited through a professional relationship with the Industrial/Organizational Psychology department at St. Mary's University. Once the organizational approval was obtained, participants were recruited by e-mail to participate via a web-based survey created in Qualtrics.

Results

Participants

A total of 124 out of 175 individuals agreed to be participants in the study. Demographic data for the participants is listed in Table 1.

Table 1

Sample Demographics

Characteristics		Frequency*	Percentage
Sex	Male	36	29%
	Female	85	69%
	Prefer not to answer	3	2%
Race	Hispanic/Latino	82	66%
	White (Non-Hispanic)	26	21%
	Black or African American	8	6%
	Two or more races	5	4%
	Prefer not to answer	3	2%
Age	20 to 35	28	23%
	36 to 50	50	40%
	50+	45	36%
Tenure	Less than two years	33	27%
	Two to five years	48	39%
	Five to ten years	20	16%
	More than ten years	21	17%
Direct Reports	None	71	57%
	One to four	34	27%
	Five to ten	12	10%
	Eleven to twenty	3	2%
	No Response	3	2%
Division	Admin-Exec	11	9%
	Executive	5	4%
	Finance	11	9%
	Information Management	4	3%
	Operations	53	43%
	Real Estate Development	4	3%
	Resident Services	31	25%

*Sub-groups with fewer than 3 responses are not included in this table to maintain participant privacy

Exploratory Factor Analysis

Although we originally intended to utilize confirmatory factor analysis (CFA) to test the fit of our hypothesized model, our sample size (N=124) and complexity of our measurement model did not allow us to do so. Instead, we utilized an exploratory factor analysis (EFA) approach to assess the factor structure of our data.

To explore the factor structure of the new culture scale, we conducted an exploratory factor analysis (EFA) of all 34 items in the initial scale using a maximum likelihood extraction method with a direct oblimin rotation. Maximum likelihood extraction provides us with a goodness of fit chi-square test, allowing us to approximate the model testing of CFA, works well with normally distributed data, and it allows for correlations between factors (Costello & Osborne, 2005). Because we expected the factors in our model to be correlated, a direct oblimin rotation was used. Direct oblimin is an oblique rotation, which allows for factors to be correlated (Costello & Osborne, 2005).

Item Reduction and Factor Simplification

In order to identify the best items to retain for the final scale, a set of inclusion criteria were created to guide item reduction and factor simplification. Firstly, any item with loadings greater than 0.3 loading on the pattern matrix was retained for the next steps of the item reduction. Any item that both cross-loaded onto multiple factors and had loadings stronger than 0.5 was removed from the model (Costello & Osborne, 2005). Additionally, the items with cross-loading close to 0.5 across multiple factors was removed if the item also did not fit in with the overall theme of the other items in that factor. We also removed any item that did not fit with the other items loading onto the same factor. We kept any cross-loading items with loadings between 0.3 and 0.5 that were theoretically aligned with the other items under the factor. For example, CS7 loaded onto both Factor 1 and Factor 5. However, since the loadings were roughly the same,

within the 0.3, and the item does relate to the overall concept of both factors, we have chosen to keep it in the model (Costello & Osborne, 2005). Also, CS7 loaded negatively onto Factor 1 and positively onto Factor 5, showing that the item related differently to both factors. Using these item reduction rules in the EFA, we were able to reduce the number of items from the original 34 to 17. For clarity in interpretation and understanding across all of the factors, all items were coded so higher numbers would reflect greater amounts of the construct. Finally, scale scores were created by averaging the responses across the items that were found to load on each factor.

Once the total numbers of items had been reduced to 17, we also evaluated the internal reliability of the five remaining factors using Cronbach's Alpha. The internal reliability for each of the initially extracted five factors were not uniformly acceptable (Factor 1, $\alpha = .75$; Factor 2, $\alpha = .69$; Factor 3, $\alpha = .75$; Factor 4, $\alpha = .51$; and Factor 5, $\alpha = .54$). A review of the specific items in each factor revealed that by removing item CS25 from Factor 2, item CS31 from Factor 3, and item CS9 from Factor 5, the alphas could be increased to .7 or higher for 4 of the 5 factors. A careful review of the final factor that did not have an acceptable level internal reliability (Factor 4, $\alpha = .51$) revealed that this factor was not interpretable within the overall theory of the model. This factor was eliminated from future analyses.

Now that four factors were identified, we can label them based on the items and the overall construct each factor seems to be measuring. The four factors were labeled: Cultural Presence (Factor 1), Employee Resistance (Factor 2), Deviation (Factor 3), and Cultural Pressure (Factor 4). The overall model accounted for 52% of the variance, with Cultural Presence accounting for 25% of that variance, Employee Resistance accounting for 12% of the variance, Deviation accounting for 8%, and Cultural Pressure accounting for 7% of the variance. The final

alphas of the four retained factors are shown in Table 2. Table 3 shows the retained items by subscale.

Table 2

Reliability of Subscales

Subscales	Items	Cronbach's Alpha	M	S.D.
Cultural Presence	3	0.75	3.14	0.84
Employee Resistance	3	0.71	3.16	0.76
Deviation	6	0.80	2.48	1.01
Cultural Pressure	3	0.70	2.89	0.80

Table 3

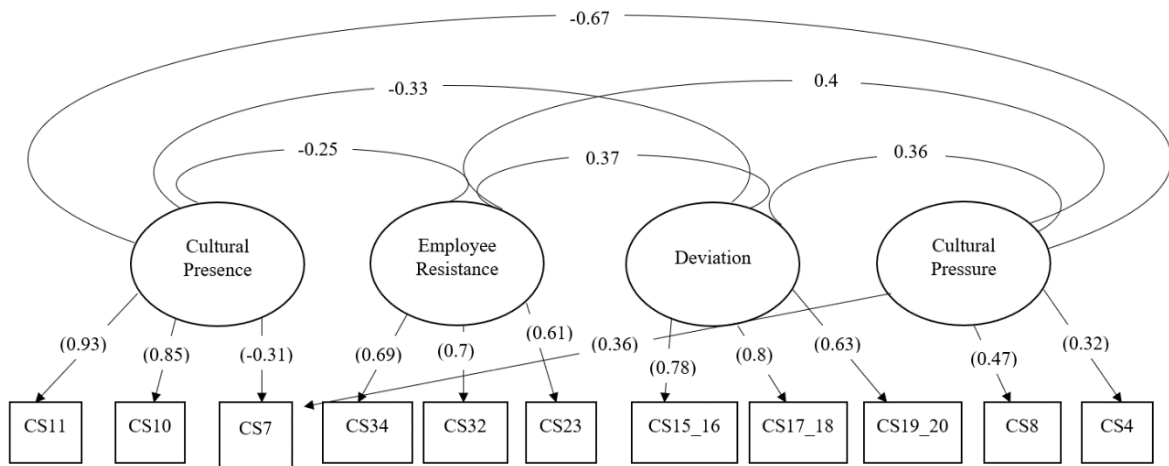
Organizational Culture Final Scale Items

Subscale	Item
Cultural Presence	CS11 You can see examples of the organization's culture everywhere at work.
	CS10 No matter where you are at work, you can feel the culture.
	CS7R It is difficult to "do things differently" here.
Employee Resistance	CS34 Even when a change seems like a good idea, you often hear about how it will "ruin" the culture.
	CS32 When the leaders decide to start something new, it is more common to hear complaints rather than compliments.
	CS23 The organization may have good values, but the people do not always fit those values.
Deviation	CS15 Although we have a clear culture, you can often see people, including leaders, acting against that culture at work.
	CS16 It is good for the company to have people, including leaders, moving away from the normal behavior at work.
	CS17 People see others trying to go against the culture and it's the values here.
	CS18 It is good for the company to have members that try to go against the culture and values here.
	CS19 There is spreading of behaviors that does not agree with the culture and values here.
	CS20 The spread of behaving against what is normal here is positive for the company.
Cultural Pressure	CS8 People are pressured into doing things like they always been done here.
	CS7 It is difficult to "do things differently" here.
	CS4 The organization has many unwritten rules that employees must follow if they want to succeed here.

The final model is shown in Figure 1. Item loadings are listed, with CS7 having two loadings listed, for Cultural Presence and Cultural Pressure respectively. The correlation between the four subscales is also included in the model.

Figure 1

Organizational Culture Final Exploratory Factor Analysis



The final 4 subscales did not map perfectly onto our originally hypothesized model. Unfortunately, because the number and meaning of the factors extracted differs from what we expected, it is impossible to formally test H1, H3, and H4 with the original subscales of Cultural Mass, Cultural Direction, and Cultural Velocity. However, the four subscales that emerged in our analysis do show some resemblance to our original subscales. Cultural Presence and Cultural Pressure, are both comprised of items originally believed to be related to the theoretical factor of Cultural Mass. Both of the observed subscales contain concepts that we expected to find in Cultural Mass, such as conforming behaviors, control exuded by culture, and a visible overall culture. In addition, Employee Behavior and Deviation, have items that were originally created

for the Cultural Direction subscale. These subscales refer to concepts like value and norm subversion, and employee resistance to change or culture.

Utilizing this new model, we decided to conduct our intended analysis with the new subscales of Cultural Presence, Cultural Pressure, Employee Resistance, and Deviation as our new predictive variables. Therefore, we tested hypothesis H2 using correlation, and hypotheses H5 through H8 utilizing multiple regression. Because no subscale emerged that aligned well with the original subscale of Cultural Velocity, H4, H6-c, H7-c, and H8-c could not be tested.

Tightness

A correlational analysis investigating the relationships among Cultural Presence, Cultural Pressure, and Tightness revealed an interesting pattern of results. Cultural Presence was not correlated with Tightness. Cultural Pressure, on the other hand, had a strong, negative relationship with Tightness ($r(124) = -.67, p < .01$). We would not have predicted this result as we expected pressure to be similar to tightness in terms of forcing norms on the individual. It is possible that the negative correlation is driven by the target of the question. The Tightness scale refers to the company's expectations and approved behaviors, while the Cultural Pressure questions focus on the pressure felt by employees to conform. The norms being conformed to in Cultural Pressure might also not be universal or approved by the company as a whole.

Job Involvement

Hypotheses H5-a and H5-b tested the relationship between our model and Job Involvement. Multiple regression analysis was used to test if the model was predictive of Job Involvement. The overall model utilizing all four subscales was significant ($F(4,119) = 2.62, p = .04, R^2 = .08$). Of the four subscales, only Cultural Presence was significantly predictive of Job Involvement ($\beta = .25, p = .04$). None of the others were significant within the model. Therefore,

Cultural Presence was positively predictive of Job Involvement meaning the higher the Cultural Presence, the higher the Job Involvement.

Organizational Commitment

Our assumptions for H6-a and H6-b looked at the relationship between our model and Organizational Commitment. We utilized the Affective Commitment items from our Commitment scale (Meyer & Allen, 1991) as it most closely resembled the type of commitment we were interested in testing in comparison to culture. Multiple regression analysis was used to test if the model was predictive Affective Commitment. The overall four subscale model was significant, ($F(4, 119) = 14.25, p < .01, R^2 = .32$). Of the all the subscales, Cultural Presence was a positive, significant predictor of Affective Commitment, ($\beta = .30, p < .01$), and Deviation was a negative, significant predictor of Affective Commitment, ($\beta = -.21, p = .01$). Neither Employee Resistance nor Cultural Pressure were significant predictors within the model. Therefore, the higher the Cultural Presence the higher the Organizational Commitment, and the lower the Deviation, the higher the Organizational Commitment.

Innovation

Our assumptions for H7-a and H7-b were designed to see if our model was predictive of innovation. Multiple regression analysis was used to test if the model was predictive of innovation. We had two measures of innovation, Innovative Behavior and Innovative Strategy. The overall model was significantly predictive of Innovative Behavior, ($F(4, 119) = 14.39, p < .01, R^2 = .33$). Of the four subscales, Cultural Presence was positively predictive of Innovative Behavior, ($\beta = .52, p < .01$), and Employee Resistance was negatively predictive of Innovative Behavior, ($\beta = -.2, p = .02$). The overall model was significantly predictive of Innovative Strategy, ($F(4, 119) = 11.84, p < .01, R^2 = .29$). Of the four subscales, Cultural Presence was

positively predictive of Innovative Strategy, ($\beta = .28, p = .01$), and Cultural Pressure was negatively predictive of Innovative Strategy, ($\beta = -.28, p = .01$). Therefore, the higher the Cultural Presence the more Innovative Behaviors and Innovative Strategies the organization will exhibit. In addition, the lower the Employee Resistance the higher the Innovative Behavior, and the lower the Cultural Pressure the higher the Innovative Strategy.

Perceived Organizational Support

The assumptions found in H8-a and H8-b were intended to see if our model was predictive of Perceived Organizational Support. Multiple regression analysis was used to test if the model was predictive Perceived Organizational Support. The overall model was significantly predictive of Perceived Organizational Support, ($F(4, 119) = 21.55, p < .01, R^2 = .42$). Within the model Cultural Presence was positively predictive of Perceived Organizational Support, ($\beta = .33, p < .01$), Deviation was negatively predictive, ($\beta = -.14, p = .02$), and Employee Resistance was negatively predictive, ($\beta = -.22, p < .01$). Cultural Pressure was not significantly predictive of Perceived Organizational Support. Therefore, the higher the Cultural Presence, the higher the Perceived Organizational Support, and the lower the Deviation and Employee Resistance, the higher the Perceived Organizational Support.

Discussion

Even though we did not find the hypothesized 3-factor structure in our sample, several interesting findings emerged. First, the 4-factor model that emerged contained factors with similar properties to Cultural Mass and Cultural Direction. For example, the Deviation factor, which emerged from a combination of items from the original Deviation and Response to Deviation subscales, held directional based properties. Employee Resistance, a factor that was a combination of the Resistance subscale and Values to Norms subscale, also held properties similar to direction; Cultural Presence and Cultural Pressure emerged from items originally associated from Cultural Mass. Since we were not able to analyze our original model, we chose instead to study the new model of Cultural Presence, Cultural Pressure, Deviation, and Employee Resistance to determine if it was predictive of the criterion variables we selected for validation.

Cultural Presence and Cultural Pressure

The factor in our model shown to be the most frequently predictive of our outcome variables was Cultural Presence. Based on the items that loaded on to Cultural Presence, we define this factor as the physical essence of the organization's culture that can be felt throughout every action and area of the organization. Cultural Presence was positively predictive of Job Involvement, Organizational Commitment, Innovation, and Perceived Organizational Support. In our literature review, we found that when an organization's culture is truly reflective of its values, the organization tends to have strong, more financially positive performance (Graham, Harvey, Popadak, & Rajgopal, 2017). Since Cultural Presence is more reflective of how the culture is without outside pressure or force from the organization, it stands to reason that it would be positively predictive of these outcome as they are indicators of organizational success.

Cultural Presence seems to hold a similar concept to the idea of descriptive norms (Reno, Cialdini, & Kallgren, 1993). Descriptive norms are defined as how people behave and the norms that people have adapted and grown accustomed to within the organization (Reno, Cialdini, & Kallgren, 1993). For example, an organization that states they support community service, and have employees who actively engage in community service activities during their free time, would be an organization demonstrating descriptive norms. Cultural Presence holds many of the similar concepts to descriptive norms. The items tied to Cultural Presence discuss feeling the culture throughout the organization, and being able to visualize the culture. Therefore, we can safely say that an organization with a high amount of Cultural Presence will have an organizational culture that promotes involvement, commitment, and innovation.

Cultural Pressure was another factor that was predictive of some outcome variables we originally observed. Based on the items that loaded onto Cultural Pressure, we can define it as the force or pressure exerted on employees to conform to the norms of the organization's culture. Cultural Pressure was only predictive of Innovative Strategy; an organization with a high amount of Cultural Pressure would lead to less strategic innovation based on the data we analyzed. Because Cultural Pressure is tied to conforming, forced behaviors, and a lack of independence, it stands to reason that a high amount of pressure would stifle strategic creativity and innovation.

Like Cultural Presence, we can also see similarities between Cultural Pressure and another type of behavioral norms known as injunctive norms. Injunctive norms are defined as norms that people follow to avoid repercussions (Reno, Cialdini, & Kallgren, 1993). Utilizing our earlier example of an organization that states it values community service, an example of injunctive norms would be the organization requiring employees to have at least 30 community service hours on record each year. If the norm behavior of the employees in the organization do

not match the injunctive norms, employees are less likely to conform to the injunctive norms. In the above example, if employees choose not to do the service hours regardless of the organization's rule, more employees will follow this deviant behavior. Since Cultural Pressure holds similar concepts of conformity, and it is negatively correlated with Cultural Presence, it holds a similar relationship to injunctive norms as Cultural Presence does to descriptive norms. An organization whose culture is reflected of the true behaviors of its employees is negatively related to a culture in which an employee would feel pressured to conform to the norms and rules of the organization.

Deviation

Deviation was also a significant predictor of some of our outcome variables. Based on the items that loaded onto Deviation, we can define this factor as the tendency for behaviors to stray away from the norm and for employees to find this deviation positive. Deviation had the response we had expected in comparison to the criterion variables. It was negatively predictive of Organizational Commitment; we saw the same predictive relationship, which we also expected, with Perceived Organizational Support. Deviant behavior is a strong indicator of employees moving away from the current norms and values of the organization. Sometimes, this deviation can be good for the organization (Martin, 1992). However, it can create poor organization commitment and support from employees. Deviation is neither a positive nor a negative factor in and of itself for organizations. To be able to truly value Deviation, and organization should use it in combination with the other factors to see if employees are deviating from a poor, pressure filled culture, or if deviant behavior it working against a healthy, organic culture.

Employee Resistance

An interesting factor that emerged was Employee Resistance. Based on the items that loaded onto Employee Resistance, we can define this factor as a display of employee behaviors in opposition to the organization's cultural decision making. This seems similar to Deviation; however, Employee Resistance also relates to resisting methods of change or new initiatives taken on by leadership. Despite not being expected, the Employee Resistance factor did behave as expected when it was significantly predictive of a criterion. For example, it was negatively predictive of Innovative Behavior; we expect that the more employee behavior is resisting, the less likely they are to demonstrate innovative behaviors. Employee Resistance was also negatively predictive of Perceived Organizational Support, showing that the more employee behavior is resisting the organization, the less likely you are to see high levels of perceived support for the organization. Employee Resistance, like Deviation, in and of itself may not be a negative or positive factor. Organizations should use all four in tandem to determine the current position of their organizational culture.

Limitations and Future Recommendations

Although the specific model and factors we originally expected did not emerge in this sample, some of the factors held similar characteristics to Cultural Mass, Cultural Direction, and Cultural Velocity. The four factors that emerged in our sample, Cultural Presence, Employee Resistance, Deviation, and Cultural Pressure, were associated with important outcome variables of Organizational Culture. However, our results, especially the exploratory factor analysis, were likely influenced by the low sample size. For this project, data were collected from a single, real organization with an existing organizational culture which is a strength of the project. The fact that all of the data was collected from a single organization could also be a limitation. While we were able to gather real world data through an organization, it is possible that our findings are due to the specific organization we tested. Further testing with additional organizations will be required to evaluate how stable the factor structure of this model is across different organizations. In addition, the items determined for each factor were originally based on a 3-factor model that we were not able to observe based on the data collected. Therefore, these items may not be perfectly suited to each construct as they were originally intended to load onto other factors.

For future studies, we intend to identify more items that are reflective of the factors we identified in this study, particularly Cultural Presence and Cultural Pressure. Both of these constructs have interesting possibilities in research; however, our current model contains few items that focus on these factors. Creating new items will help us better refine the model as we will have created items that were intended to measure these factors. In addition, data should be collected from a larger sample of participants employed by a variety of organizations across several industries to evaluate the model. It would also be interesting to analyze the original

model and the new model with larger sample sizes to see if different factors, or even any of the original factors, would emerge. Additional criterion variables could also be measured such as other types of innovation or organizational commitment. Another potential future study could involve utilizing more financial outcome metrics to measure organizational culture. Shareholder opinions, fiscal period operating income, and other financial and shareholder-based metrics could be used to show the financial benefit of utilizing a quantitative organizational culture mode.

Also, analyzing different departments in the organization for the four factors would reveal which team is predictive of criterion like job satisfaction or organizational support, and which departments have a strong cultural presence or pressure, and which are deviating from the organizational culture as a whole. Another potential for future studies would be to create a benchmark version of the model, or to expand on the four factors by generating more items that could load on to the four factors.

Along with evaluating different outcome variables and demographics, organizations could also utilize the model to conduct checkpoint analyses on their organizational culture. If an organization was looking to improve Cultural Presence and decrease Cultural Pressure, they could utilize the scale to conduct checkpoints throughout the cultural transformation process to evaluate the change in their culture. Measuring Deviation and Employee Resistance in response to these change initiatives as well could allow organizations to determine if their employees are responding to the changes according to their intentions, and if they need to make any adjustments to their strategies to enact cultural change.

References

- Allaire, Y., & Firsirotu, M. E. (1984). Theories of organizational culture. *Organization Studies*, 5(3), 193-226.
- Arnheiter, E. D., & Maleyeff, J. (2005). The integration of lean management and Six Sigma. *The TQM Magazine*, 17(1), 5-18.
- Baum, W. M., Paciotti, B., Richerson, P., Lubell, M., & McElreath, R. (2012). Cooperation due to cultural norms, not individual reputation. *Behavioural Processes*, 91(1), 90-93.
- Behar, H., & Goldstein, J. (2007). *It's not about the coffee: Lessons on putting people first from a life at Starbucks*. Penguin.
- Bouwman, C. 2013. The role of corporate culture in mergers and acquisitions. In E. Perrault (ed.), *Mergers and acquisitions: Practices, performance, and perspectives*. Nova Science Publishers.
- Burawoy, M. (1979). *Manufacturing consent: Changes in the labor process under Monopoly Capitalism*. Chicago: Univ.
- Burkus, D. (2011). A tale of two cultures: Why culture trumps core values in building ethical organizations. *The Journal of Values-Based Leadership*, 4(1), 6.
- Burkus, D. (2014). How to tell if your company has a creative culture. *Harvard Business Review*, 92(12), 2-4.
- Cameron, K. S., & Quinn, R. E. (2006). *Diagnosing and changing culture organizational based on the competing values framework*. Ed. John Willey & Sons Inc.
- Clark, B. R. (1972). The organizational saga in higher education. *Administrative Science Quarterly*, 17(1), 178-184.

- Cooke, R. A., & Rousseau, D. M. (1988). Behavioral norms and expectations: A quantitative approach to the assessment of organizational culture. *Group & Organization Studies, 13*(3), 245-273.
- Costello, A. B., & Osborne, J. (2005). Best practices in exploratory factor analysis: Four recommendations for getting the most from your analysis. *Practical Assessment, Research, and Evaluation, 10*(1), 7.
- Deal, T. E., & Kennedy, A. A. (1982). *Corporate cultures: The rites and rituals of organizational life*. Addison Wesley Publishing Company.
- Dobni, C. B. (2008). Measuring innovation culture in organizations. *European Journal of Innovation Management, 11*(4), 539-559.
- Eisenberger, R., Huntington, R., Hutchison, S., & Sowa, D. (1986). Perceived organizational support. *Journal of Applied Psychology, 71*(3), 500-507.
- Flamholtz, E. G., & Randle, Y. (2012). Corporate culture, business models, competitive advantage, strategic assets and the bottom line: Theoretical and measurement issues. *Journal of Human Resource Costing & Accounting, 16*(2), 76-94.
- Fleming, P., & Spicer, A. (2003). Working at a cynical distance: Implications for power, subjectivity and resistance. *Organization, 10*(1), 157-179.
- Gelfand, M. J., Nishii, L. H., & Raver, J. L. (2006). On the nature and importance of cultural tightness-looseness. *Journal of Applied Psychology, 91*(6), 1225-1244.
- Goffee, R., & Jones, G. (1998). *The character of a corporation: How your company's culture can make or break your business*. Harper Business.

- Graham, J. R., Grennan, J., Harvey, C. R., & Rajgopal, S. (2016). *Corporate culture: The interview evidence* (Duke I&E Research Paper No. 2016-42). Duke University.
<https://dx.doi.org/10.2139/ssrn.2842823>.
- Graham, J. R., Harvey, C. R., Popadak, J., & Rajgopal, S. (2017). *Corporate culture: Evidence from the field* [Paper presentation]. 27th Annual Conference on Financial Economics and Accounting, Toronto. <http://dx.doi.org/10.2139/ssrn.2805602>
- Hochschild, A. (1983). *The Managed Heart: Commercialization of Human Feeling*. University of California Press.
- Huang, P. H., & Wu, H. M. (1994). More order without more Law: A Theory of Social Norms and Organizational Cultures. *Journal of Law, Economics, and Organization*, 10(2), 390-390.
- Kanungo, R. N. (1982). Measurement of job and work involvement. *Journal of Applied Psychology*, 67(3), 341.
- Keys-Mathews, L., & Fadden, J. B. (2019). *Cultural Change Through Rapid Improvement Events: Five Successful Project Case Studies* [Paper presentation]. 5th International Conference on Lean Six Sigma for Higher Education, Edinburgh, Scotland,
- Kilmann, R. H. (1982). Getting control of the corporate culture. *Managing (USA)*, 12, 11-17.
- Kunda, G. (1992). *Engineering Culture: Control and Commitment in a High-tech Corporation*. Temple University Press.
- Kurtessis, J. N., Eisenberger, R., Ford, M. T., Buffardi, L. C., Stewart, K. A., & Adis, C. S. (2017). Perceived organizational support: A meta-analytic evaluation of organizational support theory. *Journal of Management*, 43(6), 1854-1884.

- Liker, J. K. (2004). *Toyota way: 14 management principles from the world's greatest manufacturer*. McGraw-Hill Education.
- Martin, J., & Siehl, C. (1983). Organizational culture and counterculture: An uneasy symbiosis. *Organizational Dynamics*, 12(2), 52-64.
- Martin, J. (1992). *Cultures in organizations: Three perspectives*. Oxford University Press.
- Meek, V. L. (1988). Organizational culture: Origins and weaknesses. *Organization Studies*, 9(4), 453-473.
- Meyer, J. P., & Allen, N. J. (1991). A three-component conceptualization of organizational commitment. *Human Resource Management Review*, 1(1), 61-89.
- O'Reilly III, C. A., Chatman, J., & Caldwell, D. F. (1991). People and organizational culture: A profile comparison approach to assessing person-organization fit. *Academy of Management Journal*, 34(3), 487-516.
- Ozeren, E., Ozmen, O. N. T., & Appolloni, A. (2013). The relationship between cultural tightness–looseness and organizational innovativeness: A comparative research into the Turkish and Italian marble industries. *Transition Studies Review*, 19(4), 475-492.
- Ponnu, A. L. D., & Hassan, Z. (2015). The influences of organizational culture on performance management. *International Journal of Accounting, Business and Management*, 1(1), 1-10.
- Reno, R. R., Cialdini, R. B., & Kallgren, C. A. (1993). The transsituational influence of social norms. *Journal of Personality and Social Psychology*, 64(1), 104.
- Rhoades, L., & Eisenberger, R. (2002). Perceived organizational support: a review of the literature. *Journal of Applied Psychology*, 87(4), 698.
- Schein, E. H. (1985). *Organizational culture and leadership*. Jossey-Bass Publishers.

- Schein, E. H. (1990). Organizational culture. *American Psychologist*, 45(2), 109–119.
- Sholahudin, A., Setiawan, A., & Alwi, M. (2019). *International Symposium on Social Sciences, Education, and Humanities (ISSEH 2018)*. Atlantis Press.
<https://dx.doi.org/10.2991/isseh-18.2019.48>
- Shore, L. M., & Wayne, S. J. (1993). Commitment and employee behavior: Comparison of affective commitment and continuance commitment with perceived organizational support. *Journal of Applied Psychology*, 78(5), 774.
- Sturdy, A. (1998). Customer care in a consumer society: Smiling and sometimes meaning it? *Organization*, 5(1), 27-53.
- Walsh, J. P., & Ungson, G. R. (1991). Organizational memory. *Academy of Management Review*, 16(1), 57-91.
- Wang, C. L., & Ahmed, P. K. (2004). The development and validation of the organisational innovativeness construct using confirmatory factor analysis. *European Journal of Innovation Management*. 7(4), 303-313.
- Womack, J. P., & Jones, D. T. (1996). *Lean Thinking*, Simon and Schuster. New York, NY.
- Zhou, Q., Chen, G., & Liu, W. (2019). Impact of perceived organizational culture on job involvement and subjective well-being: A moderated mediation model. *Social Behavior and Personality: An International Journal*, 47(1), 1-13.
- Žižek, S. (1989). *The sublime object of ideology*. Verso.

Appendix A: IRB Approval Letter

ST MARY'S UNIVERSITY



February 25, 2020

Veronica Bou Onk
Dept. of I/O Psychology
St. Mary's University

DELIVERED BY EMAIL TRANSMISSION

Dear Ms. Bou Onk:

The IRB has approved the study, Bou Onk (Pool, faculty sponsor), Organizational Culture Scale Development and Testing. If research participants have any questions about their rights as a research subject or concerns about this research study please contact the Chair, Institutional Review Board, St. Mary's University at 210-436-3736 or email at IRBCommitteeChair@stmarytx.edu.

Dan Ratliff, Ph.D.
IRB Chair
St. Mary's University

The proposal is determined to meet criteria for exemption under 45 CFR 46.104(d)(2), the use of survey procedures with de-identified, minimal risk data. Exempt research does not require IRB review or renewal for five years (2025). However, IRB requests a closure report when the data collection is completed, or, if active data collection continues, a summary report of the sample size at the May IRB meeting of each academic year.

Exempt research can proceed with an abbreviated consent process in which the subjects are informed of the purpose and duration of the survey, and with no signature necessary for informed consent. The approval stamp must be visible in the information about the study provided to potential subjects.

You may collect data from human subjects according to the approved research protocol. The approval stamp must appear on any Information Form or Informed Consent Form approved by the IRB (jpeg file attached).

ST MARY'S UNIVERSITY



If, at any time, you make changes to the research protocols that affect human participants, you must file a "Changes to Approved IRB Protocol and/or Unanticipated Problems" form. Changes must be reviewed and approved by IRB before proceeding with data collection.

Good work on developing greater measurement quality in Organizational Psychology. I look forward to seeing your results.

A handwritten signature in black ink that reads "Dan Ratliff".

Dan Ratliff, Ph.D.
IRB Chair

CC: Greg Pool, PhD, Faculty Sponsor
Cody Cox, PhD, IRB Area Representative
Attachment: IRB Approval Stamp jpeg file

Appendix B: Consent Form

You are being invited to participate in a research survey investigating organizational culture. The purpose of this study is to create and validate a new measure of organizational culture that will help organizations understand their culture and how it changes over time.

Your participation in this survey will be completely confidential and voluntary. The survey is being distributed through Qualtrics, an online survey administration tool that allows us to collect data without identifying information. You can decide to withdraw your participation at any time. There are no anticipated risks for participating in this study. Participants will not be required to provide their name, or their job title. After the study is complete, all data will be stored in a password protected spreadsheet to ensure the safety of participant-provided information.

Company Name will not receive a copy of the data, only summary reports averaged across groups. To protect your individual responses, no analyses will be reported for any group with less than three participants.

The survey is not time consuming, and most survey takers can complete the survey in 30 minutes or less. By clicking the button below, you acknowledge that your participation in the survey is voluntary, you are at least 18 years of age, and that you are aware that you may choose to withdraw your participation in the survey at any time.

If you have concerns or questions regarding this survey, please contact the principal investigators, Veronica Bou Onk (vbouonk@mail.stmarytx.edu) or Dr. Greg Pool (gpool@stmarytx.edu). If you have further concerns about your rights as a participant in this study, contact the Institutional Review Board for the Use of Human Participants (IRB) by email at dratliff@stmarytx.edu.

Thank you for participating in this research project investigating organizational culture.

- Yes, I agree to participating in the survey
- No, I do not agree to participating in the survey

Appendix C: Measures

The following scales include the proposed culture scale and five validated scales used to determine outcomes of the culture scale.

Culture Scale

Instructions: The following questions ask about your observations and experience with the organization's culture. Please indicate the extent to which you agree or disagree with the following statements?

All items use a Strongly Agree (5) to Strongly Disagree (1) point format.

Cultural Mass

Tightness Subscale.

CS1 People are able to work outside of the normal problem-solving steps here without problems. (R)

CS6 Our leaders like innovative thinking. (R)

CS7 It is difficult to "do things differently" here.

CS8 People are pressured into doing things like they always been done here.

Power of Control Subscale.

CS2 People take part in organization events even if they are not personally interested.

CS4 The organization has many unwritten rules that employees must follow if they want to succeed here.

CS9 Some people may say the employees are heavily involved in our culture.

CS10 No matter where you are at work, you can feel the culture.

CS11 You can see examples of the organization's culture everywhere at work.

Strength of Origin Subscale.

CS3 Employees often share stories about the previous leaders that were once here.

CS5 People still follows norms from when the organization first began.

CS12 When making decisions about the future here, our current leaders look to the past for inspiration.

Cultural Direction

Deviation from Culture Subscale.

CS13 People see our leaders behaving in a way fits our company values. (R)

CS15 Although we have a clear culture, you can often see people, including leaders, acting against that culture at work.

CS17 People see others trying to go against the culture and it's the values here.

CS19 There is spreading of behaviors that does not agree with the culture and values here.

Response to Deviation Subscale.

CS14 It is good for the company to have our leaders act in a way that matches our values. (R)

CS16 It is good for the company to have people, including leaders, moving away from the normal behavior at work.

CS18 It is good for the company to have members that try to go against the culture and values here.

CS20 The spread of behaving against what is normal here is positive for the company.

Values to Norms Effectiveness Subscale.

CS21 The teams here that are the best are those that best match our values in their work.

CS22 Others expect the organization to do its best because the people here behave in a way that matches our values.

CS23 The organization may have good values, but the people do not always fit those values. (R)

CS24 In the organization, people who leave never fit the values.

Cultural Velocity

Lean Change Subscale.

CS25 When the organization talks about changes that matter to them, everything is straightforward.

CS26 Our culture limits how fast we are able to make important changes. (R)

CS27 Once the leaders have decided a change in our culture is needed, they begin modeling the change immediately.

CS28 Cultural change in the organization will take a long amount of time. (R)

Rapid Transformation Subscale.

CS29 Because the culture is constantly changing, people don't know what is expected any longer.

CS31 The culture has changed so much recently in such a short amount of time, it doesn't feel like the same place anymore.

CS33 Even small changes in the culture set off a chain reaction, as if the changes are building and moving quickly.

Resistance to Change Subscale.

CS30 Strategic changes would go much faster if the culture was less rigid. (R)

CS32 When the leaders decide to start something new, it is more common to hear complaints rather than compliments. (R)

CS34 Even when a change seems like a good idea, you often hear about how it will "ruin" the culture. (R)

Tightness vs Looseness Scale (Gelfand, et al., 2006)

Instructions: The following questions ask you about your company. Please indicate the extent to which you agree or disagree with each statement provided. To what extent do you agree or disagree with the following statements?

There are many social norms that people are supposed to abide by in this company.

In this company, there are very clear expectations for how people should act in most situations.

People agree upon what behaviors are appropriate versus inappropriate in most situations in this company.

People in this company have a great deal of freedom in deciding how they want to behave in most situations. (R)

In this company, if someone acts in an inappropriate way, others will strongly disapprove.

People in this company almost always comply with social norms.

Job Involvement Scale (Kanungo, 1982)

Instructions: The following questions ask you about your current job. Please indicate the extent to which you agree or disagree with each statement provided. To what extent do you agree or disagree with the following statements?

The most important things that happen to me involve my present job.

To me, my job is only a small part of who I am. (R)
I am very much involved personally in my job.
I live, eat and breathe my job.
Most of my interests are centered around my job.
I have very strong ties with my present job which would be very difficult to break.
Usually I feel detached from my job. (R)
Most of my personal life goals are job-oriented.
I consider my job to be very central to my life.
I like to be really involved in my job most of the time.

Organizational Commitment (Meyer & Allen, 1991)

Instructions: Please respond to the following questions with your current organization in mind.

Affective Commitment

I would be very happy to spend the rest of my career in this organization.
I really feel as if this organization's problems are my own.
I do not feel like "part of my family" at this organization (R).
I do not feel "emotionally attached" to this organization (R).
This organization has a great deal of personal meaning for me.
I do not feel a strong sense of belonging to this organization (R).

Organizational Innovation (Wang & Ahmed, 2004)

Instructions: Please respond to the following questions with your current organization in mind.

Innovative Behavior Scale Items

We get a lot of support from managers if we want to try new ways of doing things.
In our company, we tolerate individuals who do things in a different way.
We are willing to try new ways of doing things and seek unusual, novel solutions.
We encourage people to think and behave in original and novel ways.

Innovative Strategy Scale Items

Key executives of the firm are willing to take risks to seize and explore "chancy" growth opportunities.

When we see new ways of doing things, we are last at adopting them. (R)

Management is very cautious in adopting innovative ideas. (R)

When we cannot solve a problem using conventional methods, we improvise on new methods.

Perceived Organizational Support (Eisenberger, Huntington, Hutchison, Sowa, 1986)

Please respond to the following questions with your current organization in mind.

The organization strongly considers my goals and values.

Help is available from the organization when I have a problem.

The organization really cares about my well-being.

The organization is willing to extend itself in order to help me perform my job to the best of my ability.

Even if I did the best job possible, the organization would fail to notice. (R)

The organization cares about my general satisfaction at work.

The organization shows very little concern for me. (R)

The organization cares about my opinions.

The organization takes pride in my accomplishments at work.

ProQuest Number: 28546861

INFORMATION TO ALL USERS

The quality and completeness of this reproduction is dependent on the quality and completeness of the copy made available to ProQuest.



Distributed by ProQuest LLC (2022).

Copyright of the Dissertation is held by the Author unless otherwise noted.

This work may be used in accordance with the terms of the Creative Commons license or other rights statement, as indicated in the copyright statement or in the metadata associated with this work. Unless otherwise specified in the copyright statement or the metadata, all rights are reserved by the copyright holder.

This work is protected against unauthorized copying under Title 17, United States Code and other applicable copyright laws.

Microform Edition where available © ProQuest LLC. No reproduction or digitization of the Microform Edition is authorized without permission of ProQuest LLC.

ProQuest LLC
789 East Eisenhower Parkway
P.O. Box 1346
Ann Arbor, MI 48106 - 1346 USA