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International Review of Business & Applied Sciences (IRBAS)

Scope and Coverage

The *International Review of Business & Applied Sciences (IRBAS) is* a double-blind peer reviewed journal of Business and Applied Sciences Academy of North America BAASANA) publishes conceptual papers, Qualitative Research, Case Studies, Pedagogical Research , and Interviews involving global or country-specific Business, Social, Behavioral, and Applied sciences. The journal's primary focus is on innovative ideas leading to solutions to problems. Interdisciplinary and or discipline-specific descriptive, conceptual ideas, constructs, propositions, models, and theories, including moral and ethical, call for solutions to problems across the digital divide.

IRBAS publishes review articles, original ideas, and theoretical, conceptual narratives with less discipline-specific jargon. Statistical analysis, when used, should be explained in plain language for interdisciplinary global readers. Commentaries on articles and reports published in the Journal are welcome and encouraged. Authors will have the opportunity to respond to the commentary on their work and publish those responses. Special Issues devoted to critical global topics, including disruptive innovations and case studies on UN Sustainable Development Goals (SDG), will be routinely published.

The journal is an invaluable support to academics and researchers, environmental activists, SDG participants, teachers using innovative pedagogical styles, and all those charged with setting policies and strategies for business and social, global, and non-profit organizations.

Readership

Professionals, academics, researchers, managers, policymakers, environmental activists, and the promoters and implementers of UNSDG.

Subject Coverage

- Management Issues
- Corporate Social Responsibility and Sustainability
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- Issues of Inter-cultural communication
- Issues of multi-cultural and transnational businesses
- Issues of applied sociology and social organizations
- Issues of Non-Profit developmental organizations

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Content
All authors must declare that they have read and agreed to the content of the submitted manuscript.
Ethics

Manuscripts might be rejected by the editor-in-chief if the work was not carried out within an ethical framework. The editorial board of the journal adheres to the principles outlined by COPE – Committee on Publication Ethics. Authors who are concerned about the editorial process may refer to COPE. The authors must declare all potential competing interests involving people or organizations that might reasonably be perceived as relevant.

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Journal Index

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<div align="center">**EDITORIAL**</div>

        Papers included in this issue are six. They are conceptual—clearly fitting into the scope of the journal. All of them relate to issues applied sciences and business.

The first paper was co-authored by the faculty with students. The faculty coauthors authors are: Dr. Donald Crooks and Dr. Cathyann Tully of Wagner College; and Professor Edward Strafaci, of Pace University; The student co-authors are Siddarth Anand, Elena Andreyev, Vuk Bulajic, Grant Ludgar, Milos Popovic of Nicolais School of Business, Wagner College, USA. The paper focuses on Social Security and how the level current funding may fail to meet the needs of future generational capacity. A declining workforce, combined with an increased beneficiary base potentially underfunding the account. Given a projected low level of Treasury rates, the Social Security asset may fall short in delivering benefits to future retirees. The authors posit a proposal to fund Social Security with student loan liabilities. The paper concludes that while the potential increase in returns is appealing, the possibility of default be statistically significant.

The second paper is authored by Dr. Afolarin Joshua Aiyedun,, St. John's University, NY; and Dr, Barbara C. Wallace., Chairperson of Health & Behavior Studies, Teacher's College, Columbia University, NY. The authors address the critical gaps in knowledge among sexually active men (age 18 and above) who may be ignorant about the HIV window period and the consequent implications for the following outcomes: ignore the need to test for HIV; how testing HIV negative via HIV antibody tests requires repeating HIV testing at a minimum up to 3 months since their last unprotected sex. Multiple regression analyses showed that the outcome variable of higher knowledge of the HIV window period was significantly predicted by a higher level of education (B=3.085, SEB =.917, p = .001). This study has demonstrated how E-health using avatar videos represents a viable way to fill the gaps in education to increase testing rates.

The third paper is authored by Professor John F. DeCarlo, of Hofstra University. Professor DeCarlo explores the origin and complex nature of cancer cells and tumors, explaining that cancers are defined by the speed and number of cell divisions that occur, and how the process is no longer controlled and increases exponentially, leading to mutations, that eventually become cancerous. Moreover, recent findings indicate that tumor cells contribute to the genetic diversity of the tumor by exchanging parasexual recombination of genetic materials with each other, increasing their complexity, and hence, increasing their resistance against the immune system and drugs, and the chances for deadly metastasis. In this respect, Treverton's distinction between puzzles and mysteries seems relevant, as cancers are not simply a puzzle to be solved by collecting and analyzing information; rather, we are struck by the extreme complexity and uncertainty of the information that we gather, making them not easily approachable, methodologically. Hence, the paper explores how translational research of unmet medical needs are being resolved by combining pure science and patient-driven research in such ways that the theory of cancer research and clinical studies is "bridging the gap between the context of discovery and the context of justification, as evident in cutting-edge clinical studies in micro tumor environments and breast cancers."

The fourth paper is based on consumer behavior research. It is student-faculty research authored by MyatNoe PwintPhyu and Dr. Christina Chung of Anisfield School of Business, Ramapo College of New Jersey. This study examines young consumers' behavior towards luxurious products and how product messages on social media impact consumers' decisions

towards luxurious products. Using the theory of reasoned action, hedonic and utilitarian values, and self-congruity concept, a research model has been created to measure the relationships among several constructs. One hundred respondents of college students participated in an online survey. Findings "explain that social media hedonic and utilitarian product messages positively affect attitude toward brand information, while social media hedonic messages and luxury brand imagery congruity influence word of mouth (WOM). Brand loyalty is positively affected by attitude toward brand information, WOM, and luxury brand imagery congruity. Brand loyalty influences intention to join a brand page and purchase intention".

The fifth paper was co-authored by Professor Avinash Thombre, of University of Arkansas Little Rock, and Ariel Lobos, Chair of Rural Tourism
Popular Music Specialist Universidad de Buenos Aires, Buenos Aires, Argentina. This paper explored the impact of Covid-19 pandemics on culture. The global lockdown and travel bans have upended assumptions about local cultures and our family interactions. Using qualitative methodology, interviews were conducted with urban Argentines and gauchos. Discussions are made of the change in the culture of drinking mate and what it means personally and collectively for Argentines to forsake their communal mate for which they are memorably known. The authors narrate how severely Covid affected the culture, social and community interactions.

The sixth paper is co-authored by Dr. Emmanuel Nwachukwu, of Department of Journalism and Media Studies, Jackson State University, and Ilemona Atawodi, Department of Computational Sciences, The University of Southern Mississippi, and Raphael Dzanie, School of Economic, Political, & Policy Sciences, The University of Texas at Dallas. This study investigated the role of the functional theory of political campaign discourse to evaluate the speech and tweets of the 2016 US presidential candidates. The study utilized content analysis and analyzed 5303 units of speech, Tweets, TV (CNN, FOX, and NBC news), and news stories from the New York Times and Washington Post to derive its conclusions. The study showed how tweets shaped the media agenda and the media coverages during the elections period. It also showed how the then presidential candidate, Donald Trump used his tweets to his advantage to set the daily media agenda during the elections cycle and reach out to the audience leading to election victory.

Lipika Neshmin Arif, a Ph.D. student of Business Administration at the University of South Alabama authors the 7th paper. This paper's primary focus on the profile of (high-quality) workplace relationships in terms of leader-member relations and peer relations and how these relationships impact the team effectiveness. The paper examines team effectiveness as an outcome variable influenced by workplace relationships in which team cohesion plays a mediating role.

The eighth paper is authored by Dr. Frank Owarish, Director of International Institute for Strategic Research and Training; Dr. Michael Hamlet., International Institute for Strategic Research and Training; Dr. Jet Mboga, Bloomsburg University of Pennsylvania, and Anup Sharma, MS Instructional Technologies, NY The paper focuses on the issues and challenges faced by educators during COVID 19 pandemic. The traditional F2F format did not fit the emerging and evolving albeit new situation. The authors conclude that the underlying 'classical' concepts and approaches remain valid, but new effective approaches to delivery have to be found; some known delivery

systems have to be re-invented and new ones need to be create to match emerging teaching environment.

This is the 1st issue of volume 3 of the IRBAS. Papers included in this issue are interdisciplinary and have dealt with issues of importance. The readers will find them informative and helpful toward professional growth. We will continue to publish qualitative papers, research models, conceptual papers, case studies, professional interviews, reports of disruptive innovation in education and other applied sciences. We welcome authors to spread the word and invite scholars and practitioners to read and then volunteer to write for future issues of IRBAS.

Sincerely,

M. Ruhul Amin, Ph.D. Editor-in-Chief

Quid Pro Quo" Paying it Back by Paying it Forward—An Integrative Study of Consideration of Combining Student Loans and Social Security. Where Accountability, Responsibility, and Possibility Intersect. *Dr. Donald Crooks, Wagner College; Dr. Cathyann Tully, Wagner College; Professor Edward Strafaci, Pace University; Siddarth Anand, Wagner College; Elena Andreyev, Wagner College; Vuk Bulajic, Wagner College; Grant Ludgar, Wagner College; Milos Popovic, Wagner College*

Wagner College
Nicolais School of Business
One Campus Road, Staten Island, New York, NY 10301, USA

Abstract

Social Security Funding may not meet the needs of future generational capacity. A declining workforce, combined with an increased beneficiary base, further exacerbates a potentially underfunded account. Given a projected lower level of Treasury rates, Social Security assets may not be sufficient to deliver future benefits. The authors posit a proposal to fund Social Security with student loan liabilities. While the potential increase in returns is appealing, the possibility of default must be statistically considered.

Introduction

During the Great Depression, many progressives called upon Franklin Delano Roosevelt to support Americans in their retirement years. The answer was the Social Security Act (SSA) passed in 1934. When initially conceived, the Act and its funding were based on certain assumptions challenged by current influences. As a result, the future of Social Security is jeopardized. This research aims to provide an insight as to a possible solution.

Social Security as a concept has offered a great deal of tangible and psychic benefits for generations of Americans. As a public trust, it serves as insurance against earnings loss, health expenses, and loss of spousal income. It has provided economic welfare gains to the domestic economy (Kopecky, 2012). It is also a vital and significant political issue (Hicks, 2018).

At present, the Social Security fund is slowly veering toward insolvency. It is the subject of public debate about a federal budget equilibrium. It has been argued that social security has a disparate effect on personal savings, consumption, and labor supply (Aaron, 2010). This entitlement program has been a frequent target of presidential campaigns. Raising the limit on the level of earnings that are subject to Social Security taxation has been considered. The literature suggests that the propensity for domestic consumption would remain static if the cap is lifted (Parker, 1999). The paper proposes linking two disparate groups together to rescue this fund.

Social security assets are currently invested in Treasury Securities; they earn a pure rate of interest. These returns are directly correlated with the credit rating and inflationary factors of U.S. Treasuries (Litterman, 1991). Returns on Treasuries cannot match the growing 'boomer' recipient class. A shrinking workforce to support the ongoing Social Security benefit payments is also a concern. In many economies, the need for immigrant labor is a growing factor in maintaining social benefits and domestic production (Nguyen, 2008). While the Baby Boom generation will receive benefits, Millennials may not be as fortunate. Additionally, Millennials are burdened with increasingly higher amounts of student debt. An aversion to borrowing may play a role in whether younger generations commit to a higher education degree (Burdman, 2005).

This research project explores the possible opportunity for Baby Boomers and Millennials to reach a symbiotic solution. The borrowing rate of student loans is approximately 6%, while the Treasury rate has vacillated in the 0.01-2.25% range over the past decade. This is due to Federal Reserve accommodation coupled with lower inflation levels (Krishnamurthy, 2011).

The theory centers around Social Security funds to finance college education while graduates remit their payments into the Social Security lockbox. Currently, numerous Government-sponsored programs allow students to pay down at reduced rates if they are employed (Student Loans, Forgiveness, n.d.). These are based on personal expenses and predicated on these same students as an increased tax base. These programs need to be factored into this plan as the tax receipts offset the reduced loan payments (Shen, 2009). This way, students are encouraged to take education loans and seek employment (Avery, 2012).

One theory to maintain the program's integrity is to implement punitive covenants to those that default on their student loans. This would require either an outright canceling of Social Security or a revised smaller monthly amount based on remaining principal and interest from defaulted student loans. The political ramifications need to be explored (Knapp, 1992).

As an alternative, the authors have previously published several articles on how to maximize returns by 'individualizing 'Social Security accounts. Other suggestions include providing each working adult an individual Social Security account with investment options. These accounts would be similar to current tax-advantaged retirement accounts. This scheme would also serve to ensure benefits in the future (Holden, 2016).

The innovative approach of joining both initiatives could provide graduated returns while limiting the cost of Student loans. It serves to create an economic equilibrium for both generations.

The Social Security Administration

Originally passed on August 14, 1935, the SSA has had many amendments and changes over the years to allow it to expand coverage and handle the cost of living increases. As initially passed,

the Social Security Act provided a monthly benefit to individuals aged 65 and older and no longer working. The monthly benefit was paid to the primary worker upon retirement. The payment was based on the individual's payroll tax contributions. The SSA also provided unemployment insurance, aid to dependent children, and grants to states for medical care ((CPA) Journal, March 2010). In 1939 the SSA was amended to include benefits for the spouse or the minor children of a retired worker. It also added a survivor's benefit, which further extended the concept of economic security to the family. A significant addition to the program was initiated in 1950 when a cost-of-living adjustment [COLA] was added.

In 1961 the retirement age for men was reduced to 62. Those deciding to accept Social Security at that age received a scaled-down monthly benefit. In 1935 when the program was instituted, the average life expectancy of a white male was 59.9 years. By 1960 life expectancy had increased to 66.6 years (InformationPlease@Database.com 2007). In 1972, an amendment for the institution of automatic COLAs was enacted. This was coupled with a significant increase for those who waited until age 65 to receive benefits. At this time, the life expectancy had increased to 67.4 [ibid]. Since 1972 there has been a significant increase in life expectancy because of lower death rates. Currently, males and females' average combined life expectancy is 78.87 (CIA.gov 2019). These changes have altered the financial projections of the fund {Bloom, 2007, De Nardi, 1999).

The Depletion of Social Security

The Social Security Trust fund may become insolvent without meaningful reform by 2035. Today's social security program is made up of two trust funds, the Old Age Survivors Insurance (OASI) and the Disability Insurance (DI) trust funds. Together both trust funds are referred to as OASDI. In 2017, Social Security and Medicare made up 42% of the United States federal budget.

In 2016 the social security program reserves equaled an estimated $2.8 trillion. Considering income from the taxes, the SSA received $825.6 billion and paid out $806.7, leaving a net change in SSA reserves to equal an estimated $19 billion. Though the program maintained a positive surplus of reserves in 2017, in 2018, it is estimated that the program's costs will surpass its income for the first time since the 1980s. This leaves a systematic problem, given that the number of baby boomers approaching social security collection age exceeds the number of millennials entering the workforce. Considering the United States currently GDP growth, the SSA is projected to become depleted by 2034, meaning that the program will no longer be allowed to payout 100% of its earned income. Instead, because of these projections, it is estimated that the program will only be able to pay out three-quarters of its income until 2092 (Mnuchin et al., 2018).

The Social Security system invests only in U.S. Treasuries which are currently at historically low levels. Due to reduced inflationary pressures globally, domestic rates are nearing a mean of 50 basis points or less. In some countries like Japan and Germany, rates have migrated to zero or negative.   The Federal Reserve still maintains an accommodated stance, ushered in during the

great recession of 2008-2009. Given the Covid crisis of 2020, we expect maintenance of this stance as the Federal Reserve has limited weapons both on a qualitative and quantitative basis.

Lower interest rates then were predicted in models used by the authors of the Social Security Act are impeding the growth of the Trust fund. Tying Social Security to the Student Loan program can increase returns by as much as 50-100% or 100 basis points and lead to an extended viable Social Security Trust fund.

Table A

Ten-year Treasury rates -1980-2019

2. The Student Lending System

There are two forms of student loans, federal and private. Federal student loans are extended to students by the United States government and are processed by institutions such as Sallie Mae and Navient, both government-sponsored enterprises but private independent institutions. Private student loans are made by commercial banks, thrift institutions, and credit unions. There is an established underlying rate within each loan that the overall loan annual percentage rate (APR) builds upon. In 2013 the United States government established the underlying rate used today, the US 10-year Treasury rate. However, the 10-year Treasury rate was not always the underlying rate for federal student loans. In the past, the underlying loan rates were established with lower rates. From 1987 to 1991, they were based on the US 1-year Treasury bill. From 1992 to 2005, federal student loan rates were determined upon the three-month US Treasury bill. From 2006 to 2012, loans were set at a fixed rate between 6.8% and 8.5% depending on the type of loan, with no underlying US treasury benchmark. Eventually, these rates remained fixed due to the Fed's quantitative easing policy. The only exception to this rule is pre-1988 federal student loans with a variable rate. In contrast to private student loans, all current federal student loans have a fixed rate.

Today, all previously established rates except that of the US 10-year Treasury rate move with the US Discount Rate. As such, it is essential to pay attention to the Federal Reserve's current flat-

rate policy and the Department of Education's lending rates on federal student loans. Today, lending is such an integral part of the financial sector; it is vital to understand the health of this niche in the consumer finance industry. Student loan rates have not been reduced at the same rate as failing U.S. Treasury rates, and they are currently is an unrealistically high rate in place that can range from 3.14%-9.49% depending upon a borrower's creditworthiness as measured by FICO (Fair Isaac Corporation) and a staple metric for all loan applications. The Federal rate for the 2019-2020 school year for undergraduates is 4.53%, unsubsidized graduate student loans are currently 6.08%.

Average student loan debt ranges from $25,000-33,000 with $280/month payments for 10 years with a 6.8% interest rate. One can see that current rates have not come down fast enough, and the spread between U.S Treasuries and student loans has widened to roughly 400 basis points or 4%. Student loan repayment can run for 20 years or more.

Treasury Inflation-Protected Securities as an Inflationary Insurance device

A risk to our proposal is that while student loans have fixed payments, social security benefits are adjusted for inflation. In a worst-case scenario, as experienced in the 1970s, rampant inflation would dramatically increase social security liabilities that fixed interest student loan payments would not offset.

Treasury Inflation-Protected Securities (TIPS), which the U.S Government currently sells, may provide an elegant alternative:

From the Treasury site:
"Treasury Inflation-Protected Securities, or TIPS, protect against inflation. The principal of a TIPS increases with inflation and decreases with deflation, as measured by the Consumer Price Index. When a TIPS matures, you are paid the adjusted or original principal, whichever is greater.

TIPS pay interest twice a year at a fixed rate. The rate is applied to the adjusted principal, so interest payments rise with inflation and deflation like the principal.

You can buy TIPS from us in Treasury Direct. You also can buy TIPS through a bank or broker.

You can hold a TIPS until it matures or sells it before it matures. (Treasury Inflation-Protected Securities (TIPS), n.d.)"

Currently, there are $550 billion of TIPS outstanding. The Government could theoretically lessen the number of TIPS sold to the public and treat student loan payments as inflation-protected liabilities.

We will examine the duration and inflation basis risk of such a scheme in future research. However, this program would accomplish two objectives:
1. Protect Government liabilities from inflationary pressure.

2. Offer a politically feasible answer to legislators who may have an issue with this proposal.

Statistical Analysis

Table B illustrates the prevailing student loans rates and the U.S. 10 Year Treasury Rate which we will use as a current investment benchmark since 2006.

Table B

Federal Stafford Loans to Undergraduate Students- 10 Year Treasury Rates, 2006-2020 (In Percent).

Academic Year	Fixed vs. Variable	Subsidized	10 Year Treasury
2019-2020	Fixed	4.529	1.52
2018-2019	Fixed	5.045	2.635
2017-2018	Fixed	4.45	2.72
2016-2017	Fixed	3.76	2.451
2015-2016	Fixed	4.29	1.931
2014-2015	Fixed	4.66	1.675
2013-2014	Fixed	3.86	2.668
2012-2013	Fixed	3.40	1.985
2011-2012	Fixed	3.40	1.799
2010-2011	Fixed	4.50	3.378
2009-2010	Fixed	5.60	3.609
2008-2009	Fixed	6.00	2.844
2007-2008	Fixed	6.80	3.639
2006-2007	Fixed	6.80	4.826

Table C- Descriptive Statistics

	Student Loans	*Treasury Securities*
Mean	4.792428571	2.691428571
Standard Error	0.30191753	0.247318936
Median	4.5145	2.6515
Standard Deviation	1.129671955	0.925382725
Sample Variance	1.276158725	0.856333187
Kurtosis	-0.49374832	0.609908942
Skewness	0.682453028	0.849583975
Range	3.4	3.306
Minimum	3.4	1.52

Maximum	6.8	4.826
Count	14	14
Largest(1)	6.8	4.826
Smallest(1)	3.4	1.52
Confidence Level(95.0%)	0.652253168	0.534300078

Table D – Enhanced Return

Years	Student Loan Return > 2.1%, per $100
20	$1,619.32
30	$2,208.85
40	$2,687.71
50	$3,076.68
60	$3,392.62
70	$3,649.25
80	$3,857.71
90	$4,027.03
100	$4,164.56

Summary Output

Table E

Regression Statistics	
Multiple R	0.751268001
R Square	0.56440361
Adjusted R Square	0.528103911
Standard Error	0.776024685
Observations	14

	Coefficients	Standard Error	t Stat	P-value
Intercept	2.324067382	0.659450576	3.524248	0.004191
Treasuries	0.917119338	0.232585412	3.943151	0.001952

In the analysis, we extrapolate the spread of Student Loan rates to treasuries using the sample period. Using the mean yields, we can expect a 2.1 % increase in return using student loans as a benchmark; referring to Table C, it should be noted that the ds on both yields is similar (1.12 - Student Loans, .92 Treasuries). Skewness veered negatively on student loans, which should be considered if the proposal is implemented.

Table D further demonstrates the increase in return (per $100) if the proposal uses a graduated time scale.

In order to control for our extrapolation in that this relationship between student loans and treasury spreads remains static, we regressed the variables.
Multiple R = .75, the beta versus Treasuries as .917 and highly significant at 3.94 sd, p=.00195.

Conclusion

The possibility of comingling Social Security and Student loans receipts is an intriguing solution to a pressing issue. Student loans are a necessary component in the nation's ability to increase the value of labor resources. As currently situated, the system may become overburdened. This should be offset by enhancing human capital and concurrent GDP growth. This is a growing problem in scope and depth as default rates seem to increase as employment numbers dwindle.

This research begins to touch on a possible solution. A significant spread exists between what the Social Security Fund earns in its Treasury investment and rates that Stafford loans are predicated on. As demonstrated, significant increases in Social Security fund value can be achieved through this proposal.

Future research must include more rigorous statistical analysis and projections. Default rates must be considered (see Appendix B). A combination of the existing arrangement of treasury investment and the use of student loans must also be explored. This is merely precursory advancement of a possible resolution to a global and domestic political, financial and generational issue.

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What Impact Would Eliminating the Payroll Cap Have on Social Security? what-impact-would-eliminating.

Appendix B

Pitfalls of the Federal Student Loan Program

Student loan default rates are growing at an alarming pace along with the overall value of outstanding debt. Half of a trillion dollars has been added to outstanding student debt since 2012. In order to understand the gravity of the failing United States' student debt and the effects it could cause on the economy, it is crucial to understand the current student lending system. According to Forbes magazine, in 2012, student loans surpassed credit card debt, becoming the second-largest amount of consumer debt behind mortgages. The United States Federal Reserve reported that at the end of the first quarter of 2018, student debt had totaled $1.52 trillion, with more than 44 million borrowers. To put these numbers into perspective, that is nearly the GDP of Canada and the population of Argentina. The Federal Reserve also stated that $31 billion was added to student loan delinquency balances in the first quarter of 2018. This is an important note; student loans cannot be entirely erased by filing for bankruptcy.

Regarding federal student loans, the United States Presidential Budget for the Department of Education estimates the total federal student loan default rate to be 16.93% at the end of 2018. Federal student loan defaults were also estimated to be slightly lower, with the 2017 rate at 16.63%. The Trump Administration's budget accounts for these rates using loans in the first three years of repayment. Though this is a weighted average between all types of federal student loans that the United States has to offer, the numbers are much higher when the default rates are broken down by loan type because of some outliers.

The Brookings Institute, in August of 2017 has measured outstanding student debt approaching $1.5 Trillion and growing as more and more students shoulder the burden of higher education without the financial support of parents, which had been the de rigor for decades.

Predictors of Knowledge of the HIV Window Period Among Men: An Online Study that Includes Evaluation of an Avatar Video Intended As E-Health on the HIV Window Period.

Afolarin Joshua Aiyedun, Ed.D, MS. Assistant Professor, Public Health. St. John's University, College of Pharmacy and Health Sciences. 8000 Utopia Parkway, Jamaica, NY 11439

Abstract

This study addresses critical gaps in knowledge among sexually active men (age 18 and above) who may fail to understand the HIV window period and the implications for the following: the need to test for HIV; and how testing HIV negative via HIV antibody tests includes the imperative to repeat HIV testing at a minimum up to month three since their last unprotected sexual encounter. Contemporary HIV prevention depends upon accurate knowledge of the HIV window period and related implications. Methods Analysis of pre and post-test analysis following a brief online E-health intervention of a diverse sample (n=115) of men recruited through a social media campaign. Results Of the 115 sample, the mean age was 36.99 years (min 18, max 78, SD = 13.008); 37.4% (n=43) Black/African American, 40.4% (n=35) White, 15.7% (n=18) Latino, and 16.5% (n=19) Asian—being diverse. The sample had a mean age of 36.99 years (min 18, max 78, SD = 13.008); 60.9% (n=70) U.S. born; and 84% (n=100) having a bachelor's to Doctoral Degree. Pearson correlations showed: the higher the knowledge of the HIV window period, then the higher the education level of the men (r=.337, p < .000). Conclusion Backward stepwise regression showed the outcome variable of higher knowledge of the HIV window period was significantly predicted by a higher level of education (B=3.085, SEB =.917, p = .001). This study has demonstrated how E-health using avatar videos represents a viable way to fill the gaps in education to increase testing rates.

Keywords: HIV, antibody tests, men

1.   Introduction

In the global community, everyone should know of "the need for one who has been tested to go again for another test after three months"—since "a person can go for an HIV test during the window period, and he or she would be found HIV-negative." Munthali et al., 2013, p. 65). Globally, such knowledge is vital given that "worldwide HIV infection is estimated in more than 33 million people, and there are an estimated two a million deaths per year, and there are about 2.7 million new HIV infections per year." (Arunkumar, Thilakavathi, Mangala, & Vasanthi, 2013, p. 152). Furthermore, "approximately one-fourth of all HIV infections in adults remain undiagnosed" and "close to 60% of AIDS diagnosed individuals discovered their seropositive" status at the time of diagnosis of AIDS (Arunkumar, Thilakavathi, Mangala, & Vasanthi, 2013, p.152).

To avoid progression from HIV to AIDS, the first step involves testing for HIV. However, even when individuals engage in HIV testing, they may take an HIV antibody test that

provides a false-negative test result—meaning they have been infected with HIV, but they will test negative until sufficient time has passed for their body to develop antibodies HIV. This period is referred to as the HIV window period. HIV antibodies do not manifest during this window period, all HIV antibody tests appear negative, yet individuals can transmit HIV to others. The incubation period can last from three weeks to three months (an average of 25 days).

The incubation period is defined as the period from the time of infection until the organism's reaction in the form of clinical manifestations of "acute infection" and or antibody production (Helms et al., 2009). This period in rare cases, may be six months to a year. There is an active replication of HIV during this period, but no antibodies to HIV are detected. HIV diagnosis at this stage may occur via direct laboratory detection of HIV antigens and HIV nucleic acids (Helms et al., 2009).

The purpose of this study is to determine for an online sample (N=115) of sexually active diverse men (above age 18)—who are drawn from the global community, as well as those able to access the study opportunity online—the extent of their knowledge about the HIV window period, along with other background characteristics. Specifically, the study is guided by the following specific objectives:

1. Demographic characteristics
2. History of HIV screening behavior and HIV status
3. Stages of change for condom use with any main/steady and casual sex partners
4. Stages of change and self-efficacy for performing two risk-reduction behaviors (i.e. checking HIV status by testing for HIV, checking HIV status after an episode of unprotected sex)
5. Level of knowledge of the HIV window period and related implications (e.g. need for condom use, need for testing every three months, limitations of HIV antibody tests versus those that can directly detect HIV antigens and HIV nucleic acids
6. And, after watching a 5-minute avatar/cartoon video, how they rate the video—while also assessing whether the video served as a brief intervention to shift them stage of change and increase their self-efficacy for performing two risk-reduction behaviors (i.e. checking HIV status by testing for HIV, checking HIV status after an episode of unprotected sex)
7. Whether they recommend the avatar/carton video to others, and their reasons for either recommending or not recommending the video, including comments

Methods
Institutional Review Board (IRB) Approval # 14-105

The Institutional Review Board (IRB) of Teachers College, Columbia University, approved the study as protocol # 14-105 under the category exempt review on December 19, 2013. No study activities occurred with subject participants before IRB approval.

Development of the Survey

Surveymonkey.com technology was used to create the survey for an online investigation as part of this dissertation. Surveymonkey.com permits the creation of surveys that can be distributed as links, including on websites such as www.DIVAhealth.org where there was a link to the survey.

Development of Avatar Video

There was a several-month process of developing the Avatar video. This involved the researcher learning how to use the www.Goanimte.com technology to make professional animated videos, using simple do-it-yourself tools, as the website advertises. A collaborative process between the researcher and the Director of the Research Group on Health Disparities, Dr. Barbara Wallace, resulted in an initial four-minute and 45-second script that was based on a review of the literature, as well as designed to align with a series of true-false knowledge questions in one of the primary study surveys (to be discussed later in this chapter). The goal was also to make the video entertaining (i.e., "edutainment") and engaging while having diverse characters suited to the aim to recruit a diverse global sample of men.

An online focus group made up of researchers reviewed the avatar video script developed by the researcher of this study to provide valuable feedback to improve the accuracy and clarity of the final script. The final video was 5 minutes and 46 seconds long.

Finally, the embedded avatar video accessible right in the middle of the survey helped avoid technological problems and dropouts.

The Social Marketing Campaign, Study Incentive, and Snowballing

Consistent with the standard online research protocol utilized by the Research Group on Disparities in Health (RGDH), a social marketing campaign was utilized. This entailed utilizing e-mails, Twitter, texting, website postings (e.g., Facebook), and posting flyers in community venues that diverse men frequent (e.g., colleges in the New York metropolitan area). The social marketing campaign then relied on snowballing, as study participants informed others of the opportunity.

The campaign included spreading the word about the study incentive, as shown below in the central message of the campaign:

Go https://www.surveymonkey.com/s/HIVWindowPeriod and take the survey, including rating the videos for a chance to win a $300, $200, or $100 prize.

Informed Consent, Participants' Rights, and Electronic Signature

However, before participants could access the survey, they first accessed the Informed Consent and Participants Rights Forms. Thus, those recruited had to negotiate the Informed Consent and Participants Rights Forms reading.

To indicate having read and understood their Participants' Rights, subjects provided an electronic signature.

Study Inclusion Criteria: The Survey Screening Tool

Potential subjects who provided an electronic signature next proceeded to the survey screening tool. In order to participate in the study, subjects had to meet the inclusion criteria, necessitating answering all questions below with "Yes;" or the surveymonkey.com technology permitted taking them to an "exit/thank you" page that explained that they did not qualify for the study, while they could pass on the study opportunity to others that did qualify. The study was specific to sexually active males over 18, with the ability to read and wiliness to make the time commitment to complete both surveys and view the avatar video.

Research Instrumentation

The study utilized the survey instrument entitled The Global Men's HIV Window

Period Study Survey. This survey is within the tradition of many users within the Research Group on Disparities in Health (RGDH), directed by Professor of Health

Education Barbara Wallace of Teachers College, Columbia University. The Global Men's HIV Window Period Study Survey included the following sections: a) Part I-Basic Demographics; b) Part II-HIV Screening and HIV Status; c) Part III-Stages of Change for Condoms with Your Partners; d) Part IV-HIV Testing, Condom Use, and Sexual Behavior Empowerment Scale; e) Part V-The HIV Window Period Knowledge Test; f) Part VI-Rate the Video; g) Part VII-HIV Testing Empowerment Scale-Post Video Watching; & h) Part VIII-Intention to Engage in Diffusion of the Innovation of Watching the Avatar Video.

Subjects Watch the Avatar Video Embedded in the Survey

Noteworthy is how the avatar video and the Part V—The HIV Window Period Knowledge Test true-false items (51) mirrored and reinforced each other. Thus, together, they might constitute a brief intervention, potentially impacting stage of change and self-efficacy for (1) testing for HIV and (2) testing/screening for HIV after an episode of unprotected sex—such that there are changes when comparing pre-avatar video viewing scores to post-avatar video viewing scores.

Recall that the avatar video and Part V—The HIV Window Period Knowledge Test (HIV-WP-KT-51) true-false items (51) mirrored and reinforced each other. Thus, the goal is to explore whether, together, the HIV-WP-KT-51 and avatar video might constitute a brief intervention; and, as such, exposure to both might potentially impact stage of change and self-efficacy for (1) testing for HIV and (2) testing/screening for HIV after an episode of unprotected sex—such that there are changes when comparing pre-avatar video viewing scores to post-avatar video viewing scores.

Results

Results for Research Question # 1 -*What are their demographic characteristics?*

Some 191 men provided informed consent, while 116 met screening criteria, and 1 subject provided unreliable data (i.e. selected unsure for all 51 questions), leaving a sample size of 115. The sample was 37.4% (n=43) Black/African American, 40.4% (n=35) White, 15.7% (n=18) Latino, and 16.5% (n=19) Asian—being diverse. The sample had a mean age of 36.99 years (min 18, max 78, SD = 13.008). Some 87% (n=100) were employed and the mean income was 4.26 (min 1, max 10, SD = 1.727)—or the category $50,000 - $99,000. The men were extremely well-educated with 84% (n=100) having an education on the level of a Bachelor's/ Master's/Doctoral Degree. Also, 43.5% (n=50) were single, while 36.5% (n=42) were married. Some 60.9% (n=70) were U.S. born and 39.1% (n=45) were foreign born; meanwhile, 87.8% (n=101) were living in the United States and only 12.2% (n=14) were living outside of the U.S.

Results for Research Question # 2 - *What is their history of HIV screening behavior and HIV status?*

Most men (54.8%, n=63) had never tested for HIV, while 44.3% (n=51) had done so.

Results for Research Question # 3 - *What are their stages of change (i.e., pre-contemplation, contemplation, preparation, action, maintenance stages) for condom use with any main/steady and casual sex partners?*

The mean stages of change for condom use with sexual partners was 3.491 (min 1= pre-contemplation stage, max 5= maintenance stage, SD = 1.6172)—suggesting the sample was between the preparation stage and the action stage. Most men, or 73.9% (n=85), had a primary or steady partner. For asking their main/steady partners to use condoms during sex with them, 41.7% (n=35) were in the action stage, having been doing this for less than six months, while 28.6% (n=24) were in the precontemplation stage—not having thought about asking partners to use condoms. For asking other sex partners to use condoms during sex, 46.4% (n=32) were in the maintenance stage, and 18.8% (n=13) were in action.

Results for Research Question # 4 - *What are their stages of change (i.e., pre-contemplation, contemplation, preparation, action, maintenance stages) and self-efficacy for performing two risk reduction behaviors (i.e., checking HIV status by testing for HIV, checking HIV status after an episode of unprotected sex)?*

HIV Testing, Condom Use and Sexual Behavior Empowerment Scale (HIV-CUSBES-2)—Before Watching the Avatar Video. Here, there are four categories of findings. (1) Before watching the avatar video, for the stage of change for the behavior of screening for HIV, the men had a mean score of 2.483 (n=114, min 1 = pre-contemplation stage, max 5=maintenance stage, SD = 1.403)— or between the contemplation and preparation stage. (2) Before watching the avatar video, for self-efficacy for the behavior of screening for HIV, the men had a mean score of 4.009 [min= 0% confident, max = 100% confident, (n=115), SD = 1.699—or 60% confident. (3) Before watching the avatar video, for the stage of change for the behavior of screening for HIV after an episode of unprotected sex, the men had a mean score of *2.357 [(n=115),* min 1 = pre-contemplation stage, max 5=maintenance stage, *SD = 1.244*—or

between the contemplation and preparation stage, but closest to contemplation stage. (4) Before watching the avatar video, for self-efficacy for the behavior of screening for HIV after an episode of unprotected sex, the men had a mean score of 4.143 [min= 0% confident, max = 100% confident, (n=70), SD = 1.457—or 60% confident.

Results for Research Question # 6 - *After watching a 5-minute avatar/cartoon video, how do they rate the video?* First, as a prelude to this question and providing context, subjects were asked to what extent they watched the video. The vast majority (87%, n = 100) watched all of the videos.

Results for Research Question # 7 - *After watching a 5-minute avatar/cartoon video, to what extent did the video serve as a brief intervention for shifting their stage of change (i.e., pre-contemplation, contemplation, preparation, action, maintenance stages) and increasing their self-efficacy for performing two risk-reduction behaviors (i.e., checking HIV status by testing for HIV, checking HIV status after an episode of unprotected sex)?*

The mean scores on Part VII--HIV Testing Empowerment Scale-Post Video Watching (HIV-TES-PVW-2) were compared to those before watching the avatar video: i.e., the scores on Part IV—HIB Testing, Condom Use and Sexual Behavior Empowerment Scale (HIV-CUSBES-2). This involved four comparisons using paired t-tests.

Pre- Versus Post-Video Viewing Comparison (1). Before watching the avatar video, for the stage of change for the behavior of screening for HIV, the men had a mean score of 2.483 (n=114, min 1 = pre-contemplation stage, max 5=maintenance stage, SD = 1.403)— or between the contemplation and preparation stage; yet after watching the video they had a higher mean score of 2.842 (SD = 1.118). This was a statistically significant difference (t = -3.375, df = 113, p = .001), given Bonferroni Adjustment Significance level (.05/4, p= .0125).

Pre- Versus Post-Video Viewing Comparison (2). Before watching the avatar video, for self-efficacy for the behavior of screening for HIV, the men had a mean score of 4.009 [min= 0% confident, max = 100% confident, (n=115), SD = 1.699—or 60% confident; yet, after watching the video they had a higher mean score of 5.001 (SD = 1.218). This was a statistically significant difference (t = -8.017, df = 114, p = .000), given Bonferroni Adjustment Significance level (.05/4, p= .0125).

Pre- Versus Post-Video Viewing Comparison (3). Before watching the avatar video, for the stage of change for the behavior of screening for HIV after an episode of unprotected sex, the men had a mean score of 2.357 [(n=115), min 1 = pre-contemplation stage, max 5=maintenance stage, *SD* = 1.244—or between the contemplation and preparation stage, but closest to contemplation stage; yet after watching the video they had a higher mean score of 2.844 (SD = 1.152). This was a statistically significant difference (t = -5.074, df = 114, p = .000), given Bonferroni Adjustment Significance level (.05/4, p= .0125).

Pre- Versus Post-Video Viewing Comparison (4). Before watching the avatar video, for self-efficacy for the behavior of screening for HIV after an episode of unprotected sex, the men had a mean score of 4.143 [min= 0% confident, max = 100% confident, (n=70), SD = 1.457—or 60% confident; yet, after watching the video they had a higher mean score of 5.243 (SD = 1.233). This was a statistically significant difference (t = -6.913, df = 69, p = .000), given Bonferroni Adjustment Significance level (.05/4, p= .0125).

Results for Research Question # 8 - *The relationship between selected demographic factors and selected scale scores with the study dependent/outcome variable of a high level of knowledge of the HIV window period?*

Pearson correlations. When exploring Pearson correlations between selected demographics and scale score, namely four correlations, with the study outcome variable/dependent variable, there was only one significant correlation, as follows:

The higher the score for knowledge of the HIV window period then

- The higher the education level of the participant (r=.337, p < .000)—achieving significance

Independent t-tests are comparing groups for knowledge of the HIV window period.

For all dichotomous independent variables t-tests comparing the two groups on the primary outcome variable, there were 6 group comparisons. This meant a Bonferroni Adjustment Significance level of .008 (.05/6, p=.008). There was only one significant group difference, as follows:

When comparing those who had ever tested for HIV compared to those who had never tested for HIV, the group that had tested for HIV had a significantly higher group mean score for knowledge of the HIV Window Period (t = -2.715, df = 112.997, p = .008).

Results for Research Question # 9 - *What is the best predictor of the dependent/outcome variable of the high level of knowledge of the HIV window period?*

The outcome variable. The intent was to identify the best predictors of the outcome variable of interest: a higher level of knowledge of the HIV window period.

The 11 independent variables. The regression analyses included ten independent variables as potential predictors:

1) age;

2) if Black race or not (if the participant is Black/African/African American or other;

3) level of education;

4) income (annual household income);

5) it has a primary partner or not;

6) if a student or not (if currently full or part-time student);

7) if living with a partner or not;

8) if born in the U.S or not;

9) if ever tested for HIV or has not;

10) stages of change for condom use—whether pre-contemplation, contemplation, preparation, action, or maintenance stage; and,

11) confidence (self-efficacy) for testing for HIV

Backward stepwise regression. This model began with the entire pool of the ten independent variables, all in one regression model. Next, the backward stepwise method involved removing the least significant variable when the model was run. The rationale for using this approach is to reduce the degrees of freedom and remove noise caused by including unrelated variables or variables that may be highly correlated with each other. Thus, when using backward stepwise regression, it was found that the outcome variable/dependent variable of a higher level of knowledge of the HIV window period was predicted by

- Higher level of education (B=3.085, SEB =.917, p = .001)
- Higher level of self-efficacy for testing for HIV (B=1.635, SEB =.704, p = .022)
  For this model, the R^2 =.135, and the Adj R^2=.118—meaning 11.8% of the variance was explained by this model.

Discussion

Several implications arise directly from the findings, as follows:

- Tailoring e-health in the form of brief avatar videos on various topics for at-risk and vulnerable populations—i.e., for various consumers- may result in the e-health products being readily adopted and diffused as innovation while still using low-cost technology in the public domain (e.g., www.Goanimate.com).
- Health facilities with waiting rooms are venues where the avatar videos may find a captive audience—potentially impacting key factors such as stage of change to engage in risk reduction behaviors as well as self-efficacy
- True-False tests (i.e., the 51 items HIV Window Period Knowledge survey)—may represent a valuable addition to the presentation of an avatar video because they appear to reinforce each other as a brief intervention
- Peer educators can also access such survey and avatar video tools and utilize them in further diffusing the innovation of e-health on topics such as the HIV window period to encourage HIV testing and screening for HIV after an episode of unprotected sex

Study Limitations

It is essential to keep in mind how the level of health literacy may impact research. At least one participant checked "unsure" for every True-False question and was eliminated as an unreliable subject.

Conclusion

This study has demonstrated how e-health using avatar videos represents a viable way to fill the gaps in education to increase testing rates and produce informed consumers of testing options. The five-minute and 46-second avatar video on the HIV window period was well-received and emerged as a viable brief online intervention for increasing readiness to test for HIV and increasing self-efficacy for testing.

The HIV Window Period Knowledge survey emerged as an essential addition to the literature as it appeared to work in combination with the avatar video so that, together, they appeared to constitute an enhanced e-health intervention.

This study has identified critical next steps in practice and research that may ensure a meaningful place for avatar videos and such True-False surveys—where all the items are True—in the armamentarium of health educators, physicians, peer educators, and social networks where sexual concurrency is occurring and empowerment to reduce harm needs to occur.

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Confronting Uncertainty: Translational Cancer Research – Where Generosity of Imagination Embraces the Rigor of Medical Need. *Professor John F. DeCarlo*

Introduction

Cancers are defined by the speed of and number of cell divisions that occur, and how the process is no longer controlled and increases exponentially, leading to mutations, that eventually become cancerous. This is turn leads to an expansive, and in some cases, invasive modality. In fact, recent findings indicate that tumor cells contribute to the horizontal parasexual recombination and diversity of genetic materials with each other, increasing their resistance against the immune system and drugs, and the chances for deadly metastasis. More specifically, the cunning and clever behavior induced by natural selection is both daunting and impressive: cancer cells appropriate cellular and bodily processes including: vascular systems, stem cells, T cell regulators and macrophages of the immune system, and the wound healing mechanism in order to establish secondary tumor sites. They also suppress the gene responsible for tumor suppression. All this represents the aggressive and ruthless nature of the microtumor-environment where cancer cells and tumors ferment.

As such, cancers represent radically emergent and/or chaotic systems – or those that lie beyond explicable and predictable parameters of naturally complex systems. In fact, as there is neither a logic of discovery nor Bayesian priors and self-credences relative to probability charts based on initial conditions, momentum, and boundary conditions, Treverton's distinction between puzzles and mysteries seems relevant, in that, cancer's physical cultures are not a simple puzzle to be solved by collecting and analyzing information; rather, we are struck by the extreme and overall complexity and uncertainty of the information that we gather, making them not easily approachable, methodologically.

Accordingly, translational research is the process by which unmet medical needs in the cancer field are resolved by the combinational balance of pure science and patient driven research. In this respect, it offers a synthetic resolution of the classical double-bind between: creativity sponsored by free and unfettered thought and imagination, versus, considering the pragmatic limitations of the end-result, especially when human engineering considerations are involved. Significantly, such a post Bayesian methodology also transcends the limitations of a positivistic philosophy of science by bridging the gap between the context of discovery and the context of justification as evident in cutting-edge clinical studies in micro tumor environments and breast cancers.[1]

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[1] DeCarlo, John F. "Transcending Bayesian Self-Credences." Tropos Journal, University of Turin, Italy. Publication, Spring, 2018. The Bayesian response is the preferred corrective by the scientific community, but one encounters a trade off between the positing of meaningful–verifiable experience, and, the type of limiting self–referential implicit in the use of self–credences. In fact, the Bayesian response to methodological and epistemological issues posed by the Quine/Duhem paradox begs the question of the significant role played by various types of structural creative forms.

PART ONE – THE EMERGENCE OF CANCERS

Theories of Origin

One out six deaths, worldwide, are related to cancer. While there are probabilistic factors, such as age, gender, geographic locations around the world, and risks of exposure to radiation and other toxins and unhealthy lifestyle behaviors, there are no absolutes in terms who develops a cancer and who does not. In fact, there are no necessary or sufficient conditions that can be determined in mechanistic terms. In other words, a person who is a high-risk category can remain cancer free, and someone in a low risk category can succumb to a cancer. The explanatory relevancy of cellular components also changes over time depending on different states of progression. In these respects, not unlike the planetary origin of life, mystery and explanatory gaps remain.

In simple physical terms, cancers are defined by the speed and number of cell divisions that occur, and how the process is no longer controlled and increases exponentially, leading to mutations, that eventually become cancerous. In this regard, some cancers can be attributed to the inherent instability of the genetic process, complete with volatile phosphate DNA bonds and kinase pathways, and transposons or horizontally jumping genes, all which naturally mix up the genetic arrangements in order to induce change and innovation.[2] Also, chromatin, the DNA–protein complex in which genes reside, and lncRNA can affect genes by controlling chemical modifications on the chromatin. By doing so, they can affect the accessibility of the chromatin to the gene-transcribing machinery, and therefore affect gene activity.

But technically, there should not be mutations leading to cancerous developments. Replication errors and DNA damage are actually happening in the cells of our bodies all the time. In most cases, however, they don't cause cancer, or even mutations for they are usually detected and fixed by DNA proofreading and repair mechanisms.[3] Or, if the damage cannot be fixed, the cell will undergo programmed cell death to avoid passing on the faulty DNA. Mutations happen, and get passed on to daughter cells, only when these mechanisms fail. Cancer, in turn, develops only when multiple mutations in division-related genes accumulate in the same cell.

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[2] Over the past century researchers have identified many behavioral, environmental, and genetic risk factors that increase the likelihood an individual will get certain kinds of cancer, but an element of randomness remains when it comes to individual outcomes. Tomasetti, professor of oncology at Johns Hopkins, began to wonder whether an underappreciated cause of cancer happens even without the influence of carcinogens or cancer-causing genes: the infinitesimal and inevitable random mutations that occur during normal cell division. Also, a major driver of variation in cancer risk among different tissues could be explained by the number of cell divisions within that tissue over an individual's lifetime. Studying dozens of cancers, there was a correlation across five orders of magnitude of cancer prevalence showing that the higher the lifetime number of cell divisions in a tissue the higher its cancer rate. At one end of the plot were rare cancers of slow-growing bone tissue; at the other were common cancers of the colon, which replaces the cells of its entire lining roughly every four days.

[3] Ibid., Paul, 31. An average of just three small mutations occur each time one of your cells divide: an impressively low error rate of about one billion DNA letters copied, but once mutations have occurred they can create different forms of genes that produce altered proteins, which can alter the biology of the cells that inherit them.

A growing body of evidence indicates that cancers slowly develop for many years, before manifesting themselves as a distinct disease.[4] Over time, from both water and oxygen decay, and by chance, the genomes of cells randomly acquire so-called somatic mutations – nonheritable, spontaneous changes that are largely harmless. As those mutations spawn new mutations, over time, the chances that one of the mutations will become cancerous, increases. And then, there's only one cell that has the mutation, but perhaps, over the next ten years, there are something like 100 cancer cells. Finally, it grows exponentially.[5]

Conversely, cases can and do quickly follow physical injuries, especially where inflammation is involved, as well as emotional injuries/periods of intense stress, and exposures to high levels of radiation and other extreme toxins. In these cases, there are often multiple mutations, from the start, and often occur in faster-growing types of stem cells. For example, "It seems certain pathways in breast cells that are usually switched on by hormones during pregnancy are triggered by BRACA1 mutations and cause the cells to grow out of control."[6]

Underscoring the complexity in cancers, while quantum mechanics doesn't tell you what you can and can't know, it does tell you which questions you can and can't ask. If you ask what happens to one specific atom, you don't get a good answer, but if you ask what happens to 10^{20} of them, you get an answer that is only inaccurate to one part in 10^{100}. A counterpoint: if you try to explain and predict a cancer cell, you will also fail. But if you try to figure out a cluster of them in a tumor, you are overwhelmed with complexity, due to their parasexual synergy. In fact, recent findings indicate that tumor cells contribute to the horizontal genetic diversity of the tumor by exchanging a parasexual recombination of genetic materials with each other, increasing their resistance against the immune system and drugs, and the chances for deadly metastasis. Consequently, the average number of mutations in any given cancer can range from 10-20, to the hundreds and thousands.

The Multi-Dimensional Micro-Tumor Environment

Ninety-Five percent of deaths related to cancers stem from tumors that have metastasized, and initial relapse rates vary depending on cancer stage at diagnosis, but in about 70% of patients, tumors recur. Such a rate of recurrence indicates how biological homeostasis involves more than maintaining a functional state, as it entails a unity of action on a multi-dimensional and dynamic set of variables. With this in mind, within the context of tumor development a range of causal factors will be examined, including the methylation process, genetic mutations, cancers cell's manipulation of the immune system and macrophages, as well as their appropriation of the wound healing process.

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[4] Hormoz, Sahand. "Reconstructing the Lineage Histories and Differentiation Trajectories of Individual Cancer Cells In Myeloproliferative Neoplasms", Cell Stem Cell, March 4, 2021, 514-523.

[5] Kiang, Kevin. "Original Error: When Does a Cancer First Arise?" Harvard Medical School, News & Research, March 4, 21.

[6] Pensa, Sara. "Time-Resolved Single-Cell Analysis of Brca! Associated Mammary Tumourgenesis Reveals Aberrant Differentiation of Luminal Progenitors", Nature Communications, March 2021.

Tumor research extends back to Weinberg's work in the 1970s when much of cancer research was bound to the conviction that the key to understanding cancer was the reverse transcriptase enzyme, which is able to transcribe single-stranded RNA into DNA. From there, it was determined that DNA methyltransferases are a large group of enzymes that build DNA in cells and are involved in the regulation of gene expression. Related, methyl transfer is the S-Adenosyl methionine (SAM) consisting of the methylation of un-activated carbon atoms in primary metabolites, proteins, lipids, and RNA. The breaking of the SAM-methyl bond and the formation of the substrate-methyl bond happen nearly simultaneously. These enzymatic reactions are found in many pathways and are implicated in genetic diseases, cancer, and metabolic diseases. DNA methyltransferases also cause the aberrant DNA methylation of tumor suppressor genes, which become hypermethylated and transcriptionally silent in some blood cancers.

However, during DNA replication most DNA polymerases can "check their work" with each base pair that they add by a type of proofreading. If the polymerase detects that an incorrectly paired nucleotide has been added, it will remove and replace the nucleotide right away, before continuing with DNA synthesis. While many errors are corrected by proofreading, a few slip through and mismatch repair is designed to occur right after new DNA has been made, and to remove and replace mis-paired bases. Mismatch repair can also detect and correct small insertions and deletions that happen when the polymerases "slips," losing its footing on the template^22squared.

Weinberg was also an important figure due to his discovery of the oncogene, Ras, and the first tumor suppressor gene, Rb. The p53 gene like the Rb gene, is a tumor suppressor gene, i.e., its activity stops the formation of tumors. If a person inherits only one functional copy of the p53 gene from their parents, they are predisposed to cancer and usually develop several independent tumors in a variety of tissues in early adulthood. This condition is rare, and is known as Li-Fraumeni syndrome. However, mutations in p53 are found in about half of all tumor types, and contribute to the complex network of molecular events leading to tumor formation.

The amount of information that exists on all aspects of p53 normal function and mutant expression in human cancers is now vast, reflecting its key role in the pathogenesis of human cancers. The p53 gene has been mapped to chromosome 17. In the cell, p53 protein binds DNA, which in turn stimulates another gene to produce a protein called p21 that interacts with a cell division-stimulating protein (cdk.2). When p21 is complexed with cdk2 the cell cannot pass through to the next stage of cell division. Mutant p53 can no longer bind DNA in an effective way, and as a consequence the p21 protein is not made available to act as the 'stop signal' for cell division. Thus, cells divide uncontrollably, and form tumors, reflecting its key role in the pathogenesis of human cancers. Most attempts to target p53 involve trying to boost its level, but they have not been too successful. Also, since p53 is involved in many cellular processes, stimulation induces side effects.[7]

While mutations in p53 are found in about half of all tumor types, and contribute to the complex network of molecular events leading to tumor formation, their statistical rate bears out that they

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[7] Service, Robert. "Rescuing the guardian of the genome". Science, Oct. 7, 2016, 26-28.

are neither necessary nor sufficient cause for cancerous development, and that a mutated p53 is just one component of a network of events that culminate in tumor formation. Cancer cells can also manipulate the p53, so therapeutic strategies against tumor immunosuppression mainly focus on blocking immune checkpoint receptors, enhancing T-cell recognition and neutralizing inhibitory molecules. Although immunotherapies based on these strategies have improved the clinical outcomes, immunological nonresponse and resistance are two barriers to tumor eradication. But revealing another cellular pathway that is appropriated by cancer cells, a promising development has occurred related to metastasis.

Previous studies from the Massaque lab have shown that a molecule called L1CAM is necessary for numerous types of cancer cells to successfully metastasize to organs. Normal healthy tissues do not typically make L1CAM, but advanced cancers often do. Using organoids,[8] researchers were able to show that simply separating cells from their neighbors was enough to trigger L1CAM production. Similarly, in metastasis, cells detach from their neighbors and adopt a migratory behavior to reach new locations. Researchers suspected that the wound repair program equips both types of cells to survive this anchorless state. In the first case, it allows cells to move into the breach and make new tissues; in the second, it enables metastatic cells to detach and colonize new destinations. In fact, these L1CAM-making cells *were* necessary for tumors to metastasize. This led the researchers to conclude that the stem cells that form primary tumors are different from the ones that form metastases. Hence, L1CAM is a promising therapeutic target for treating metastatic cancer, for "We now understand metastasis as the regeneration of the wrong tissue — the tumor — in the wrong place — distant vital organs," says Joan Massaque.[9]

Macrophages, best known for gobbling up bacteria and infected cells, are one type of immune cell that tumors can turn into pro-cancer collaborators. Inflammatory macrophages can also help alert other immune cells, such as killer T cells, to the presence of infected or diseased cells. But macrophages can also help tamp down inflammation and stimulate wound healing, and tumors take advantage of these roles by trying to fool the immune system into thinking it's a wound that never heals. When immature macrophages enter the tumor, the tumor then secretes suppressive factors that reprogram these helpful immune cells into suppressor cells, so instead of helping eradicate the tumor these immune cells help maintain the tumor.

This extended meditation on how cancer cells manipulate the immune system and coopt the use of the wound healing process strongly indicates how biological homeostasis involves more than maintaining a functional state, as it entails a unity of action, and with onset of a cancer some type of cooperation and synchronization is lost. RNAs (lncRNAs) are also reported to be involved in various processes of the immune response in the tumor microenvironment (TME) to promote tumor immunosuppression.[10] By the same token, mitochondrially located lncRNA growth-arrest-

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[8] An organoid is an artificially grown mass of cells or tissue that resembles an organ.

[9] Ganesh, Karuna. "L1CAM Defines the Regenerative Origin of Metastasis-Initiating Cells in Colorectal Cancer" in *Nature Cancer*, on January 13, 2020. The Novina Dana Farber Lab also discovered an intronic mircoRNA that performs the tumor suppressor function of its host loci on the DNA molecule.

[10] Luo, Y. Yang, J. Liu, X. Yu, C. Hu, J. Shi, H. "Long Non-coding RNAs: Emerging Roles in the Immunosuppressive Tumor Microenvironment", Oncology, Jan. 31, 2020.

specific 5 (GAS5) has been identified as a tumor suppressor in maintaining cellular energy homeostasis, as it negatively correlates with levels of its associated mitochondrial metabolic enzymes in tumors and benefits overall survival in individuals with breast cancer.[11] Developments in characterizing the expression profiles and functions of lncRNAs in brain tumors have also generated excitement in the field of brain tumor research and therapy over the past few years. In fact, lncRNAs have been noted to have either tumor suppressive or oncogenic functions in different brain cancers, making them attractive therapeutic targets and biomarkers for personalized therapy and precision diagnostics. Hence, in keeping with the notion that imbalance between different kinds of causal dimensions, including the genetic, lnc RNA, and Mitochondrial lncRNA might be at the root of the origin of cancer, these various dimensions will be explored in greater depth and detail in terms of their unity of action.

PART TWO: THE UNITY OF ACTIONS: EPIGENETIC TRANSCRIPTION, RNA, LNCRNA & MITOCHONDRIA

DNA & RNA Transcription

In the 1980s the great hope in medicine was gene therapy and/or precision medicine. As the human genome, once estimated to be a large as 60,000 genes, was whittled down to about 20,000, there was the expectation that particular genes could easily be identified in relation to particular diseases and ailments, and easily turned off. However, of the 20,000 protein coding genes, only about 2000 have been studied in depth, and over 5000 have never been examined. Second, targeting genes is tricky and complex, especially as there are often hundreds, if not thousands of genes involved in a given cellular and organ activity. And even if one is able to correctly isolate and indict a particular gene as being responsible for an illness or disease, once it is turned off or eliminated it is no longer able to participate in other bodily functions. Consequently, as recently reported by Francis Crick Institute, researchers are calling for greater awareness of unintended consequences of CRISPR gene editing, which allows scientists to remove and replace sections of DNA in cells.[12] For example, in a study which examined the role of the OCT4 protein in human embryos during the first few days of development, while the majority of the CRISPR induced mutations were small insertions or deletions, in approximately 16 % of samples there were large unintended mutations.[13]

Genes are also interacting with the environmental heredity, via diet, climate, land masses, and disease.[14] In these respects, DNA tells only a portion of our biological historical nature. In fact,

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[11] Sang, Lingjie. "Mitochondrial Long non-coded RNA GAS5 tunes metabolism in response to nutrient stress", in Nature Metabolism, 04, January 2021.

[12] The Novina Dana Farber Lab also notes that a major challenge for genome editing is that such "editors" have many unintended off-target effects including promiscuous binding of Cas9 to loci with high sequence similarity to the intended target site and unspecific enzymatic activity of editors leading to unwanted modifications. The lab recently described a novel tool for targeted DNA methylation by tethering a "split-fusion" methyltransferase to an endonuclease-deficient mutant Cas9. Its split-fusion approach minimizes off-target effects by ensuring that enzyme activity is specifically reconstituted at the targeted locus.

[13] Niakan, Kathy. "Researchers call for greater awareness of unintended consequences of CRISPR gene editing", Cambridge University Research, April 9, 2021.

[14] Zimmer, Carl. *She Has Her Mother's Laugh*, 2018.

RNA's long primeval history involves its self-replicating molecule combining amino acids into proteins, and it creating a double-helix DNA molecule to store its complex intracellular regulation. When the Human Genome Project was complete in 2001 it was a major surprise that protein-coding genes accounted for as little as 1-2% of the human genome, leading the remainder to be termed as genetic noise or junk DNA. But it is now understood that most of the DNA, while non-protein coding, is still transcribed into RNA.

Accordingly, epi-genetics, which lends insight into the functions of the RNA genome, as per gene expression, and gene splicing to produce an even greater number of proteins, examines how the overall epi-genome interacts within its given environment. More specifically, "Epigenetics is what enables every cell to act differently despite having the same DNA sequence."[15] In this respect, while cells in the body inherit the same DNA, they don't use all of it. Instead, they transcribe different regions based on their needs in response to their environment. Epigenetics regulates this process through various means, such as small chemical modifications to DNA or to the chromatin and histone proteins that package DNA. In fact, at any given moment in the human body, in about 30 trillion cells, DNA is being "read" into molecules of messenger RNA, the intermediary step between DNA and proteins, in a process called transcription.[16]

Transcription begins as proteins called RNA polymerases are recruited to specific regions of the DNA molecules and begin skimming their way down the strand, synthesizing mRNA molecules as they go. During the transcription sequences of nucleotides, introns or InCoding regions are set aside, and remaining segments called exons are spliced together and introns are removed by RNA splicing, as RNA matures. In other words, the introns are not expressed in the final messenger RNA (mRNA) product, while exons go on to be covalently bonded to one another in order to create mature mRNA. Not surprisingly, considering their long primeval history, research suggests the products of transcription — namely, RNA molecules, regulate their own production through a feedback loop. Too few RNA molecules, and the cell initiates transcription to create more. Then, at a certain threshold, too many RNA molecules cause transcription to draw to a halt.[17]

In molecular biology, a transcription factor is a protein that controls the rate of transcription of genetic information from DNA to messenger RNA, by binding to a specific DNA sequence. For example, animal cells undergo fundamental shifts in gene expression when there are changes in the oxygen levels around them. These changes in gene expression alter cell metabolism, tissue re-modeling, and even organismal responses such as increases in heart rate and ventilation. In a similar way, circadian oscillators within individual cells respond differently to entraining signals and control various physiological outputs, such as sleep patterns, body temperature, hormone

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[15] Greer, HMS assistant professor of pediatrics at Boston Children's Hospital.

[16] Crick has aptly noted that the flow of information from DNA to RNA to protein is fundamental to all planetary life forms. Nurse, Paul. *What is Life?,* 135.

[17] Through a series of modeling and experiments at the lab bench, researchers have confirmed their hypothesis that the effect of RNA on transcription is due to RNAs molecules' highly negative charge. It was predicted that initial low levels of RNA enhance and subsequent higher levels dissolve condensates formed by transcriptional proteins. Because the charge is carried by the RNAs' phosphate backbone, the effective charge of a given RNA molecule is directly proportional to its length, insuring its accuracy.

release, blood pressure, and metabolism. Changes in daylight, temperature, and metabolism are similar types of transcription factors.

MicroRNAs are small RNA molecules that regulate the expression of certain genes through interaction and protein production with mRNA targets. But beyond gene transcription and protein production, RNA also functions as regulators and supervisors of cellular functions, so as to prevent glitches in cellular performance that can lead to defective proteins or insufficient protein production which are involved in most biological functions of the body. For example, a group of proteins, including: A-Raf, B-Raf and C-Raf transmit signals that control proliferation, differentiation, and survival in every cell in the body. Raf proteins, especially B-Raf, when not properly regulated by RNA, are well-known cancer drivers. Hence, Raf's full name: rapidly accelerated fibrosarcoma. In the normal state, the B-Raf has three parts, including: Mek1, B-Raf, and 14-3-3, whereas the slight difference in the abnormal, which causes the entire protein to get stuck in ON position, is that there an additional B-Raf. As a result of this mutation, the Mek1 continues to send its growth promoting signal, uncontrollably.

In order to fully grasp the complexity of these types of RNA, let's take pancreatic cancer as an example, as it is one of the most widespread of cancers due to the fact that the natural rate of cell replication is one of the highest in any of the human organs, and since replication involves careful copying and transcription of genetic structures, errors and mutations are inevitable. Accordingly, an integrated analysis was performed of miRNA and mRNA expression data to explore the deregulation of miRNA and mRNA and regulatory processes underlying pancreatic cancer. Combining mRNA and miRNA expression data with miRNA, target predictions were constructed to infer new miRNA regulation activities in pancreatic cancer. The results show 42 differentially expressed miRNAs, 1376 differentially expressed mRNAs were identified by combining three expression profiles of miRNA and mRNA separately in pancreatic cancer, and 146 miRNA target genes were found in the gene list of integrated mRNA expression profiling based on bioinformatics prediction. These findings may provide new insight into the knowledge of molecular mechanisms of pancreatic cancer and the development of novel targeting therapies, but also indicate the multiple levels of complexity.

Long Non-Coded RNA Complexities & Unknowns

On yet another level, in addition to the complex and dynamic functions of RNA, research provides some insight into the potential roles of the thousands of lncRNAs that are not translated into any proteins which are common in mammals and have mystified scientists for decades. Technically, long non-coding RNAs are loosely described as non-coding protein-coding transcripts of more than 200 nucleotides which promote and inhibit gene expression via a variety of mechanisms, and like protein coding mRNA, the majority of lncRNA's are transcribed by RNA polymerase. However, epigenetics reveals that all cells of the immune system rely on an integrated and dynamic gene expression program that is controlled by both transcriptional and post-transcriptional

mechanisms, which in turn, are regulated by lnc non-coding RNAs.[18] In this respect, as proteins might be conceived of workers in a factory, DNA is the supplies and materials, and RNA are the managers and supervisors; and as will also be seen - lncRNA can be considered Upper Management.

Moreover, with lncnon-coding RNA also independently performing activities of proteins and enzymes, and its circular shape directly communicating with the immune system, researchers wonder how its specific sequences provide other new kinds of instruction for the cell.[19] In fact, the field of epigenetics is witnessing a burgeoning paradigm of lncRNA-mediated control of gene expression and the differentiation and function of innate and adaptive cell types.[20] Next-generation sequencing also provides a more complete picture of the composition of the human transcriptome indicating that much of it contains poorly understood non-protein-coding transcripts.[21] In sum, the human genome may transcribe over 100,000 lncRNAs, mediating their functions through interactions with proteins, RNA, DNA, or a combination of these, and are implicated in a variety of disease states, such as cancer.

Mitochondria & LncRNA

Mitochondria is a molecule capable of releasing energy very quickly, but beyond being the bodily 'batteries' in providing the needed energy for our cells to function by converting the food that we eat into ADP, mitochondria's function is effected by the internal and external roles of Nuclear Factor kappa B, which maintains mitochondrial structure or activity.[22] Accordingly, mitochondrial metabolism is fully dependent on factors encoded by the nuclear DNA, including many proteins synthesized in the cytosol and imported into mitochondria via established mechanisms.[23] Nuclear factor kappa B is an ancient protein transcription factor and considered a regulator of innate

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[18] LncRNA plays a vital role in cells, tissues and organs, including: Physiologic cellular processes, Genomic imprinting, Inactivation of chromosome X, Maintenance of pluripotency, Formation of different organs via changes in chromatin, transcription, and translation BBA, Gene Regulatory Mechanisms, 2020.

[19] Chang, Stanford CheM-H, 2019.

[20] While traditional biochemical methods to define RNA-protein interactions are limited by low throughput and is biased towards identifying the most abundant RNA-protein interactions, the Novina Lab has developed technologies integrated into a platform that can efficiently define lncRNA function by systematically identifying their associated proteins. For example, non-coding RNA binding to transcription factors or histone modifying enzymes implicates those RNAs in transcription or locus control, respectively. Moreover, by screening fragments of a disease-relevant lncRNAs against the human proteome, their platform can define the RNA sequence and structural determinant that specify protein interaction.

[21] Robison, E.K., Covarrubias, S. Carpenter, S. "The How and Why of lncRNA Function: An Innate Immune Perspective", Biology, April 18, 2019.

[22] During the heyday of single-celled life about 2 billion years ago, the forerunners of mitochondria were bacteria that found a niche inside larger cells, providing them with energy. This symbiosis was so beneficial that it likely powered the evolution of multicellular organisms. As a relic of their bacterial origins, mitochondria still carry their own small genome, separate from the cellular genes in the nucleus, Quanta Magazine, Social Mitochondria, Whispering Between Cells, 7, 2021.

[23] Bola De Paepe, Steve Lefever, & Pieter Mestdagh. "How long noncoding RNAs enforce their will on mitochondrial activity: regulation of mitochondrial respiration, reactive oxygen species production, apoptosis, and metabolic reprogramming in cancer", Current Genetics volume 64, 2018, 163–172.

immunity, and its signaling pathway links pathogenic signals and cellular danger signals organizing cellular resistance to invading pathogens. The Nuclear Factor kappa B also plays a role in cell death, as Howard Chang at Stanford notes that his earlier research revealed that the aging process was not one of decay and deterioration, but rather a metaphorical on/off switch at the biochemical level, organized, directed by a key regulator, namely, Nuclear Factor Kappa B.

While it has been well documented that our adrenals glands convert cholesterol and release cortisol, causing a bodily response via mitochondria in all cells & organs,[24] there are now correlations between neurologically processed psychological stress and deterioration of mitochondria cells & organs.[25] In fact, to maintain homeostasis of the entire cell, an intense cross-talk between mitochondria and the nucleus, mediated by encoded noncoding RNAs (lncRNAs), as well as proteins, is required. Mitochondria-associated lncRNAs have also newly been discovered to work in concert with transcription factors and epigenetic regulators to modulate mitochondrial gene expression and mitochondrial function.[26] There also occurs a culmination of an over-production of Reactive Oxygen Species ROS – with the end result of cell toxicity.[27] These negative effects of ROS from oxidation, have been offset by supplementing the subjects with antioxidant enzymes in the gut. In this respect, emphasis is placed on the involvement of lncRNAs in cancer metabolism, as tumor cells rely heavily on modifications of mitochondrial functioning as an essential component for sustained tumorigenesis and cancer progression. Due to their key role in cancer progression, they represent potential targets of innovative lncRNA-based treatment strategies.[28]

These points regarding mitochondria and its RNA regulators being involved in a vital and deeper inter-bodily physical sense of connection are compelling, and also suggest that one very fundamental job of sleep — perhaps underlying a network of other effects — is to regulate the ancient biochemical process of oxidation, by which individual electrons are snapped on and off

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[24] As per stress, as noted by Sapolsky at Stanford University, human beings, unlike other species, have difficulty turning off the fight or flight response.

[25] It has been explored and speculated how biological and existential influences interplay with each other and affect the regulation of the immune systems from cells, tissues, and organs. John F. DeCarlo, "The Symbolic Link Between Bio Tech and Neuro Tech: An Imaginative Melding of Biological & Existential Homeostasis" in THE JUNKYARD: A Scholarly blog devoted to the study of the Imagination, 12, 2020.

[26] Blumenthal-Perry et al. "Retrograde signaling by a mtDNA-encoded non-coding RNA preservesio mitochondrial bioenergetics", Communications Biology, Volume 3, Article Number: 626, October 30, 2020.

[27] As per the issue of ROS, we now have the complete atomic structure of MnSOD Via Neutron diffraction of crystals and how it guards against Oxidative Stress caused by an imbalance between production and accumulation of Oxygen reactive species. This is done by the Manganese superoxide dismutase/antioxidant enzyme which protects the Mitochondrion by a mechanism involving Electron and proton transfers to lower ROS levels in mitochondria (University of Nebraska Medical Center & Department of Energy Oak Ridge National Laboratory, April 6, 2021).

[28] A non-exhaustive list of lncRNAS including: ANRIL, AScmtRNA, H19, HOTAIR, LincRNA-p21, MALAT1, RMRP, SAMMSON, and VL30 have emerged as potent regulators of mitochondrial metabolism in Cell, June 4, 2020.

with molecules in service to everything from respiration to metabolism.[29] Sleep, the researchers imply, is not solely the province of neuroscience, as previously asserted by Hobson in Nature: "Sleep is of the Brain, by the brain and for the brain" - but something more deeply threaded into the biochemistry that knits together the animal kingdom. Sleep loss alters metabolism in humans, as noticeable in changes in the microbiome, and there are related connections to diabetes and metabolic syndrome and other chemical processes. Just what the findings mean still needs to be explored, but they suggest that sleep is vitally important to the body's regulation of oxidation, particularly in the gut.

PART THREE: Uncertainty of Breast Cancers: Risk Factors and Treatment Options

While developments in immuno therapies and protein evolution are significant, it is still imperative that researchers search for what is really fundamental in explanatory terms, while at the same time accepting the fact that there are not reducible epistemological or ontological factors; hence, one should seek a new explanation of how one offers a pluralistic description and a corresponding explanation of multi-leveled complex biological systems. However, the plots thicken when we try to gather and access the criteria to establish which elements of the system and their interactions, together with external factors, acquire the most causal powers.[30] In order to illustrate this point, cutting-edge statistics will be offered regarding the risk of women developing breast cancers, which is the second most common cancer among women in the United States.

A recent worldwide fine-mapping study, involving over 450 departments and institutions, compared the DNA of 110,00 breast cancer patients against some 90,000 healthy controls. In greater detail than was previously possible, they identified 352 risk variants, and have identified 191 genes that they target, with reasonable confidence. More specifically, 15% of the variants predispose women to the rarer and milder type of estrogen-receptor breast cancer, which tests positive for the hormone receptor HR+ and negative for the HER2 receptor, and patients usually respond well to treatment. At the same time, nine different variants regulate the same gene, the Estrogen Receptor (ESR1). Strikingly, out of the 191 genes, less than one out of five had been previously recognized[31]

While each genetic variant only increases the risk of developing breast cancer by a very small amount, added together, these will allow researchers to fine tune testing and give women a much clearer picture of their genetic risk. In the meantime, there are at least three major risk variants, including BRAC1 mutations, family history, and smoking background. But as will be discussed, these risk factors need to be carefully calibrated.

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[29] Yijing Zhao, Lemeng Sun, Rachel R. Wang, Ji-Fan Hu, Jiuwei Cui. "The effects of mitochondria-associated long noncoding RNAs in cancer mitochondria: New players in an old arena", Critical Reviews in Oncology/Hematology Volume 131, November 2018, 76-82.

[30] Bertolosa, Ibid., 40.

[31] Fachal, Laura. "Detailed Genetic Study Provides Most Comprehensive Map of Risk to Date of Breast Cancer Risk", Nature Genetics, 52, Jan. 7, 2020, 56-73.

In some cases, genetic variants are located within the genes, altering the protein. In this regard, BRAC1 mutations significantly increase the risk of developing breast cancer at a younger age. In fact, many women who discover they carry the faulty gene choose to have a preventive mastectomy. But not all woman who have BRAC1 mutations will go on to develop cancer, so for some, this life-changing surgery may be unnecessary, or, could at least be delayed until early warning signs are detected.

Such a breakthrough recently occurred, to some extent. Researchers found that having BRAC1 mutation triggered certain pathways to be switched on in a type of stem cell called luminal progenitor breast cell that are only activated during pregnancy, so it was thought that markers of these cellular changes could be used to monitor people who are known to be increased risk for breast cancer. Significantly, a group of women who had mastectomies performed were tested, and only 30 percent tested positive for the luminal progenitor, suggesting that the other 70 percent may have been at a lower risk of already being on the path of tumor development when they had the surgery.[32]

This stem cell marker is consistent with sociological data from the two areas in the United States[33] that have had the highest rates of female breast cancer, which have also been noted for the high rate of extended use of birth control pills, which feigns the body into thinking the woman is pregnant, hence activating estrogen in preparation of breast feeding. This also correlates with the fact that most genetic variants occur outside the genes, sometimes regulating the functions of genes, turning their volume up or down, or even off.

Family history, or the lack thereof, can also be factored into the equation. Current estimates of breast cancer risk provided to women when they are found to have a breast cancer mutation are actually appropriate only for those who are at high risk and not for women from the general population. Hence a study was done to enable health care providers to better assess the risk of breast cancer in women — many of whom have no family history of breast cancer — and provide more appropriate risk management strategies. More specifically, in the CARRIERS Consortium study, researchers conducted hereditary cancer genetic testing of 12 established breast cancer genes in 32,247 women with breast cancer and 32,544 women of similar ages without breast cancer from several large U.S. population-based studies. By analyzing women from these population-based studies, researchers were able to better understand how frequent mutations were among the various breast cancer genes and more accurately estimate the risk of developing breast cancer for women in the general population with mutations in those genes. The results indicated that: "The risk of developing breast cancer is generally lower for women without a family history of the disease." "When we looked at all women, we found that 30% of breast cancer mutations occurred in women who are not high-risk." Dr. Couch says that before this study, these women were not able to receive accurate estimates of their breast cancer risk. He also noted that these findings were similar for white, black and Hispanic women.[34]

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[32] Ibid., Fachal.
[33] Nassau County, NY, and La Jolla, CA.
[34] Couch, Fergus. "Study Findings Improve Accuracy of Breast Cancer Risk Estimates for Women With No Family History", Mayo Clinic, 21-Jan-2021

In the United States, cigarette smoking is associated with a higher incidence of breast cancer spread, or metastasis, lowering the survival rate by 33% at diagnosis. While cigarette smoking's link to cancer is well-known, per the role of nicotine, a non-carcinogenic chemical found in tobacco, scientists at Wake Forest School of Medicine have found that nicotine promotes the spread of breast cancer cells into the lungs. A team first studied 1,077 breast cancer patients and found that current smokers or former smokers have a higher incidence of lung metastasis compared to patients who never smoked. Then, using a mouse model of breast cancer metastasis, the researchers discovered that persistent exposure to nicotine generates an inflammatory microenvironment in the lungs characterized by an influx of activated neutrophils, a type of immune cell, to create a pre-metastatic niche, which releases a protein called STAT3-activated lipocalin 2 (LCN2) from the neutrophils to induce metastatic growth. Even after quitting nicotine for 30 days, the incidence of distant metastasis was not reduced, suggesting an ongoing risk for breast cancer patients who are former smokers. Researchers also looked for a drug that might block this accumulation of neutrophils and identified salidroside, a natural compound found in the plant Rhodiola Rosea. This compound, which has anti-inflammatory, anti-cancer and anti-viral properties, significantly decreased the number of pro-tumor neutrophils and subsequently reduced the incidence of lung metastases in mice, although more research is needed.[35]

Within this overall context, even if you have the BRAC1 mutation, there is only 30 percent chance of developing a cancer, with family history a 70 percent chance of developing a cancer, and with smoking patterns the risk is raised 33 percent, so in the best-case scenario, one's risk for breast cancer is lowered 70 percent, or that if one suffers from all three: 30 x 70 x 33 = 68 percent. In sum, breast cancer is a polygenetic disease, with a combination of genetic variants or genes causing the disease, with a combination of them acting together to increase the likelihood of an individual developing one.

On a positive note, the Department of Radiology at Cambridge University has devised a scan to measure how fast the patient's tumors were metabolizing a naturally occurring molecule called pyruvate, and based on that, were able to detect differences in the size, type and grade of tumors, all a measure of how fast growing, or aggressive the cancer is. More specifically, even normal cells convert pyruvate into lactate as part of the metabolic process that produces energy and the building blocks for making new cells. These insights, combined with advances in genetic testing, could in the future allow doctors to better tailor treatments to each individual, and detect whether patients are responding to treatments, like chemotherapy, earlier that is currently possible.[36]

At the same time, evidenced by the aforementioned recent world-wide fine tune mapping, over time, researchers will be able to build a much more detailed picture of how breast cancer arises and develops, but the sheer number of genes involved, most of which have not been studied before, also indicates how complex the disease is. In this respect, Treverton's distinction between puzzles

[35] Watabe, "Scientists Discover Link Between Nicotine and Breast Cancer Metastasis", Nature Communications, Wake Forest Baptist Health, Jan, 20, 2020

[36] Brindle, Kevin. "Magnetized Molecules Used to Monitor Breast Cancer", Cambridge University Research, Jan. 4, 2021.

and mysteries seems relevant, in that, cancer's physical cultures are not a simple puzzle to be solved by collecting and analyzing information; rather, we are struck by the overall complexity and uncertainty of the information that we gather.

As per treatment options, especially with those with HR+/HER2 receptor in advanced stages, few treatment options existed until the recent emergence of a new class of drugs known as CDK4/6 inhibit. These inhibitors showed remarkable efficacy in blocking tumor growth, halting disease progression and boosting survival, leading the U.S. Food and Drug Administration to fast-track the approval of three such drugs to date. Today, they are used as frontline medications for patients with advanced HR+/HER2- breast cancers. While these drugs have the same biological targets and are often used interchangeably, a growing body of evidence suggests they have important underlying differences which are indicative of the interwoven nature and scope of cancer developments. In this regard, one inhibitor in particular, abemaciclib, exhibited unique and potentially advantageous therapeutic activity that could help inform the design of better treatment strategies, including optimizing combination therapies and circumventing drug resistance.[37]

Over the course of several years, the team profiled the molecular activity of each of the three CDK4/6 inhibitors across a wide range of doses and dosage timings in cell lines and animal models. They analyzed the effects of these drugs on cellular growth rate, viability, gene expression and protein activity, among other indicators. Tests on a panel of 35 different breast cancer cell lines revealed a key difference in the drugs' biological activity. As expected for CDK4/6-specific inhibitors, the analyses showed that all three agents stopped the growth of cells. At higher doses, however, only abemaciclib caused significant cancer cell death, suggesting the drug may be affecting proteins other than only CDK4/6. Palbociclib and ribociclib had minimal effects on cell death even when administered at higher doses. Further analyses confirmed that abemaciclib has a unique profile. The drug most potently inhibited CDK4/6, and at high dosages, it also affected the activity of other proteins, acting in some ways as a pan-CDK inhibitor. Tests in mice transplanted with human breast cancer tumors affirmed these observations.

In additional experiments, the researchers developed breast cancer cell lines resistant to the drug palbociclib, a common occurrence that also affects patients in the clinic. These cell lines were unaffected by ribociclib, with cells continuing to grow and proliferate, but did respond to treatment with abemaciclib. Cells engineered to be unaffected by CDK4/6 inhibition also responded to abemaciclib, but not the other two drugs—further evidence of abemaciclib's pan-CDK activity.

Based on these results, the authors suggest that abemaciclib may have additional therapeutic benefits for a subset of tumors that remain unresponsive to treatment or have grown resistant to other CDK4/6 inhibitors. They cite a case study in which a patient's metastatic tumor reappeared after she developed resistance to palbociclib. She was switched onto abemaciclib, resulting in a

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[37] Sorger, and co-first authors Marc Hafner and Termeer Fellow Caitlin Mills, partnered with investigators based at the Termeer Center for Targeted Therapies at Mass General to form a cross-disciplinary team with complementary basic science and clinical expertise. Published in Cell Chemical Biology, Aug. 15, 2020. The study highlights the complex and often surprising ways in which independent but complementary research by scientists in industry and academia can advance precision medicine.

notable decrease in tumor size, and continued to be successfully treated with the drug. However, the authors caution that their study was based on preclinical, laboratory-based experiments and their findings do not present conclusions that should be used for clinical decision making at this time. Rather, their data provide the necessary foundation for the design of clinical studies that can carefully and thoroughly assess which strategies for CDK4/6 inhibitor treatment would be of greatest benefit to patients.[38]

Nonetheless, the current success of abemaciclib suggests that its potency is related to its ability to effectively connect with a broad cyclin-dependent kinases (CDKs) family of serine/threonine kinases that orchestrate the precise spatiotemporal control of a multitude of biological functions related to cell cycle progression. In addition, they have been demonstrated to coordinate DNA damage responses by recognizing aberrant DNA structures and activating checkpoint and repair mechanisms. These regulatory circuits are co-opted by virtually all malignancies to promote their own growth and survival, rendering CDKs compelling targets for pharmacological inhibition.

CONCLUSION:

The overall discussion of the various intra and inter cellular dynamics, along with the multi-dimensional aspects of tumor suppression, or the lack thereof, along with the complex emergence of breast cancers, has revealed that causal complexity implies the coexistence of different types of causal dependencies. These include the roles of DNA, RNAs, lncRNA, and mitochondria and roles of sleep and metabolism.

Significantly, the newly burgeoning sub-field has not only identified the long non-coding RNA as being in every human cell and involved with gene expression in a highly lineage-specific manner, but with the control of differentiation and function of innate and adaptive cell types; various processes of the immune response in the tumor microenvironment to promote tumor immunosuppression; and in changes in expression following vaccination that are correlated to antibody production.

Consequently, one wonders where exactly a foundational unity of action lies on the bio-chemical levels, and how they inter-relate with psycho-neurological components of the person rooted in a social-cultural physical milieu. All this raises issues regarding emergence of cellular communications, self-assembly, and the plasticity of tissue development. Consequently, understanding the dynamic emergence of biological organizational patterns might be the ultimate scientific and philosophical challenge.[39]

Thus, medical science needs to embody states of epistemic creativity to intervene in cancers' radically forms of emergence, [40] transcending not only the reductionism of physical chemistry,

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[38] Jiang, Kevin. "Head to Head", Harvard Medical School, News & Research, August 21, 2019.
[39] Ibid.,Bertolosa, 87.
[40] Sapolsky notes how the single cell protozoa toxoplasmosis evolved as a parasite that reproduces in the gut of a cat and has manipulated the gene(s) that control the neural circuitry of a rat's neurological fear-reward center so that the rat not only does not fear the cat's pheromones but is sexually excited by its odors, insuring the protozoa of its

biological genetics and the teleological language of traits, functions and purposes, but also Bayesian probabilistic formulations.[41] Hence, a philosophy of cancer is proposed not of mechanistic causalities and micro circular feedback loops, but a translational science which embraces the synchronization of dimensional field constitutions and unity of actions as evident in cutting-edge clinical studies in micro tumor environments and breast cancers.

Accordingly, translational research is the process by which unmet medical needs in the cancer field are resolved by the combinational balance of pure science and patient driven research. In this way, it offers a synthetic resolution of the classical double-bind between: creativity sponsored by free and unfettered thought and imagination, versus, considering the pragmatic limitations of the end-result, especially when human medical engineering considerations are involved.

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continued existence. He also notes that the rabies virus in effect understands rage and aggression better than any philosophical, psychological or neurological theory. To the latter point, the 2020 Nobel Prize in science was awarded to two researchers who figured out how to transfer and apply the CRISPR technique that bacteria had mastered billions of years ago in terms of them monitoring and snipping the DNA of dangerous viruses.

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The Effects of Social Media Product Messages on Brand Loyalty:Young American Consumers' Perceptions toward Luxury Brands. *MyatNoe PwintPhyu & Christina Chung*

Anisfield School of Business Ramapo College of New Jersey 505 Ramapo Valley Road Mahwah, NJ 07430

Abstract

This study examines young consumers' behavior towards luxurious products and how product messages on social media impact consumers' decisions towards luxurious products. Using the theory of reasoned action, hedonic and utilitarian values, and self-congruity concept, a research model has been created to measure the relationships among several constructs. One hundred data were collected from college students using an online survey. Findings explain that social media hedonic and utilitarian product messages positively affect attitude toward brand information, while social media hedonic messages and luxury brand imagery congruity influence word of mouth (WOM). Brand loyalty is positively affected by attitude toward brand information, WOM, and luxury brand imagery congruity. Brand loyalty influences intention to join a brand page and purchase intention. As managerial suggestions, to increase brand loyalty, the primary key to increasing purchase intention, marketers should increase product information on social media, interact with consumers for WOM, and understand consumers' brand imagery perceptions.

Introduction

This study examines young American consumers' behavior towards luxurious products and how product messages on social media impact consumers' brand loyalty and purchase intention. Social media users have evolved from passive information seekers to active information seekers throughout the years. Nowadays, any social media user can create content and distribute information or knowledge online (Liu et al., 2020). Not only is social media used as a platform to connect and share information and memories with friends, but social media is also increasingly used by marketers to reach their target markets (Chung and Austria, 2012). Social media is now a reality for marketers and not a trend anymore. (Williamson, 2010; Chung and Austria, 2012). According to the Social Media Marketing Industry Report, social media marketing has increased exposure by 88%, increased traffic by 79%, generated leads by 69%, developed loyal fans by 61%, and improved sales by 60% (Stelzner, 2021). Marketers with more years of social media marketing experience have a better result in increasing consumer interactions and generating brand loyalty (Stelzner, 2021).

Social media has changed the way people communicate. Social media has encouraged many people to communicate their self-image through brand-related behaviors (Hollenbeck and Kaikati, 2012; Rabbanee et al., 2020). Consumers tend to purchase products and become loyal fans of brands whose brand personality aligns with their personality (Wee, 2004; Liu et al., 2012). Consumers' perceptions of brands correlate to brand loyalty and significantly impact their purchase intentions (Lim et al., 2020).

According to the Global Luxury Goods Market Report 2020, the global demand for luxury goods is expected to grow at a CAGR of 2.1% from 2020 to 2027 despite the COVID-19

pandemic (Business Wire, 2020). Factors that have increased the demand for luxury products are peer pressure on social media that encourages consumers to purchase luxury products to fit into society and the desire to conform to luxurious lifestyles as portrayed on social media. (Gutierrez-Nieto et al., 2017; Sun et al., 2017; Lim et al., 2020). In addition to the wealthy consumers, Gen Y and Z are the new luxury consumers that purchase luxury products at an early age compared to their parents (Jay, 2012; Giovannini et al., 2015). With the ability to access and show off one's personal life on social media, young adults are highly influenced by the information and opinions they see on social media (Fernandez, 2009; Giovannini et al., 2015).

Young adults these days have a "high public self-consciousness and brand consciousness" (Giovannini et al., 2015, p. 24) as they want to portray the best version of their life on social media. With the increase in the use of social media for advertising products, it is vital to understand how the luxury brand pages utilize social media to achieve brand loyalty and create customers' purchase intentions (Das and Khatwani, 2016). There has been prior research on the effects of social media; however, these studies did not explore the luxury brand aspects and the young adult's consumer perceptions towards luxury brands. In today's highly competitive market, retailers focus on shoppers' perceptions over products and services themselves (Das and Khatwani, 2016).

This study explores young adult consumers' perceptions of luxury brands. This study will examine how 1) Hedonic and Utilitarian messages on social media impact the attitude towards Brand Information 2) Luxury Brand Imagery Congruity impacts Worth of Mouth 3) Attitude toward Brand Information and WOM influences Brand Loyalty and the Intentions to join Brand Page and Purchase Intention.

Literature Review
Theory of Reasoned Action

Theory of Reasoned Action (TRA) argues that there is an intention behind every action, which is heavily influenced by two factors: personal factors and social factors (Ajzen and Fishbein, 1980). The personal factor is the attitude, which reflects the person's positive or negative perception towards behavior and action (Muk and Chung, 2014). In addition, attitudes influence feelings, and they significantly impact a person's way of thinking and overall behavior (Hoyer and MacInnis 1997). The social factor is the subjective norm, which reflects the person's perception of the societal pressure on acting (Muk and Chung, 2014). TRA model suggests that if the attitude and subjective norms are positive, the person is more likely to engage in the behavior, whereas if the attitude and subjective norms are harmful, the person is less likely to engage in the behavior. Sheppard, Hartwick, and Warshaw (1988) supported the model of TRA and stated that there is a positive relationship between attitudes, subjective norms, and behavioral intentions.

Hedonic and Utilitarian Values

Muk and Chung (2014) examined social media messages and found that hedonic and utilitarian messages affect consumers' attitudes towards brands. Babin et al. (1994) state that

there are two types of shopping values: utilitarian and hedonic. Utilitarian value is achieved from an act of successfully getting a task completed, whereas hedonic value is achieved from emotional satisfaction, entertainment, or spontaneous activity (Chung and Austria, 2012). Fischer and Arnold (1990) categorize Christmas shopping as an example of utilitarian shopping value since it is believed by many as an obligation to get the right gift. People buy so they can shop, not shop to buy (Langrehr, 1991). Hedonic shopping value can be achieved by impulsively purchasing a product (Chung and Austria, 2012). Babin et al. (1994) differentiate the two values by describing utilitarian shopping behavior as an act to get something while describing hedonic shopping behavior as buying something because you love it.

Kim and Forsythe (2007) state that hedonic motivations are more highly correlated with attitudes than utilitarian motivations. This study will further explore how hedonic and utilitarian product messages on social media influence the attitude towards brand information.

Self-Congruity

Kressmann et al. (2006) explain self-congruity theory as having a similarity between a consumer's self-concept and brand personality. Sandhu et al. (2018) classified four types of self-congruity: actual self-congruity, ideal self-congruity, social self-congruity, and ideal-social self-congruity. Actual self-congruity is when consumers purchase products that resemble their self-image (Sirgy, 1986), and ideal self-congruity is when consumers purchase products that help them represent their ideal self-image (Sandhu et al., 2018). Social self-congruity is when consumers purchase products that resemble their self-image with how others perceive them, and ideal-social self-congruity is when consumers purchase products that help others perceive them as their ideal self (Roy and Rabbanee, 2015). Das and Khatwani (2016) emphasize the importance of self-congruity theory as it has a tremendous impact on a consumer's "purchase motivation." People purchase luxury brand products to express themselves, satisfy, and boost their self-esteem needs, a "potential driver of consumer behavior" (Roy and Rabbanee, 2015; Sandhu et al., 2018).

Sandhu et al.'s (2018) research supports a strong relationship between self-congruity and brand loyalty that correlates intending to join the brand page. Many studies have been done regarding self-congruity and its effect on brand attitude, attachment, and loyalty (Sandhu et al., 2018; Rabbanee et al., 2020; Roy and Rabbanee, 2015); however, not many have explored the luxury brand aspects of the self-congruity theory. In addition to luxury brand aspects, this study will examine the relationship between self-congruity and WOM and how it affects brand loyalty.

Hedonic Messages, Utilitarian Message, Attitude Toward Brand

It is vital to understand the impact of communication message appeals on the consumers. The ability to attract consumers to the brand depends on the communication strategy. The types of brand information and messages on social media impact consumers' shopping value, attitude, and behavior towards the brand (Chung and Austria, 2012). Babin et al. (1994) suggest that hedonic messages appeal to the consumer's emotion (happiness, excitement, satisfaction, and

uniqueness), whereas utilitarian messages appeal to the functionality and usefulness of the product.

A hedonic message appeal is the ability to communicate to the consumers to dream about possessing the luxury product (Amatulli et al., 2019). Amatulli et al. (2019) use Dolce and Gabbana's advertisement of Sofia line watches as an example of hedonic message appeals since the advertisement emphasizes the "style, femininity, and elegance" of the watches (p. 524). Louis Vuitton's Zippy Wallet Vertical is an example of utilitarian message appeals since the advertisement emphasizes the functionality of the products such as having "a secure zip-around design which features multiple credit card slots, a zipped pocket for coins and compartments for papers and banknotes" (Amatulli et al., 2019, p. 524).

Amatulli et al. (2019) found that hedonic and utilitarian message appeals affect the product's perceived luxuriousness, impacting attitude toward brand information, brand loyalty, and purchase intention. In addition, Chung and Austria (2012) found that hedonic and utilitarian message appeals on social media positively impact the consumers' attitude toward brand information on social media. Therefore, the following two hypotheses are proposed:

H1a: Hedonic product messages on social media are positively related to attitude toward brand information.
H1b: Utilitarian product messages on social media are positively related to attitude toward brand information.

Hedonic messages, Utilitarian messages, WOM

WOM is the passing of information orally from a person to another (Li and Wu, 2018). Among the various forms of WOM, Wang and Yu (2015) argue that social media WOM is the positive or negative information about the product being shared and discussed over social media platforms. Also, it is imperative to understand social media WOM spread as many contemporary marketers are using social media as the leading platform to advertise products. WOM examples are "recommendations and referrals, ratings and reviews, and forums and communities" (Wang and Yu, 2015, p. 181). Hennig-Thurau et al. (2004) note that WOM valence can be positive or negative. Negative WOM of unsatisfied customers' product reviews has a more significant impact on the consumers' intention to purchase a product than a positive WOM of satisfied customers' product reviews (Cheung and Thadani, 2012).

One of the most significant effects of WOM spread on social media is generating awareness of the brand (Li and Wu, 2018). For example, Starbucks spread WOM on social media by intentionally misspelling consumers' names on the cups (Miner, 2019). A misspelled name creates a reaction within the consumers and makes them want to post about it on social media. This, in turn, increases brand awareness among the social media followers of the consumer as the brand name has been repeatedly exposed to them (Saini, 2020).

In addition to increasing awareness, WOM on social media product messages can reduce quality uncertainty (Li and Wu, 2018). Consumers identify the quality of the product based on

social media likes, engagements, and reviews. (Li and Wu, 2018). Reviews from consumers' product experiences on social media are a credible source of recommendation (Kaemingk, 2020). As the number of positive reviews increases, consumers' trust, and influence to purchase the product increases. (Kaemingk, 2020). Building on this prior research, this study will focus on how hedonic and utilitarian product messages on social media impact WOM. Therefore, the following two hypotheses are proposed:

H2a: Hedonic product messages on social media are positively related to WOM
H2b: Utilitarian product messages on social media are positively related to WOM.

Brand Image Congruity, WOM, Brand Loyalty

Brand Image Congruity is expressed as the degree of similarity between the personality of the brand image and the consumer (Wee, 2004). Liu et al. (2012) also argue that consumers purchase a particular brand to express their self-image and use it as a tool to express themselves. For instance, people wear professional outfits to convey a professional image and express their self-confidence (Roy and Rabbanee, 2015). In addition to self-expression, brands are used as a self-presentation tool to communicate their social status through the ownership of the brand (Wilcox et al., 2009; Roy and Rabbanee, 2015). Therefore, status-driven consumers tend to have a higher congruency with luxury brand product users (Roy and Rabbanee, 2015). The self-congruity theory explains that consumers are more likely to purchase products that closely resemble their self-image and personality (Sirgy, 1986).

Das and Khatwani (2016) state that brand image congruity significantly influences consumer behavior. A substantial brand image congruity can result in a positive WOM spread (Taylor et al., 2012; Roy and Rabbanee, 2015). When consumers' self-congruity perfectly aligns with the brand image, they promote positive WOM information about the brand by expressing themselves using the brand (Roy and Rabbanee, 2015). The higher the level of self-congruity, the greater the motivation is to express themselves on social media through WOM (Roy and Rabbanee, 2015). A substantial brand image congruity can increase brand loyalty (Kim et al., 2001; Liu et al., 2012). Liu et al. (2012) state that brand image congruity positively influences consumers' perspectives and attitudes. This, in turn, has a positive effect on brand loyalty. Therefore, the following two hypotheses are proposed:

H3a: Luxury brand imagery congruity is positively related to word of mouth
H3b: Luxury brand imagery congruity is positively related to brand loyalty

Attitude Toward Brand Information, WOM, Brand Loyalty

Attitude toward brand information, also known as brand attitude, is the overall evaluation of the brand information from a consumer's perspective (Esmaeilpour, 2015). Liu et al. (2012) argue that brand information influences a consumer's behavior toward the brand and significantly impacts a consumer's purchase intention. Consumers' positive or negative attitudes

toward brand information on social media will affect brand loyalty. A consumer who does not like the brand information on social media will have a negative attitude toward the brand and will not be inclined to purchase the brand product.

Brand loyalty is defined as the attachment and commitment a consumer has towards the goods and services (Liu et al., 2012; Esmaeilpour, 2015). Esmaeilpour (2015) proposes that brand loyalty is a "biased behavioral response expressed over time by some decision-making unit concerning one or more alternative brands out of a set of such brands and is a function of psychological processes" (p. 469). Chahal and Bala (2010) propose that two main factors of brand loyalty complement each other- Behavioral and Attitudinal loyalty. Behavioral loyalty is expressed through the customer's repurchase of the brand product, whereas Attitudinal loyalty is expressed through the customer's overall attitude and satisfaction with the brand that encourages them to commit to the values of a particular brand (Esmaeilpour, 2015). Esmaeilpour (2015) argues that attitudinal loyalty is needed and behavioral loyalty to observe and study the factors that influence the consumers' loyalty to purchasing the same brand over time.

Brand loyalty is built by effectively managing attitudes towards the brand (Liu et al., 2012). Studies support the idea that there is a strong relationship between a positive attitude and brand loyalty (Liu et al., 2012; Esmaeilpour, 2015). Likewise, a poor or a negative attitude towards brand information will not signify brand loyalty (Esmaeilpour, 2015). Therefore, the following two hypotheses are proposed:

H4a: Attitude toward brand information is positively related to brand loyalty
H4b: Word of mouth is positively related to brand loyalty.

Brand Loyalty, Intention to Join Brand Page, Purchase Intention

Purchase intention is defined as the willingness of a person to purchase a product or a service (Liu et al., 2020). Brand loyalty is established through consumers' repeated purchase of the same brand over time (Liu et al., 2020). Loyal consumers tend to purchase a particular brand since they sense a similarity between their personality and the brand (Liu et al., 2020). The act of purchasing is consistent with the Theory of Reasoned Action (Ajzen and Fishbein,1980).

Nowadays, brand information on social media plays a significant role in consumers' intention to join a brand page and purchase intention (Schivinski and Dabrowski, 2015; a6). Brand information on social media influences consumers' attitudes towards the brand, which, in turn, influences brand loyalty, intention to join brand page, and purchase intention (Chung and Austria, 2012; Liu et al., 2012; Liu et al., 2020).

Consumers driven by conspicuous consumption are brand loyal and have a higher level of purchase intention as the brand offers a status that they are seeking (Giovannini et al., 2015). The act of purchasing complies with the societal-norms perspective of the Theory of Reasoned Action (Ajzen and Fishbein,1980).

Giovannini et al. (2015) argue a positive relationship between brand loyalty and purchase intention in terms of conspicuous consumption. Liu et al. (2020) clarify a strong connection between brand loyalty and purchase intention. Therefore, the following three hypotheses are proposed:

H5a: Brand loyalty is positively related to intention to join a brand page.
H5b: Brand loyalty is positively related to purchase intention**.**
H6: Intention to join a brand page positively relates to purchase intention.

Methodology

Data were collected from college students through an online survey using Qualtrics. Survey questionnaires were created to examine hedonic and utilitarian product messages on social media, Luxury brand imagery congruity, Attitude toward brand information on social media, WOM, Brand loyalty, Intention to join brand page, and Purchase intention. 7-point Likert scale was used to measure all the constructs except Attitude toward Brand Information on social media. A semantic differential scale was used to measure attitude toward brand information on social media.

A convenience sample of 190 students at a Northeastern US college was used for this study. The sample consisted of 65.3% females and 34.7% males. Most of the respondents were between the age of 18-24. The respondents were 5.8% freshman, 8.9% sophomore, 38.4% junior, 33.7% senior, and 13.2% other. 70% of the respondents had full/part-time jobs, and 30% of the respondents did not have full/part-time jobs. The average time the respondents have been using social media was around 8.88 years. The majority of the respondents access social media more than five times and spend more than two hours per day. Instagram, Facebook, Linked In, and Tik Tok YouTube was the most used social media site. Instagram, YouTube, Tik Tok, and Pinterest Facebook were the top five social media sites the respondents used to make brand purchase decisions.

Only 50% of the respondents followed brand pages on social media. Some of the brand pages they followed were: Chanel, Dior, Gucci, Louis Vuitton, Hermes, Tory Burch, Prada, Maison Margiela, Bottega Veneta, Burberry, SKII, Michael Kors, Tiffany and Co., Bottega, Pandora, Rolex, Balenciaga, Bloomingdales, Volkswagen, YSL, and Tom Ford. Regarding how often one purchases luxury brands, 20% reported purchasing several times in a year, 43.7% reported purchasing yearly, and 32.1% reported never purchasing them. Clothing, shoes, and designer bags are the most popular luxury products to be purchased (Table 1).

Results

An Exploratory Factor Analysis (EFA) identified eight factors. Cronbach's alpha was used to assess the internal consistency of the measurement scale. All measures show consistency with alpha values of .87 and greater (Table 2). A confirmatory factor analysis (CFA) was run to test the measurement model. The results of CFA indicate a good model fit with $\chi^2 = 893.48$, df = 593, *p*-value = .000, TLI = .938, CFI = .945, and RMSEA = .052. Also, construct validity was

assessed by calculating construct reliabilities, average variance extracted (AVE) percentages, and inter-construct correlations. All standardized factor loading estimates (λ) were significant ($p <$ .000). The lowest factor loading estimates (λ) were .62, and the highest was .95. The average variance extracted estimates (AVE) were .70, .68, .62, .66, .64, .74, .80, and .58 for BIU, BIH, LAB, ATT, WOM, BR, INT, and PI, respectively. An AVE of .5 or higher indicates adequate convergent validity.

Further, the construct reliability estimates were all acceptable (.70 or higher than .70), with the lowest being .87 and the highest being .94 (Table 3). Discriminant validity was assessed by comparing the square root of average variance-extracted (*AVE*)percentage for any two constructs with the correlation estimate between these two constructs (Fornell and Larcker, 1981). The model's convergent and discriminant validity are supported, and good reliability is also established (Table 3).

Structural Equation Modeling (SEM) is used to assess the overall theoretical model specification and test hypotheses. The SEM results indicate a satisfactory fit of data with $\chi^2 =$ 964.78, df = 607, *p*-value = .000, TLI = .928., CFI = .934, and RMSEA = .056. The SEM structural path results show that all hypotheses are supported except H2b (Table 4).

H1a path reveals that social media hedonic messages are significantly and positively related to brand information (β=.51, p=.001). Hypotheses 1b path reveals that social media utilitarian messages are significantly and positively related to brand information on social media (β=.24, p=.01). Hypothesis 2a path reveals that social media hedonic messages are significantly and positively related to WOM (β=.36, p=.001). However, Hypothesis 2b path reveals that social media utilitarian messages do not affect WOM. Hypothesis 3a path reveals that luxury brand imagery congruity is significantly and positively related to WOM (β=.29, p=.001). Hypothesis 3b path indicates that luxury brand imagery congruity is significantly and positively related to brand loyalty (β=.22, p=.01). Hypothesis 4a path indicates that attitude toward brand information on social media is significantly and positively related to brand loyalty (β=.31, p=.001). Hypothesis 4b path indicates that WOM is significantly and positively related to brand loyalty (β=.27, p=.001).

The results of Hypotheses 5a and 5b indicate that brand loyalty is significantly and positively related to intention to join a brand page (β=.59, p=.001) and purchase intention (β=.26, p=.01). Hypothesis 6 path indicates that intention to join a brand page is significantly and positively related to purchase intention (β=.40, p=.001). Thus, all the hypotheses are supported except Hypothesis 2b.

Discussion and Conclusions

Social media has become an essential communication tool in daily life for the majority of the population. Marketers have also recognized it as a great promotion tool to communicate and empower consumers. Marketers use social media to spread product messages and advertise products (Chung and Austria, 2012). Previous studies provide the effects of social media as a promotion tool. However, little is known about how product messages on social media affect

brand loyalty. This study examined the effects of social media hedonic and utilitarian product messages on young American consumers' brand loyalty and the intention to join a brand page and purchase intention by focusing on their perceptions toward luxury brands.

The results of this study indicate that all constructs were positive and significant except social media utilitarian messages and WOM. Social media utilitarian product messages do not influence WOM. These findings imply that consumers are not influenced by the functional or beneficial product messages on social media to discuss the brand product in daily dialogues. However, the consumers are strongly influenced by the emotional expression of the product messages on social media to talk about the brand product in daily dialogues. For instance, let us look at two ads: Louis Vuitton (LV) advertising its wallet consisting of multiple card slots and Cartier advertising its love bracelet to symbolize inseparable love. Consumers are encouraged and inclined to talk and spread WOM about the romantic concept embodied in the Cartier bracelet. The functionality of the LV wallet does not impact a consumer's WOM.

Social media hedonic and utilitarian product messages strongly impact attitude toward brand information, which, in turn, impacts brand loyalty. Hedonic and utilitarian product messages are essential factors of attitude toward brand information. This supports previous research by Amatulli et al. (2019), which found that hedonic and utilitarian message appeals affect the product's perceived luxuriousness and affect attitude toward brand information. Both positively impact attitudes toward brand information, but hedonic product messages have a more substantial effect on brand information than utilitarian product messages.

Social media hedonic messages and luxury brand imagery congruity have a significant and positive influence on WOM, which, in turn, influence brand loyalty. Social media hedonic messages and luxury brand imagery congruity are essential factors of WOM. However, social media hedonic messages have a more substantial influence on WOM than luxury brand imagery congruity. This suggests that consumers are more interested in their daily dialogues when they see hedonic product messages on social media than when they sense a congruity between themselves and the brand.

Luxury Brand Imagery Congruity has a solid and positive relationship with WOM. This supports the studies by Taylor et al. (2012) and Roy and Rabbanee (2015), which stated that a substantial brand image congruity could result in a positive WOM spread. This implies that if consumers sense a similarity between their self-congruity and brand image, they are motivated to talk about the brand product and spread positive WOM.

Attitude toward brand information, WOM, and luxury brand imagery congruity positively and significantly impact brand loyalty. However, among the three factors, attitude toward brand information is the most vital factor in creating brand loyalty. In order to increase brand loyalty, marketers should advertise more product messages on social media, particularly hedonic messages such as excitement, fun, or good feelings, as a result of having the products create a positive attitude toward brand information and increase Brand loyalty.

Brand loyalty and intention to join a brand page have a direct positive effect on purchase intention. However, intention to join brand page is a significant factor between brand loyalty and purchase intention. Also, a more robust relationship compares to the direct relationship between brand loyalty to purchase intention. It implies that the brand page is moderate between the two relationships.

The practical implications of this research are that marketers should increase product information on social media, specifically hedonic product messages, to create a positive attitude toward brand information and spread WOM, and eventually, increase brand loyalty. Also, marketers should understand consumers' brand imagery perceptions to increase brand loyalty, encouraging consumers to join the brand page. It is essential to focus on the consumers' intention to join the brand page as it is the main factor in consumers' purchase intention. When consumers join the brand page, there is a higher and stronger bond to purchase intention. When consumers do not join the brand page, the bond between brand loyalty and purchase intention is positive but not as significant. Therefore, marketers should emphasize the benefits of being a brand page member and encourage consumers to join the brand page.

Limitations and Future Research

This study has two limitations. Firstly, the study focuses on general social media to measure effectiveness. However, many social media sites such as Instagram, Facebook, Tik Tok, YouTube, etc. Secondly, this study collected data from college students and used a convenience sampling method. Future studies might explore how social media effectiveness might vary based on specific social media sites. That way, the results will portray the effectiveness of a specific social media. Also, future studies should apply a random sampling method to ensure the findings consist of a broader range of answers. As this research is focused mainly on Young Americans, future researchers should consider using different demographics.

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Figure 1. Research Model
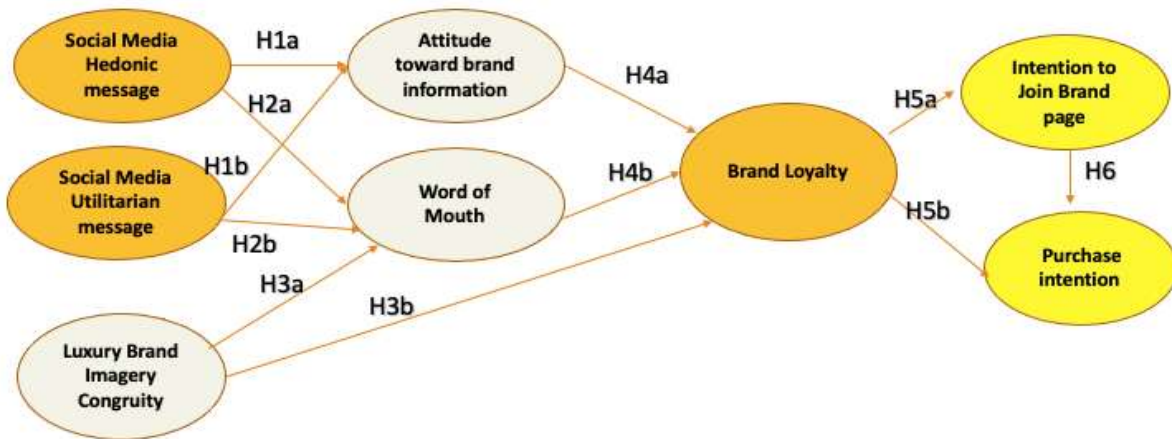
Figure 2. Path Analyses
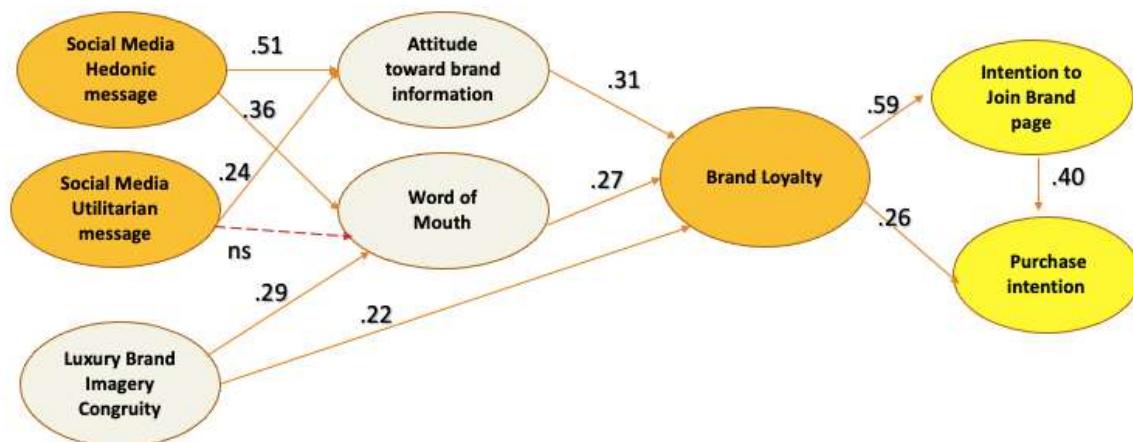
Table 1 Sample Descriptions

	Sample	Response
Gender	Male	66 (34.7%)
	Female	124 (65.3%)
Age	18-24	174 (91.6%)
	25-34	15 (7.9%)
	35 or older	1 (0.5%)
Academic Standing	Freshman	11 (5.8%)

	Sophomore	17 (8.9%)
	Junior	73 (38.4%)
	Senior	64 (33.7%)
	Other	25 (13.2%)
I am a member of/use this social networking sites	Facebook	128 (63.4%)
	Instagram	169 (88.9%)
	TikTok	100 (52.6%)
	LinkedIn	121 (63.7%)
	Blog	4 (2.1%)
	GooglePU	3 (1.6%)
	Twitter	95 (50%)
	Youtube	154 (81.1%)
	Pinterest	75 (39.5%)
	Snapchat	17 (8.9%)
How often do you check brand pages on social media	Frequently	52 (27.4%)
	Sometimes	79 (41.6%)
	Rarely	50 (26.3%)
	Never	9 (4.7%)
I follow any brands on social media.	Yes	104 (54.7%)
	No	86 (45.3%)
How long have you been using social media	Average 8.8 years	
How many times per day do you access social media	Not at all	3 (1.6%)
	1-2 times	11 (5.8%)
	3-5 times	44 (23.2%)
	More than 5 times	132 (69.5%)
How many hours per day do you spend on social media	Less than 15 minutes	9 (4.7%)
	30 minutes	13 (6.8%)
	Between 1-2 hours	78 (41.4%)
	More than 2 hours	90 (47.4%)
Do you have a full/part-time job?	Yes	133 (70%)
	No	57 (30%)
How often do you purchase luxury brands	Weekly	1 (0.5%)
	Monthly	6 (3.2%)
	Several times a year	38 (20.0%)
	Yearly	83 (43.7%)
	Never	61 (32.1%)

Which category of luxury product do you purchase the most	Designer bags	29 (15.3%)
	Clothing	62 (32.6%)
	Shoes	39 (20.5%)
	Other	48 (25.3%)

Table 2 Measurement Items and Internal Consistency

Constructs	Item	Coefficient Alpha
BIU1	Social media informs me of the latest brand information available on the market.	
BIU2	Social media helps me get the brand's news.	.868
BIU3	Social media helps keep me up to date with brand information.	
BIH1	Most brand information on social media is fun to read.	
BIH2	I enjoy watching brand videos on social media.	
BIH3	I enjoy reading brand information on social media.	.915
BIH4	I think brand information on social media amuses me.	
BIH5	I find brand information on social media entertaining.	
LBC1	People who use luxury brands are much more like me than people who use other brands.	
LBC2	I can identify with those people who prefer luxury brands over other brands	
LBC3	I am very much like the typical person who prefers to purchase luxury brands rather than other brands	.924
LBC4	Luxury brands reflect the kind of person I see myself to be.	
LBC5	Luxury brands ascertain my self-identity.	
LBC6	Luxury brands play a critical role in defining my self-concept	

LBC7	Luxury brands help me to establish the kind of person I see myself to be.	
ATT1	I have sometimes purchased unusual brands to create a more distinctive personal image.	
ATT2	I dislike brands that are customarily bought by everyone.	
ATT3	The moral commonplace a brand is among the general population, the less interested I am in buying it.	.905
ATT4	When a brand I own becomes popular among the general population, I begin using it less.	
ATT5	When brands I like become extremely popular, I lose interest in them.	
WOM1	When considering new brands, I usually ask my social media friends for advice.	
WOM2	I often recommend the brands that I like to my social media friends.	.879
WOM3	I often influence my social media friends' opinions about brands.	
WOM4	I often persuade my social media friends to purchase the brand that I like.	
BR1	I follow my favorite brands on social media because I feel at home with the brands.	
BR2	I follow my favorite brands on social media because I am greatly attracted to the brands.	
BR3	I follow my favorite brands on social media because the brands are trustworthy.	.908
BR4	I follow my favorite brands on social media because the brands are reliable.	
INT1	I will join a brand page on a social media in future.	
INT2	I probably will join a brand page on a social media.	.938
INT3	I definitely will join a brand page on a social media.	
INT4	I think about joining a brand page on a social media.	
PI1	It is likely that I will purchase something via a brand page on social media.	

PI2	In the future, I would buy something through brand pages on social media.	
PI3	Assuming that I was a fan of a brand page on a social media, I probably would purchase something through it.	.866
PI4	I would like to own something I saw on a brand page on a social media.	
PI5	I would recommend to people that they purchase through brand pages on social media.	

BIU: Social Media Utilitarian Messages; BIH: Social Media Hedonic Messages; LBC: Luxury Brand Imagery Congruity; ATT: Attitude toward Brand Information; WOM: Word of Mouth; BR: Brand Loyalty; INT: Intention to Join Brand Page; PI: Purchase Intention

Table 3 Standard Factor Loading Estimates

	BIU	BIH	LAB	ATT	WOM	BR	INT	PI
BIU1	.877							
BIU2	.894							
BIU3	.730							
BIH1		.911						

BIH2	.822				
BIH3	.820				
BIH4	.850				
BIH5	.689				
LBC1		.790			
LBC2		.757			
LBC3		.914			
LBC4		.889			
LBC5		.736			
LBC6		.662			
LBC7		.719			
ATT1			.785		
ATT2			.888		
ATT3			.871		
ATT4			.736		
ATT5			.764		
WOM1				.615	
WOM2				.730	
WOM3				.915	
WOM4				.904	
BR1					.898
BR2					.902
BR3					.812
BR4					.820
INT1					.954
INT2					.921
INT3					.903

INT4							.790	
PI1								.902
PI2								.786
PI3								.705
PI4								.632
PI5								.747
Variance Extracted	.700	.675	.621	.658	.641	.738	.799	.577
Construct Reliability	.874	.912	.919	.905	.875	.918	.941	.871

Table 4 **Tests of the Hypotheses**

	Path	Path coefficients	*p* level
H1a	Hedonic message → Attitude toward brand information	.51	.001
H1b	Utilitarian message → Attitude toward brand information	.24	.01
H2a	Hedonic message → WOM	.36	.001
H2b	Utilitarian message → WOM	.12	ns
H3a	Luxury brand imagery congruity → WOM	.29	.001
H3b	Luxury brand imagery congruity → Brand loyalty	.22	.01
H4a	Attitude toward brand information →Brand loyalty	.31	.001
H4b	WOM → Brand loyalty	.27	.001
H5a	Brand loyalty → Intention to join brand page	.59	.001
H5b	Brand loyalty → Purchase intention	.26	.01
H6	Intention to join brand page→ Purchase intention	.40	.001

Hybrid Identity, Adaptation, Acculturation and Much More: Argentine Mate Drinking Culture in Covid Times. *Avinash Thombre Professor Department of Applied Communication University of Arkansas Little Rock 2801, S. University Av Little Rock, AR 72204. Ariel Lobos University Chair of Rural Tourism Popular Music Specialist Department of Economy, Developing and Agricultural Planning Facultad de Agronomía, Universidad de Buenos Aires Av.San Martin 4453- C1417DSE, Buenos Aires, Argentina*

Abstract

The Covid-19 pandemic has had tremendous and swift effects on culture. The global lockdown and travel bans have upended assumptions about local cultures and our family interactions. Generally, cultural change happens over a long period in response to an accumulation of multiple small encouragements and the occasional epiphany. In 2021, however, cultures had to adjust to operating during a pandemic and adapt to changes they wanted to retain and counteract. In this paper, we first unpack the intricacies related to the creation of a hybrid Argentine identity centered on drinking mate. Second, we investigate the change in the culture of drinking mate devoid of the core communal sharing - necessitated by Corona spread - to an unshared drink.

Using qualitative methodology, we interviewed urban Argentines and gauchos. We investigated their adaptation and formation of the new emerging culture of drinking mate by themselves; instead of sharing it communally. We discuss the change in the culture of drinking mate and what it means personally and collectively for Argentines to forsake their communal mate for which they are memorably known. Implications for aspects related to acculturation and adaptation are discussed.

Hybrid Identity, Adaptation, Acculturation and Much More: Argentine Mate Drinking

Culture in Covid Times

Can a simple drink be a defining part of a culture? It sounds too simplistic given the complexities of cultural creation, its manifestation, and its practice as we know it (Baldwin, Faulkner, Hecht, & Lindsley, 2005; Geertz, 1973). At one level, *yerba mate*, (called mate) the drink in question, can be dismissed as nothing more than just a mix of leaves dipped in hot water. However, a closer look reveals much more. As it is called all over South America, mate has evolved over the last 300 plus years from a mere drink to a critical part of the Argentine culture (Folch, 2010). A product of hybridization or meistization -- choose your academic label to box it into - mate has achieved a sophisticated mythical reality as it has all the essential elements of culture: an aboriginal practice, a natural and distant origin, elements of cultural pride, cultural appropriation, mystery, and a unique flavor (López, 2015). The bitterness of its leaves, the warm straw, the sucking noises associated with the drinking underplays the communicative dimensions at play. Further, the sharing with known and unknown friends and familia, the communal bonding that leads to free-flowing uninhibited interactions, makes it more than an intimate mind-

body experience. Mate drinking among the Argentines has become synonymous with identity, respect, tourism dollars, and much more (Edwards, 2008).

Mate is no better or worse than any other drink, for that matter. Still, scratch the surface, and the mysticism of the drink only gets magnified because of its association with the *gauchos* for whom this drink symbolizes all that concerns with nomadic existences: living off the land and seemingly minor importance to materialistic wealth. For the Argentine gauchos, mate is as much part and parcel of their existence as the horses they ride and the cattle they work with. In a day and age where much importance is given to technology and modernization, the fascination with simpler times is probably why the gaucho culture, pinned on mate drinking and living freely, has remained a staple in the Argentine culture landscape (Bogardus, 1983). It helps ground and give an identity to many who may feel lost otherwise impacted by creolization and the hybridity that has resulted. The gaucho past helps provide a sense of resiliency to the Argentine people as they move forward into the future.

It is hard to find a gaucho without a mate cup as this aspect has become synonymous with their identity so much so that it has become a way of life. In Argentina, wealthy aristocrats and simple peasants quickly tell the uninitiated that *yerba mate* is more than ritual and not just a savory drink. The mate drinking culture has also seeped into the mainstream urban Argentine culture with individuals carrying their hot thermos and drinking and sharing mate on the streets, in parks, offices, and wherever they go (Pesci & Pesci, 2001). However, because of the recent incidence of Covid 19, the mate drinking culture is undergoing a paradigm shift. The cultural and communal core aspect of drinking mate - shared in a single cup with a single bombishaw, passed on from one member to another by a group of people - is now associated with spreading coronavirus.

In this paper, we first unpack the intricacies related to the creation of a hybrid Argentine identity centered on drinking mate. Second, we investigate the change in the culture of drinking mate devoid of the core communal sharing - necessitated by Corona spread - to an unshared drink. Using qualitative methodology, we interviewed urban Argentine and gauchos. We investigated their adaptation and formation of the new emerging culture of drinking mate by themselves instead of sharing it communally. We discuss the change in the culture of drinking mate and what it means personally and collectively for Argentines to forsake their communal mate for which they are memorably known. Implications for aspects related to acculturation and adaptation are discussed. We begin with reviewing the literature on hybrid identity creation, acculturation, and adaptation describing the emergence of unique mate culture.

Hybrid Identity

Globalization is associated with rapid human changes, heralding accelerated movement from rural to urban areas, family disruption, social inequalities, and historical and technological impact. Cultural globalization, which directly results from this dialectical process, produces one of the three outcomes: differentiation, assimilation, or hybridization (creating hybrid identities). Cultural hybridity refers to "how forms become separated from existing practices and recombine with new forms and new practices" (Pieterse, 2004; p.64). Essentially, individual identities are not assimilated or altered independently, but instead, elements of cultures are incorporated to create a new hybrid identity and thus a hybrid culture. Creating hybrid identities Robertson (1992) involves distinct aspects – interpenetration and universalization of the particularisms and

the particularization of the universalization. The new identity is created by the local and the global interaction that is distinct in each context. To summarize, the local is universalized, and the global is localized.

The process of hybrid identity creation is not devoid of power and influence. These forces result in the uneven integration of human life and contribute to the emergence of diasporas and migration (Pieterse, 2004). Lo (2002) specifies that this particular hybrid identity "signifies the encounter, conflict, or bending of two ethnic or cultural categories, which, while by no means pure and distinct in nature, tend to be understood and experienced as meaningful identity labels, by members of these categories" (p. 199).

In addition, the emerging causes of hybrid identity have been attributed to the agency, mass media, postmodernism, and increasing migration. Hybrid identity moves and fluctuates, pulses and moves around, then freeze into a moment of contextual performativity, only to move again. In essence, it is perhaps a contextual entity that is partially fluid and partially solid, composed of several parts that could be recognized as almost the same yet different. It is a cultural entity that one may view as the same and yet is hard to pin down at times. It is a place that is almost the same, but not entirely (Cohen & Toninato, 2010).

Acculturation and Adaptation

Few areas of critical cultural scholarship have undergone such dramatic expansion, in such a short space of time, as the study of hybrid identity (Bhabha, 1994). Essential ingredients in the process of hybrid identity creation are acculturation and assimilation. Both processes are unique to immigrants and applied broadly to everyone as we are constantly accommodating to changing circumstances around us. Defined as the purposeful or sometimes coerced acquiring of another culture, acculturation is central to adjusting to new cultures and involves changes to one's cultural orientation, values, and identity (Gordon, 1964).

It is a multidimensional process of reflecting one's preference for maintaining our heritage culture and acquiring the settlement's culture. As a result, four acculturation strategies are suggested: assimilation concerns individuals giving up their heritage culture and acquiring the settlement culture. The second is integration, where individuals maintain their heritage culture and acquire the settlement culture. Third, separation where individuals maintain their heritage culture and do not acquire the settlement culture, and finally, marginalization where individuals neither maintain their heritage culture nor acquire the settlement culture (Rasmi, 2017).

Cultural adaptation involves both deculturation which is a part of unlearning or giving up part of one's old culture, and acculturation which is learning some, but not all, of the host culture values and practices to varying degrees. There are four types of adaptations: marginalization, which occurs due to the host culture's actions. For example, the Native Indians, as marginalized as the U.S. economic system, have forced them to live outside of their reservations. Thus, when they visit their home, they feel like strangers because they have to give up another aspect of their culture (Park, 1950).

Traditional adaptation is the second type of adaptation, and it happens when people identify highly with their own culture but not the host culture. For instance, individuals who

migrated to America prefer to speak their home language and live in ethnic enclaves, including Chinatown and Little Vietnam. The third type of adaptation, termed assimilation, happens when people identify highly with the host culture and not their home culture. They learn the new language quickly and try to adopt the values and practices of their unique culture.

Finally, people who identify with the host and home culture represent the bicultural adaptation. These individuals are comfortable in both cultures and can code switch, changing their communication patterns to communicate culturally appropriately. These individuals imbibed different processes that lead to interactions that help us adapt to day-to-day life and are termed intercultural transformation. This is the progression of internal change that results in observable behavioral changes representing adaptation to the new culture (Alexander, 2001). The outcome of such transformation includes functional fitness, psychological health, and the development of an intercultural identity.

Migration, Acculturation, Adaption and Argentine Cultural Fusion

Argentina experienced a hybrid culture due to the influx of immigrants. The colonial period (roughly 1550-1810) began with the arrival of Spanish conquistadors and the displacement of the original indigenous Indian population. Added to this cultural mix was the arrival in 1744 of 1700 African slaves in Buenos Aires. In a matter of short time, the population of African slaves constituted 14 % of the total population, of which 330 were mulatos (European and African parents) and 231 zambos (African and indigenous parents) (Natale, 1984).

Argentina's rulers thought it was crucial to have a Caucasian society to separate themselves from the other countries in South America. Immigrants came from central and northern Europe, especially Italy and Spain, mainly from the Mediterranean basin. The liberal Argentine intelligentsia imagined that the arrival of immigrants from North and Central Europe would lead to the purification of the race and a radical improvement of the work ethic of the creole population. The result was not exactly as they expected. Italian, Spaniard, Jewish, and Middle Eastern immigrants prevailed (Schneider, 1996; Archetti, 1994).

Under the rule of President Sarmiento, considered one of the leading minds that designed modern Argentina, the country received, between 1869 and 1930, more immigrants to its native population than any other modern country (Archetti :3). By the end of 1914, the country's population was predominantly Spaniards (39.2%), Italians (35.4), Russian immigrants (4.1%), primarily Jews escaping from political and ethnic persecution. Immigrants also arrived from France, Germany, Denmark, Austria, and Hungary. More recently, the Lebanese Syrian community from the Middle East (2.7%) escaped from the Ottoman Empire (Archetti, 1920).

Thus, there was a careful, premeditated desire to create a culture that was in the eyes of those in power at the time to be superior. However, as the immigrants started mixing with the original inhabitants of Argentina, a new hybrid identity began to emerge. As fresh waves of immigrants arrived from different parts of Europe, it resulted in cross-fertilization of cultures, and the traditions morphed into new forms. The resulting mixture of these immigrants with the indigenous natives resulted from acculturation, adaptation, and creating cultural fusion and new cultural modes like the gaucho way of life, mate drinking, tango dancing, and much more. The following section explores one of these hybrid elements, particularly the emergence of mate drinking as a hallmark of Argentine culture.

Early Origins of Partaking Mate

Consumed by Guarani Indians, the original mate was sipped through a cane named "caete." *Mate's* cultivation dates from the arrival of the Jesuit priests in the growing Pampas region in the late 1500s. The plant grows well only in that area and attempts to transplant it has failed. The Jesuits cultivated it for the first time, and soon more than 100,000 Guarani Indians moved onto 33 feudal Jesuit settlements in which *mate* was the primary crop. The Jesuits drank it like tea, not sipping it, and the world knew the mate as Jesuit tea (yerba mate). Some people still consume the mate in that way, it is known as "mate cocido" (cooked mate), and for example, it is widely used by the Argentine armed forces to feed the troops (Bogardus, 1938).

Before their expulsion from Latin America in 1767, the Jesuits achieved dramatic advances in production (Domingues & Boatcā, 2009). After they left, the plantations were abandoned. The Jesuits had a unique method to cultivate it. When they left the missions, they took the secret with them. *Mate* again was harvested from trees growing in the wild. In 1817, French biologist Aime Bonpland started studies on the cultivation and use of the plant. He discovered that yerba mate was germinated after passing through the digestive system of a specific bird, probably, the Jesuit secret. In Paris, the botanist Saint hilaire named the plant Ilex paraguayensis". Bonpland found a way to reproduce the trees and advised the governments to develop industry, but he was not heard.

Picture 1. *The virus is still going around town; share your time, not your mate*—a 2021 sign asking to share mate in Bella Vista town outside Buenos Aires.

In 1895, the renowned French landscaper Charles Thays, found a way to germinate the seeds using hot water. Not until the turn of this century did serious *yerba mate* cultivation resume. From a harvest of 1,000 tons in 1914 in Argentina, *mate* production surged well above demand to 106,000 tons by the 1950s. Consumption in Argentina alone now totals 175,000 tons per year, just over 11 pounds per person. Annual coffee consumption, by comparison, stands at 40,000 tons. Today, *yerba mate* is a big business, sold in varying brands and tastes. Interestingly, *mate* is rarely served in restaurants even though it is available in tea bags and instant form (Caleb & Mejia, 2007).

At home, the rich are nearly as likely as the poor to start and end their day with it and often to sip it constantly throughout their waking hours (Bynum, 2015). Syrian immigrants took the custom to their homeland on visits, and Syria now is the leading importer of yerba mate. Anticipating interest from Japan and other parts of the world, the Argentine government has authorized cultivation of an additional 100,000 acres from next year, bringing the total acreage to 437,000 in Argentina, by far the largest producer. Such a high level of consumption encouraged Coca-Cola in 2003 to launch "Nativa," a drink made from the "Ilex paraguariensis." However, the product failed primarily because mate is much more than a drink – it is a ritual. It is consumed in a particular way, as a communal drink integral to the Argentine way of living. We explore this specific aspect of mate culture in the next section.

The Communal Cultural Rite of Passage of Mate Drinking

Evolved over the last four centuries, the cultural practice of drinking yerba mate is as stylistically demanding as the Japanese tea ceremony. Associated with Argentine national identity and pride, almost everyone in Argentine sips *yerba mate* sometimes alone but most often as shared among friends as a communal rite. Over the last few years, it has become a singular unifying characteristic of Argentine culture. It manages with ease to break social, economic, and class boundaries or even boundaries of the intelligentsia (Carlos, 2020).

The critical aspect of this drink is that yerba mate is socially inclusive. It transcends almost every racial, economic, gender, and sexual orientation barrier. By the 18th century, most people in the Río de la Plata region consumed yerba mate regardless of racial or economic background. From elites to novitiates in Jesuit colleges to slaves and Indians, most everyone drank it daily and valued it as much. Day laborers were known to refuse to work if they did not receive their expected ration of yerba mate.

During the height of the HIV/AIDS epidemic in the late 1980 and 90s, a couple of doctors purposefully shared their mate with HIV patients to encourage Argentines not to be so afraid of people with HIV. It is an informal drink as it brings people together and builds a sense of community among those who would not otherwise interact in such an intimate manner. Yerba mate is an intrinsic part of the local culture that the Argentines do not think about it until somebody else points it out to them. Argentines' many conversations and relationships with family members - mother and grandmother and extended family cannot be imagined without

yerba mate. Drinking yerba mate is part of the Argentine culture, as one is born with it (Folch, 2010).

The most central aspect of drinking mate is a shared drink. The sharing of the glass and, most importantly, drinking using the same straw requires a unique trust in the other person. Without much thinking, the sharing of straw and the drink establishes an instant bond with the other human whether that person is related or not. Mate bonds strangers as equally as family members; it is considered rude not to share your mate, as drinking mate is regarded as a social activity. When the mate is done drinking, it is expected to thank the person. It signals the cebador to know that you do not want more mates.

Odes to *mate* through the years, by foreigners and Latin Americans who have studied it, are numerous and often lyrical. Its ability to sustain soldiers in battle won praise from generals in the War of the Triple Alliance (1865-1870). *Mate* scholar Federico Oberti (1971) wrote: *Mate* is a powerful bond without sinews. It is a tender lover without kisses or caresses, a warmth without flames, a friendly offering. *Mate* always unites and equalizes those who drink it, inculcating calm and pacific inclinations.

Nuances of Mate Drinking

As mentioned, drinking *mate* is a social activity shared amongst friends and family. Almost more important than the drink itself is the elaborate custom of preparing and consuming it (Brown, 2005). Culturally, *yerba mate* is consumed from an apple-sized calabash through a finely crafted silver tube equipped with a bulbous filter and passed from hand to hand among friends. A "*mate* circle" is the traditional way of gathering to enjoy the drink. One of them, the *cebador*, is in charge of preparing it. The water used to prepare the mate should be hot but never boiling. The *cebador* prepares the drink to their liking and takes the first sip. The *cebador* drinks the entire contents of the vessel before refilling it. Then the cebador passes the cup to the next person, who will repeat the process and return the *mate* to the *cebador*, who will prepare it for the next person.

Again, it is a critical factor to drink from the same pot and use the same straw for drinking. This process continues as long as there is hot water. Some unwritten codes and rules are followed when sharing *mates* with friends and family. Everyone knows that moving the bombilla or straw from its original position is strictly prohibited. In the hierarchy of rules, a mate cannot be passed on out of turn: one must wait for the *cebador* to pass the *mate* to you. It is considered very rude to drink out of turn. The role of the cebador is crucial, and if the c*ebador* serves the mate bitter, one cannot ask to sweeten it.

The mate consumption is an example of hybridization, an identity ritual that crosses all social strata without exception and identifies all. Shaped by a unique mix of centuries of European immigration and indigenous native Indian practices in Argentina, the tradition of *mate*, a caffeine-rich tea, is one of the most important cultural activities that you can partake in. *"Yerba mate raises morale, sustains the muscular system, augments strength, and allows one to endure privations. In a word, it is valiant,"* according to the French Society of Hygiene (1909). Sipped alone, *yerba mate* offers solace. Shared among friends, it is a communal rite. *Mate* is a proud cultural bond for immigrants of disparate ancestries. Moreover, for Argentines especially, *mate* is a link to the nation's Indian and Spanish colonial heritage.

Picture 2. A gaucho drinking *yerba mate* alone in the Northern city of Córdoba, Argentina. Similar adaptations are common across Patagonia and the Mendoza regions.

Covid 19 and Changing Mate Culture

The National Institute of Yerba Mate (INYM) estimates that most Argentines consume nearly 14 pounds of *mate* per year. However, as mentioned above, this unique culture is witnessing a rapid change in the wake of the onset in late 2020 of the Covid health crisis as sharing of the drinking exacerbates its viral spread. Chaco province, in northern Argentina, experienced the pandemic and hit hardest. It started with a group of ladies sharing a mate. The same problem happened in Necochea, a city in the south of Buenos Aires province, where a group of ladies shared a mate in a clandestine baby shower spreading the virus throughout the city. Many other cases occurred in different social groups, such as construction workers. Many of the cases happened even after the health department released its guide "matear en tiempos de cuarentena" (drinking mate in quarantine times), a campaign advertised in the media.

As the pandemic raged, the Argentines faced a dilemma with holding on to their much loved communal mate or making changes in the way it is consumed. By late 2020, much of the population became aware and consumed it, each one with their mate. Together in the same place? Not necessarily. The custom of mate is a culture characterized by evolving through the ages. The UNESCO choose the term "safeguard" instead of preserving because safeguard means to ensure the immaterial heritage remains dynamic and integrates into the life of social groups so that they can pass it on to future generations.

Virtual "mateadas" are a new ceremony among Argentine people that live far away and among those who are isolated because of the quarantine (Bynum, 2015). The challenge Argentines face is incorporating new habits into the traditional ceremony, at least, until it is considered that communal sharing of the drink is safe. The industry expected a lower consumption in terms of business, but the surprise is that the habit was not lost, and sales

remained almost intact. April was the best month in 10 years, with 24,3 million kilograms consumed.

Methodology

Data collection for the present study involved qualitative interviews with traditional mate drinking participants from various regions (both rural and urban). The second author conducted the interviews in late 2020 and early 2021, a native Argentine and thus fluent in Spanish. Recruitment of participants was undertaken using a snowball sample initially drawn from social media contacts of the second author. The consent was taken before the beginning of each interview with each respondent. All data provided to the researchers were de-identified.

The focus of our analysis for this article is 15 semi-structured interviews, which were conducted via video chats and audio calls. The interviews lasted 45 minutes to an hour and were audio-recorded, transcribed in English, and later de-identified. The interview schedule was designed to probe deeply into participants' experiences of changing patterns of mate drinking. The interview schedule asked participants to describe their everyday life and focus on coping with Covid and balancing mate drinking. Participants in the qualitative data were females (n=9) and males (n=6). This article analyzes those responses grounded in the larger context of the interviews.

The semi-structured interviews were conducted using informal conversational techniques (Kvale & Brinkman, 2009). This interviewing approach allows participants to freely discuss their thoughts and answers to the questions posed in the interviews. In this method, the interviewer is a "traveler" in the participants' narratives. This allowed the interviewers to understand what the participants found most important in their lived experiences.

Coding for this study was conducted using MAXQDA. Due to the open-ended nature of the interviews, both the researchers first independently read the transcripts holistically to understand the participants' lived experiences and changes across time. We created a shortlist of "lean coding," consisting of 5 to 10 codes (Creswell & Poth, 2017). Next, we discussed the codes from the initial read to ensure intercoder reliability. We discussed any discrepancies in our understanding of the data and focused on reaching an agreement for our coding. Then, we re-read the interviews to finalize our codes. In our last phase, we conducted cross-case comparisons of our codes to identify potential themes and subthemes that emerged in our data.

Analysis

Drawing on our analysis, we found multiple cultural ways to cope with the uncertain Covid times that involved modes of adaptation, acculturation, and lifestyle change efforts to change participants' mate drinking habits. Four themes were identified based on the coding: participants who were caught in the dilemma to change their customary mate drinking habits—the second theme was related to participants who engaged in quick adaptation to suit the new covid situation. Third, participants blended the customary and the required new way of drinking mate. Lastly, other participants engaged in acculturation practices in their way of drinking mate. We start with the first theme.

To change or not to change – No adaptation

In the interviews, we locate a constant theme in which participants were reluctant to give or even modify their customary practice of communal mate drinking. These participants could not fathom moving away or changing the traditional custom of drinking mate, which is communal. While the participants realized the risk posed by the spread of infections from Covid as a result of sharing of same mate, particularly the bombisha or the steel straw, the reluctance to give up or change that practice stemmed from the ingrained communal consumption of mate, which is integral to their culture, furthering the theoretical underpinning that cultural traditions are hard to give up.

The interview question seeking information of the ways participants were coping with the changes necessitated by the Covid 19 inmate drinking ritual was answered with, "Nothing has changed, because I have been drinking the way I used to do before the pandemic. It is just so natural for me to sit with my friends, drink my mate, and talk. I cannot give up on this aspect,'' answered the participant. Most of the participants in this non-adaptation category were in the older age group of 50 years and older.

In response to the query, any other thoughts/reactions that you want to share, another participant revealed, "It is a massive part of my day because it is something fundamental when you meet with your friends. You know that somebody will heat the water and the mate will always be there, even if it is the hottest day of the year. Friends who are getting used to drinking it make you drink it as well. On that side, the community is so important.

These participants were from the rural areas mainly engaged in ranching activities. The participants drink mate almost throughout the day and drink it hot and without sugar. "*Mate* is a very cordial, silent, and understanding friend," said owner of a ranch in Córdoba. "It calms you when you need to concentrate on a task, and it has a great element of sociability. It is a kind of sentimental union." I still drink it with my friends like I did earlier. The participant enjoys an hour and a half or two hours of *mate* over his newspapers each morning and again in the late afternoon in the company of friends. With *mate,* I was perfectly warm. I always travel with my *mate.*

At the beginning of the pandemic, we were terrified, and so because of the lockdown, we did not meet with my friends. That was the time I was mostly drinking it alone. Although one can drink mate alone, the essence of drinking it is by sharing your daily story with the drink. Participants revealed that they did try to drink it alone but could not enjoy it and went back to drinking it with their friends as the pandemic progressed.

Quick Adaptation

A significant theme in the data emerged from our readings related to participants modifying their traditional mate drinking practice to consider the health risk of spreading the virus. The pandemic spread in Argentina in the summer of 2020, and most participants,

as a reaction, were starting drinking it alone. Sometimes, I try to prepare a small amount, knowing that I will be full and boring just to drink it with the mate. By myself, so It´s just special days that I want a mate, so I make myself one.

Mate means unit. It's an excellent way to share with people, to start a conversation asking for a mate. It's a fantastic drink representing our culture, and I would love to see the mate industry engage in more commitment, do a fair trade business, and take care of the worker´s health and rights. It is not good to know that some use children as workers, paying them misery and having them almost as slaves. We, as customers, have the power to stop choosing those brands and buy something clean, that we know that in the process, everything was fair.

Horse breaker by profession and a gaucho, another participant portrayed the difficulty in changing his way of drinking mate, "I think some people will change their way to drink mate in a group. It would be with more precautions in some way. As usual, other people will continue in the same way, sharing the straw, passing from hand to hand with no problem. It would always depend on the person. it is essential to share it with friends and loved ones- it is hard not to share it with somebody." As the pandemic raged throughout the world with the increase in deaths, participants were willing to change their cultural habits. A few expressed willingness to change and said, "Yes, because the mate has always been to share it. It is the first thing you offer to someone when they come to your house. No, you can drink it alone when you want. Beyond sharing the mate, you share stories, moments, talks. Everyone must have their mate, and the water from the thermos be shared.

A range of changes in the cultural, communal way of drinking mate was narrated by participants. The changes in ritual included: drinking it themselves, primarily alone, and if for any reason someone wants to try the drink, the person usually asked to have a different straw (bombilla). The hazards to Covid 19 made that, in general, people take precautions when they are sick and drink mate in a group. Another participant added, "For now, the ritual will have to be individual or with the people who live together in the same home.

Acculturation

The third distinct theme that was evident in the data concerned the process of acculturation, defined as cultural modification (often forced) of an individual, group, or people by adapting to or borrowing traits from another culture. Participants repeatedly mentioned mate as a custom, a daily ritual; it is not only about drinking it but everything around it; the conversations, the social gathering, the little break, and the caring and sharing, a big of my Argentine culture. The participant, who is a horse trainer, described his routine with starting early, going to the cabaña (ranch) to train the horses in the sand. He stops at dinner and continues working with 6 or 7 horses in the afternoon. "I cannot start the day if I do not drink my mate in the morning. Before the pandemic, I share it with everyone who wants to share it with me. Now, I only share it with my wife," he described how he incorporated the new change in the ritual of drinking mate.

The acculturation occurred primarily in accommodating the new rules and Covid restrictions. A participant agreed that mate plays a fundamental role in day-to-day life and has switched to drinking mate alone. He said," It is a company when I am alone. Yes, and I enjoy it differently. I think this will last, and I cannot imagine this reality installed in our culture. It will stop our ritual if we don't share it. It would be something hard to guess. I think the mate is something powerful in our culture, more than we can imagine. No, I think the only thing we can do is wait for the pandemic to stop. But for right now, I drink it alone."

A participant who works in a traditional gaucho horse rider also show drinks it alone but opined that in Argentina, there's a saying that drinking mate alone is as boring as dancing with your sister. A holistic healer in northern Patagonia feels that Argentines should stop sharing mate to prevent the further spread of the virus. "When my mother comes to visit, we each have our mate. Mate is an excuse to get together to talk and share. The mate itself doesn't matter too much," she said.

Hybridized Mate Drinking – Mixing the old and new

The last recurrent theme in our data was the emergence of a new drinking and sharing mate style that consisted of mixing the old and incorporating the new rituals. Given the restrictions imposed by the Covid lockdown that confined individuals to their homes combined with other health restrictions, Argentines were quick to find new ways to continue with their mate drinking ritual, albeit in multiple different ways. The desire to hold on to and maintain cultural practice drives these behaviors. Creative thinking and adjusting to the new framework of expectations result in a hybridized version of the original culture.

The first observed change related to drinking mate without passing it to others. When stepping outside the house is not allowed during quarantine, each family member prepares their mate, which is unusual as a mate cannot be imagined without sharing. Heeding to health officials, participants reasoned that given that the virus is found in saliva, sharing mate with other people could lead to ingesting saliva containing the virus, and that is a way of getting infected. Participants explained it is strange to embrace this practice, but they are trying to adapt and adapt to the new situation.

Most of the participants agreed that mate cultural ritual of many years with social aspects like getting together to study, to work, and the sharing of the beverage is very ingrained in the society and, as such, not easy to reverse. As the pandemic became prominent, participants opined that at this time, the sharing of mate must be suspended temporarily. "It's not that you cannot drink mate, it's the matter of sharing it. We must look for new ways to drink mate in groups, but without sharing the utensils, basically the bombilla, which is what could potentially transmit the virus," one participant added.

Reinventing the mate ritual is a challenge for both consumers and the mate business.

Disposable bombillas exist, but most people do not use them, as "here in Argentina, each person has their mate and bombilla. "*Mate* is sacred to us; it can never be lost. When I visit my mother and father, we constantly sit down and drink mate. In Misiones, there are many Italians, Poles, and other immigrants. We are of Portuguese descent. But *mate* is a link between different groups. When any newcomers arrived, we always offered *mate. Mate* is always there, moving around the group at the table. But now each one has their mate," shared another participant.

The innovative technique further involves sharing mates with loved ones virtually on video calls throughout the day. One of the participants shared: "I don't know what I'd do if I couldn't drink mate daily. It's a means for social bonding. Sharing a mate involves everyone in a circle of trust and dialogue while they enjoy taking a walk or enjoying the sunset. I video call my friends, and we drink mate simultaneously, so it's like being together; the mate connects us. However, participants agreed that the experience itself is changing.

Even though these practices of consuming mate are evolving, habits die hard. In Buenos Aires and other parts of the country over the weekend, groups of people could be seen sharing their mate as sharing is not just a sign of respect or amiability; it's the crux of this daily ceremony. The sight of people walking down the street with a mate gourd cupped in one hand, its metal straw sticking out, and a thermos tucked under the other arm is synonymous with day-to-day life. "I haven't stopped drinking mate, simply because I can't, but I've lost ... the spirit of the congregation, of closeness, of complicity, of getting together," added a participant.

Discussion and Implications

Although bounded, cultures change as they are confronted internally and externally by both forces encouraging change and resisting change (Geertz, 1973). These forces are related to social structures and natural events and perpetuate cultural ideas and practices within current structures, which are subject to change. Resistance can come from habit, religion, and the integration and interdependence of cultural traits. Additionally, cultures are inherently predisposed to change and, at the same time, to resist change. Dynamic processes encourage accepting new ideas, rituals, and practices, while others encourage changeless stability (Alexander, 2001). The mate ritual and its shift in practice result from the influence or pressure changes from the natural environment.

Cultural change is how a society or culture adopts behaviors and mindsets that are necessary for its survival. Successful cultural change initiatives are often gradual and must be done at a sustainable pace so members of the culture can acclimate and adjust to the change without becoming disengaged (Domingues & Boatcă, 2009). For most Argentines, mate is not a drink. Primarily it is consumed not because that person is thirsty; it's more like a ritual. The practice in every household is that whenever someone arrives at the house, the first thing that is said is hello, and the second is "unos mates? (would you like to drink some mates?). This happens in everyone's house. In the home of the rich and of the poor. This occurs among the older people who live in nursing houses and adolescents while studying and graduating.

Additionally, when you meet someone for the first time, you drink some mates with that person. People ask when there is not much confidence in that person. "Dulce o amargo?" (sweet or bitter?), and the different answer "como tomes vos" (as you wish). Moreover, if they run out of yerba one day, a neighbor will not hesitate to give you some because yerba mate can't be denied to anyone. Mate is nothing more and nothing less than a demonstration of values. It's the solidarity to keep on drinking those mates lavados because the chat is good—the conversation, not the mate.

Breaking a habit takes time and practice and often requires a new pattern to take its place. That is a culture change in its simplest form. Argentines are not new to cultural change because it is the place where the tango dance form was created, among other things like the gaucho way of life. The cultural practice of mate drinking at the present moment is changing, and if that change is permanent or not will depend on the Covid pandemic. If the pandemic is brought under control and infection rates fall, it is more than likely that Argentines will go back to sharing their mates.

On the other hand, the pandemic has shifted how mate is consumed. Some of the new elements of drinking mate will continue irrespective of the continuing or disappearance of the Covid pandemic. Much also depends on the market forces of growing and cultivating the yerba mate leaves. Any changes in those dynamics will affect the ritual and practice of mate drinking. Thus, multiple forces come together to bring about cultural change. However, cultural practices do not get lost entirely – only emerge in new forms after facing adaptation and assimilation processes.

Limitations and Future Research

The findings from our work should be viewed in light of several limitations. We were first conducting interviews during a global pandemic that needs to be considered. It was very challenging to reach our participants with all the restrictions. The in-depth interviews were conducted while maintaining social distancing and other precautions required by the Argentine government. This context, including the uncertainty associated with the spread of the disease, potentially affected the responses from our participants as they were not in their normal mental state. Second, we see limitations in our qualitative data. Since interviews were conducted via social media and video, we could not probe more deeply into participants' experiences. Third, this study focuses strictly on the consumption of yerba mate. However, it needs to be acknowledged that the practice of drinking yerba mate includes other social and cultural practices which we could not probe.

Despite these limitations, the findings from this study show that environmental factors like Covid can affect cultural practices in a way that leads to changes in cultural practices. Further research is needed to accurately capture the relationship between the evolution of hybrid cultures due to environmental factors. In general, more research is required to explore how cultural adaptation continues to grow and develop through time beyond the impact of one Covid

factor in this study. Finally, we call communication researchers to examine the nature and change in cultural practices in different communities worldwide.

Conclusion

The Covid-19 pandemic accelerated the process of cultural change that generally happens over a long period. The Argentine mate drinking culture witnessed adapt changes. The present paper investigated the difference in the culture of drinking mate devoid of the core communal sharing - necessitated by Corona spread - to an unshared drink.

The culture change occurred by way of four distinct themes: Using. We discuss the shift in the culture of drinking mate and what it means personally and collectively for Argentines to forsake their communal mate for which they are memorably known. Implications for aspects related to acculturation and adaptation are discussed.

Acknowledgments

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Appendix

Interview Questions:

How would you define mate as a part of your and your family's tradition or culture? Provide examples of how important it is for you?

Describe your typical working day and how the mate is an integral part of your day-to-day functioning?

How do you drink, mate? Is there a particular way to drink it?

How do you rate the role of friends and community as part and parcel of drinking, mate?

Can you drink alone, just by yourself?

How are you coping with the changes necessitated by Covid 19 in your mate drinking ritual?

Do you think your acculturation is good overall?

Do you feel that drinking mate alone is in any way stripping away your cultural practice?

Any other thoughts/reactions that you want to share?

Do you propose any changes to continue still to drink mate continually even with the hazards to Covid 19.

Thank you for your time.

Election of the Outsiders: A Functional Analysis of the US 2016 Presidential Campaign.
Emmanuel Nwachukwu Ph.D. Department of Journalism and Media Studies, Jackson State University. Ilemona Atawodi, Department of Computational Sciences, The University of Southern Mississippi. Raphael Dzanie, School of Economic, Political, & Policy Sciences, The University of Texas at Dallas

Abstract

This study investigated the role of functional theory of political campaign discourse to evaluate the speech and tweets of the 2016 US presidential candidates. The study utilized content analysis and analyzed 5303 units of speech, Tweets, TV (CNN, FOX and NBC news) and news stories from *New York Times* and *Washington Post* to derive its conclusions.

The result of the study showed how tweets shaped the media agenda and coverage during the elections period and how Donald Trump used that to his advantage to set the daily media agenda during the elections cycle and to reach out to the audience. Both Trump and Clinton had over 40% positive tone in their Tweets, although Hillary had a little edge of positive tone more than Trump. Regarding negative tone, Trump Tweets were more to negative tone than Clinton. However, this study did not support the assumptions of functional theory of political campaign discourse that candidates will use more acclaim over attack, incumbents will use more of past deed and less attack and candidates will talk more on policy or issue than personal character.

Introduction

The U.S. presidential electoral campaign happens in a series of rituals, from announcement speech, travel, stump speeches, town halls pressing-the-flesh, caucus, and primaries, winning and losing speeches, and issue oriented speeches to distinguish themselves from other contenders vying for the office of the presidency to convention speeches and televised inter party debates, and appearances in the media for the voters to evaluate them (Nwachukwu, 2020.) The president of the United States is perhaps one of the most powerful or influential

politicians in the world. Therefore, the process of choosing a president is important both to the U.S. and the world (Glantz, et al. 2013).

With the rise of the Tea Party Republicans and a troubled economy presided over by Democrat President Obama, the 2016 election cycle featured political 'outsiders.' We had a non-career politician, Donald Trump, defeated career politicians to secure the Republican presidential nominee and eventually won the presidential election. Secondly, Hillary Clinton, a woman for the first time became the presidential flagbearer of the Democratic Party (Abdullah, 2018). Before Hillary Clinton, other women ran for presidential election, but they were not from major political parties (Winger, 2007). Given Donald Trump's background as a non-career politician and Hillary Clinton's unprecedented emergence as the Democratic female presidential flagbearer, this study aimed to examine the strategic use of speeches, tweets and news stories surrounding their rise as presidential candidates, and to discover the differences in their speeches, tweets and news stories that made them stand out to the electorate.

When the candidates discuss campaign issues, the media are often less helpful than they could be. The detailed speeches delivered by the candidates go a long way to define who they are and what they stand for, and why they should be elected. Lichter and Noyes (1995) reported that in the 1992 presidential campaign, "The candidate's own speeches actually discussed policy issues far more frequently and in considerably more detail than did either print or broadcast [news] reports" (p. xvii). They also argued that "voter knowledge does not increase from exposure to day-to-day TV coverage and increases modestly with day-to-day newspaper reading. Voters do learn from TV coverage of live campaign events, such as convention speeches and debates (Benoit & Hansen, 2004, p. 101).

The use of Twitter in the 2016 election was unlike anything previously seen in U.S. politics in terms of the volume of citizen participation via social media and of candidate ability to speak directly to their followers at any time and to attack their competitor in real time. The 2016 US presidential election season brought social media, namely Twitter and Facebook, into the political mainstream for the first time in a presidential election. Allcott and Gentzkow (2016) wrote, "American democracy has been repeatedly buffeted by changes in media technology" in ways that make it more challenging for the fourth branch to hold power accountable. They credit cheap newsprint in the 19th century with the spread of partisan balderdash, radio with reducing substantive policy debates to sound bites, and television with debasing the quality of political candidates by elevating those who are "telegenic." The advent of online news sources in the early 2000s and social media in the mid-2000s pose a threat to democratic discourse and citizen ability to make informed electoral decisions. (Heldman, et al.,

2018).

Over the course of the general election, various news outlets referred to the race as the

"Twitter Election" (Twitter, 2016a). The race earned this title because Hillary Clinton and especially Donald Trump frequently took to Twitter to communicate with their followers. Twitter users were highly engaged with election news and content on the digital platform during the

election, tweeting the hashtag #Election2016 more than 1 billion times during the election and 75 million times on Election Day (Twitter, 2016a). Both candidates used Twitter to criticize each other. The most retweeted tweet during the campaign was a Clinton tweet telling Trump, "Delete your account," in response to his tweet, "Obama just endorsed Crooked Hillary. He wants four more years of Obama— but nobody else does" (Heldman, et al. 2018). As of May 2018, Clinton's Tweets had been retweeted 550,000 times and liked by 708,500 Twitter followers. Both candidates targeted one another on multiple occasions on Twitter, but Trump also extended criticism to the overall legitimacy of the election process. He frequently used the term "rigged" to imply that his loss would indicate the election was a fraud. For example, in late October Trump tweeted, "The election is absolutely being rigged by the dishonest and distorted media pushing Crooked Hillary-but also at many polling places-
SAD" (Heldman, et al., 2018).

Harmon and White (2001) suggested that agenda building involves the power of crafted messages by political and economic elites to shift public opinion in their desired direction. Miller (2010) suggests that conventional agenda-setting and agenda-building research uses opinion polls where respondents are asked to rank or rate issues of importance to them from the news to decide if the media has influenced the publics' agenda. A fundamental hypothesis of agenda-building study contends that the media do not function in a vacuum. Shoemaker and Reese (1991) argues that agenda building can come inform of information subsides, like news releases, editorials, PSA issue advertising and news conference. These messages that the news media disseminates are laced with prejudices of the message creator, advertisers and public relations practitioners and political candidates and politicians. Although a bulk of agenda-building study has explored public relations' influence on media content like information subsidy produced by public relations practitioners, as in the case of this study the political campaigns.

This study examined the campaign speeches of Hillary Clinton and Donald Trump as one of major presidential campaign public relations tools and intertwine those with news stories as traditional media sources, tweets as one of widely used social media campaign tools, news sources and public engagement platforms. Also, this study grapples with the norms of using negative speeches and attacks on political opponents, using campaign speeches to engage in self-praise, and address specific policy or issues and character or image concerns. The tone and prominence given to the candidate's speech, tweet by the newspapers and television news outlets.

Literature Review

Presidential Campaigns Speeches

Presidential campaigns speeches offer an important window for the electorate to know more about the candidates and to make informed voting decisions. Political campaign speech helps brand, rebrand, recreate, destroy, criticize and shape the political discourse by candidates. The announcement speech provides candidates with their initial opportunity to introduce themselves to voters and the news media as a candidate for office, revealing the themes (policy

and character) on which they intend to base their campaign (Benoit, 2013). Although it is possible to change the electorate's initial public impressions of the candidates, these public impressions most of the times have substantial effect on electorates' perception of the candidates (Bromley, 1993, p. 36).

Political campaign speeches as a form of political campaign discourse are mainly addressed to an active audience. The main political audience, made up of the voting electorate, is typically not present nor available when the speeches are delivered, but will hear/see/read the political speech at a later time, usually through the media (Laughren & Mushin, 2007). Political campaign speeches are delivered in formal speech and style different from ordinary conversation. These political speeches are written by professional speech writers and sometimes by political candidates themselves.

The key function of campaign speeches is to persuade, and hopefully they also inform

(Brewer & Lichtenstein, 1982). The political speaker's aim is to achieve and accomplish a politically tactical purpose, and the speeches are judiciously and sagaciously written to achieve a political purpose. In political campaign discourse, personal connection and relationships is the new persuasion. The political candidates must present themselves as multi-faceted to appeal to diverse groups of political audiences (Laughren & Mushin, 2007)

A political campaign speech is crafting a cohesive argument on a specific topic or topics, campaign speech, is a crucial part of the campaign process, as it allows a political candidate to gather together all their policy, ideologies and position into a well-crafted statement. According to Pinkleton et al. (2002), negative campaign tactics and dubious media election coverage continue to attract the attention of citizens, journalists, and researchers. Citizens commonly complain about the negative tone of political campaigns, especially, negative political advertising and in the case of 2016 presidential election, the speeches. Candidates have looked for ways to create "intermedia agenda setting" that works in their favor. Sweetser et al. (2008) argued that televised political spots have long been a way to set the news media's agenda. Political speeches create news coverage, helping the political campaign ads create the desired agenda-setting effect from the "earned media" as the speech

is televised free and helps to support the ads.

Political observers and commentators have called out the electronic broadcast media for providing horse-races-centered political campaign coverage that spotlights more on who leads or trails in political polls rather than recognizing, addressing and discussing political candidates' stands on issues and policy proposals that are relevant to voter (Jarvis, 2004). Several scholars have found positive correlations between cynicism and political involvement like voter turnout and mobilization (de Vreese & Semetko, 2002; de Vreese, 2005). But little has been done in areas of analyzing the candidates stump speeches, issues speeches, theme of the speeches and the tone of the speeches.

Twitter Use in Political Campaigns

Tweets, over the years have a history of being persuasive in nature. Political parties and other affiliate groups use political tweets to influence public opinion. In the U.S., twitter is used by the president, many members in Congress, most governors and mayors, as well as political candidates and operatives (Parmelee & Bichard, 2012). Studies analyzing use of Twitter in congressional elections reveled that politicians use Tweets to disseminate information on issues that the politicians deem relevant and as 'vehicles for self-promotion' (Golbeck et al., 2010, p. 1612). Issues that are emphasized in tweets, often are subsequently discussed in talk radio, television and newspaper stories. Parmelee and Bichard (2012) cited a political insider, 'Twitter has the ability to drive traffic across all platforms" (p. 163). For instance, #CrookedHillary was a frequently used hashtag by those who opposed Clinton during the 2016 race, and users who searched for the hashtag would be taken to a unique feed of relevant tweets.

Political researchers argue that political candidates and political parties' use Twitter to reach the electorates directly by going around or bypassing the news media, (McGregor et al., 2017; Parmelee & Bichard, 2012; Stromer-Galley, 2014), while political campaign staffers employ Twitter in precise ways to sway the agendas and frames of professional journalists (McGregor et al., 2017). Electoral candidates and politicians employ Twitter to summon and energize the base (Kreiss, 2014) and to attain broader attention (Parmelee & Bichard, 2012; McGregor et al., 2017). Political leaders employ emotion on Twitter as a tool for shaping public opinion (Baldwin-Philippi, 2015; Chadwick, 2013).

Twitter, on the other hand, provides avenues for individuals in the society to express their political opinions. McGregor et al. (2015) suggests that the use of social media for interpersonal purposes can lead one to express themselves politically on social media. Almost half of Twitter users in the U.S. acquired their news from the site (Pew Research Center, 2015). Some twitter users supplement the television news they get with Twitter second-screening particularly to get in-depth information about certain issue and to have discussions on said issues in the news (Gil de Zúñiga, Garcia-Perdomo & McGregor, 2015). According to McGregor et al. (2015), use of Twitter spikes around political events. They suggested that during the first debate between Mitt Romney and formal President Barack Obama in 2012, 1 in 10 people second-screened the debate. All parties including political leaders and actors, and the public have varying uses and interactions with Twitter.

News Coverage of Presidential Campaigns

Selective exposure to likeminded news and political information is the key causes for the rise of biased compositions of television news viewership today. As the consequences of partisan and biased news environment, Hyun and Moon (2016) investigated the influence of attribute agendasetting and its connection with successive candidate evaluation by investigating the prowess of broadcast and cable television news and their viewers. They concluded that TV news requires investigations as it has undertaken substantial partisan self-selection and polarization. TV viewers strive to escape cognitive dissonance, when they meet information that conflicts with their belief (Hyun & Moon, 2016). TV viewer search for news channels that are friendly to their political ideologies. In competitive television news market, TV stations are driven to exploit the

awareness by tactically associating their news content with the political ideologies of their viewers. It is not surprising that conservative leaning viewers and republicans are attracted to Fox News, while liberals leaning viewers and democrats are attracted to CNN and MSNBC (Pew Research Center, 2009).

Partisan television news coverage of presidential elections campaigns was also evaluated in terms of tone of news coverage related to competing political candidates (Project for Excellence in Journalism, 2004, 2008, 2012) and discovered that Fox News is more favorable to Republican candidates than their Democratic counterparts, while CNN and MSNBC are more favorable to Democratic candidates than their Republican counterpart. There was a slight change to this pattern by Fox news during the 2008 US presidential elections as they covered the McCain campaign negatively than Obama's campaign. Pew Research (2012) finds that individuals are less discerning of the quality of the news sources as long as this information confirms their political bias. Elanor et.al. find that users on Twitter are more likely to interact with other ideologically similar users than users with different ideologies. Similarly, Conover et al. find significant ideological segregation in retweets but ideologically crosscutting interactions in tweets that mention other Twitter users.

Donald Trump was the heart of media attention during the early stages of the 2016 presidential campaign right from when he announced his intention to run for office till when he became the Republican nominee. Trump received more media time than his opponents (Patterson, 2016b). Also, the media coverage availed him the opportunities to define his opponents more than they could define him. Trump was the loudest voice seen and heard in the news talking about his opponent, Clinton (Patterson, 2016b). Patterson (2016b) contended that Trump was readily available to the press, hence their keen focus on him and his campaign rhetoric. Trump's dominant presence in the news stemmed from the fact that his words and actions were ideally suited to journalists' story needs. The news is not about what's ordinary or expected, but about what's new and different, better yet when laced with conflict and outrage. Both candidates utilized Twitter in their speech and communications during the campaign period, but media practitioners were more focused on Trumps tweets more than Hillary's Tweets. Likewise, both candidates delivered numerous speeches during the campaign period, but media practitioners were devoted to Trump's speeches more intently

because he met their need for story which is different from the political norms (Patterson, 2016b).

Trump's speeches on controversial policy issues got coverage during the general election as did his attack on the Gold Star parents Khizr and Ghazala Khan after they criticized him in a speech at the Democratic convention. Other notable Trump's controversies include the Trump Foundation, his refusal to release his tax returns, his assertion that the political system was rigged against him, and his refusal to say that he would accept the election outcome. Trump's most notably covered controversy was the release of a hot mike video of him bragging about groping women without their consent, saying that "when you're a star, they let you do it." It was made public in early October as part of the legendary October surprise (Patterson, 2016b).

Functional Theory of Political Campaign Discourse

Relative few studies have used content analysis to examine U.S. presidential campaign speeches. Benoit et al. (2008) analyzed presidential announcement speeches from 1960-2004, Beniot et al. (2014) analyzed the 2012 presidential primary TV spots, Roberts (2013) analyzed a comparison of Web only advertisements and traditional Television advertisements from the 2004 and 2008,

Beniot et al. (2011) analyzed staying "on message": consistency in content of presidential primary campaign messages across media using the functional theory of political campaign discourse theory.

Also, Beniot et.al. 2000 analyzed nominating convention keynote speeches.

Benoit and his associates have developed the Functional Theory of Political Campaign

Discourse through a series of studies (see, e.g., Benoit, 1999, 2007; Benoit, Blaney, & Pier, 1998;

Benoit & Brazeal, 2002; Benoit & Harthcock, 1999; Benoit, Pier et al., 2002, Benoit, Stein et al., 2007; Glantz, Benoit, & Airne, 2013; Benoit & Compton, 2014). This theory posits that voting decisions are essential comparative: Each candidate strives to win by persuading voters that he or she is preferable to other candidates. He or she only must appear better for this office than opponents for enough voters.

First, a candidate can employ acclaims, engaging in self-praise. The more desirable a candidate appears to a voter, the more likely that candidate will receive a citizen's vote (Benoit & Compton, 2014). E.g. Trump using his business experience to show he understands the economy and he can create while Hilary Clinton is using her past political experience as Senator and former Secretary of State to show that she is a better candidate than Trump. Second, candidate messages can criticize or attack opponents. An attack (if persuasive to the audience) can increase the attacker's net favorability by reducing the apparent desirability of the opponent. Third, when a candidate is subjected to an attack, he or she can attempt to defend, or refute, the accusation in the attack. A defense may be able to restore some preferability lost to an attack

Functional theory posits that campaign discourse can address two potential topics: policy and character. Ultimately, a candidate can campaign on two basic topics: what they do and who they are.

Other scholars utilize the terms "issue" for policy and "image" for character (Benoit &Compton, 2014). Character or image can be considered an issue in the second sense of the term. Furthermore, because discourse concerns perceptions of reality, it is possible to speak of the "image" a candidate projects on policy, or the issues. To avoid these possible pitfalls, functional theory uses the word

"policy" rather than "issues" and "character" instead of "image" (Benoit &Compton, 2014).

Functional theory identifies three forms of policy (past deeds: record of accomplishments or failures in office, future plans: means for solving problems with governmental action, and general goals: ends for governmental action) and three forms of character (personal qualities: personality traits of candidates, leadership ability: executive or administration experience and ability, and ideals: values and principles) (Benoit &Compton, 2014). According to Benoit (2012), the ads from 2012 employed attacks at the same rate as acclaims functions of presidential primary television spots over time. In the past, acclaims always outnumbered attacks. As opposed to 2008 Republican primary spots, 82% of themes were acclaims.

Like the functional dimension, topic (policy/character) is a common approach to analyzing campaign messages. Scholars in both communication and political science have argued that party, policy and character are the three major grounds for voting decision in the U.S. elections (Benoit, Blaney, & Pier, 1998; Bibby, 2000; Levine, 1995). Among the three voting grounds, Bibby (2000) found that party affiliation is unlikely to undergo frequent changes, and therefore is different from campaign issues and candidate images that can vary from election to election. Benoit, Blaney and

Pier (1998) maintained: "Candidates occasionally switch parties, but policy and character are better sources for inventing a wide range of arguments for voters to prefer one candidate over another" (p. 24). They also argued that candidates need to use policy and character to win the votes of undecided and independent voters which are crucial in the outcome of an election. In short, the topics of policy and character are an important dimension of campaign messages.

Methodology

This study used speech content, tweets and media reports of presidential candidates for content analysis reported as used in previous studies (Benoit, 2007; Evers, 2016; Abdullah, 2018.).

The study analyzed the news stories of television (CNN, FOX and NBC) and newspapers (*The New*

York Times and *The Washington Post*) on Trump and Clinton's campaign, the candidate's speeches and their tweets. The sample is from an online source, http://www.presidency.ucsb.edu/2016_election.php. The website is a resource of the nonprofit, nonpartisan, and non-governmental organization known as The American Presidency Project. The site is an inventory of speeches, statements, and press releases of American public office holders, both past and present. The site was used because of the high quantity and quality of material it offers this research project. This study also analyzed CNN Anderson Cooper 360 and Fox news Bill O'Reilly because they were both primetime airing at the same time to showcase

the polarity and partisan nature of cable news and NBC nightly news with Lester Holt to add as a balance to the cable news program.

A total of 5,303 units was sampled and analyzed for this study. Campaign speeches delivered by the two political candidates, their tweets, and newspaper article and television news stories during the time frame were analyzed. There were 73 speeches by Donald Trump and 64 speeches by Hillary Clinton. After eliminating speeches delivered by Trump and Clinton before they emerged as presidential candidates and the Republican Party Convention (July 18, 2016 – July 21, 2016), Donald

Trump's speeches resulted in 67, while Hillary Clinton's speeches were reduced to 36. Once their announcement or running for office speech was added, there were 68 speeches from Donald Trump and 37 from Hillary Clinton. Twitter site (https://twitter.com/search-advanced?lang=en; https://www.tweetarchivist.com/) was used to search for the candidates' tweets posted within the time frame, and the search resulted in 1,470 tweets for Donald Trump and 3,211 tweets for Hillary Clinton. Lexis-Nexis was used to search newspapers stories from The New York Times, which resulted in 89 units for analysis, and Washington Post, which resulted in 94 units. News transcripts included 83 transcripts from Anderson Cooper360, 183 transcripts from NBC.com/achieves and 68 transcripts from billoreilly.com as Bill O' Reilly is no longer with FOX News after the elections.

The coding unit was a full speech. According to the functional theory of political discourse (Benoit, 1999), each unit of the speeches addresses a coherent idea about the candidates and/or their parties, as their tweets or related news stories. The coding categories include dominant themes, ton or level of prominence. The dominant theme is what is emphasized most or made most salient within news stories and particularly the lead paragraph in terms of (1) Economy (2) Foreign Trade (3) Foreign Policy (4) Taxes (5) Terrorism (6) Race relation (7) Immigration (8)Wages/ Income inequality (9) Religion (10) Gun control (11) Social Security (12) Election/campaign financing (13)

Social Issues (14) Abortion/Female issues, planned parenthood (15) Education, student loans etc. (16)

Past records: Past deeds, Scandals, achievements, etc. (17) Human Rights (18) National Security

(19) Health Care/Medicaid, (20) Environmental/Global warming. (21) Military/Defense/Veterans

(22) Others. The tone of the unit was analyzed, using the following categories: (1) Negative:

Accusatory remarks, gloomy outlook for the country, attacking opponent or opposition party,

attack on individuals, country, religion, race etc., (2) Positive: Praise of on individuals, country,

religion, race, praise of self, political party etc., (3) Neutral more balanced approach to issues or

theme of unit.

The unit is analyzed if an attack on an opponent is identified or not, and whether the unit has an attack on a political party or not. On the other hand, the unit is coded for the presence of a praise of self. The unit is analyzed for the presence of a defense of past deed or statement, future plans or policy discussion than individual characteristics. Finally, the unit is analyzed to identify the source, date and candidate(sThe unit was coded if the news story is dealing with a specific issue or policy; who is winning or losing; rumors and sensational gossip; an evaluative tone regarding the media; two opposite viewpoints; feelings of empathy; the results of action; candidates' private lives. Two coders conducted an intercoder reliability agreement test, using the 10% of the sample. The range of agreement is 89 -100 and the mean is .96.

Results

Speech		TV		Newspaper			Tweet		
Hillary	Trump	NBC	FOX	CNN	NYT	WP	Trump	Hillary	
37	68	183	68	83	89	94	1470	3211	5,303

Table 1. Summary of Sample Data employed in Content Analysis

RQ 1.1: What issues or agendas are dominantly addressed in the campaign speeches or tweets by the two competing presidential candidates during the presidential election campaigns?

But a majority *(n=29, 78%)* of Hillary Clinton's speech was addressing the economy, which is the same case with Donald Trump *(n=34, 46%)*. The candidate's speeches could not be statistically calculated because the counts of themes were more than 3 and the total number was 105.

About a half *(n=1771, 55%)* of Hillary Clinton's tweets were devoted to campaigning. Clinton addressed economy *(n=138, 4%)* in her Tweets talking about the economy *(n=260, 8%)*, social issues *(n=98, 3%)*, abortions *(n=98, 3%)*, female related issues *(n=73, 2%)*, education *(n=103, 3%)*, global warming *(n=66, 2%)*, military/veterans, and other issues *(n=88, 3%)*. Similarly, two thirds *(n=1083, 74%)* of Donald Trump tweets were devoted to campaigning. Donald Trump addressed the economy *(n=60, 4%)*, social issues *(n=32, 2%)*, foreign policy *(n=49, 3%)*, national securities issues *(n=35, 2%)*, healthcare/Medicaid, and other issues *(n=76, 5%)* in his tweets. This study supports Fico and Cote (1999), assertion that an election issue was identified as a contention by either candidate (or those speaking on their behalf), or reports that involved public policy issues in the election, or more general assertions about their opponents or themselves relative to the election which is related but not limited to the candidate's character,

credibility, or fitness for office. The result of the study revealed that there was statistical significance between the 2016 U.S. presidential candidates Tweets of their campaign messages in terms of themes, with $\chi 2$ (21, $N = 4678$) = 351.32, p < .001, Cramer's V = .27.

Theme	Hillary Clinton		Donald Trump	
	Number	Percent	Number	Percent
Economy	138*	4.30%	32	2.18%
Foreign Trade	17	0.50%	5	0.30%
Foreign Policy	70	2.20%	36	2.40%
Taxes	92*	2.90%	9	0.60%
Terrorism	38	1.20%	23	1.60%
Race Relation	89*	2.80%	5	0.30%
Immigration	70*	2.20%	19	1.30%
Wages/ Income Inequality	47*	1.50%	2	0.10%
Religion	14	0.40%	3	0.20%
Gun control	10	0.30%	5	0.30%
Social Security	17*	0.50%	2	0.10%
Election/ Campaign financing	1771	55.20%	1083	73.70%
Social Issues	260*	8.10%	60	4.10%
Abortion/ Female Issues	98*	3.10%	2	0.10%
Education	73*	2.30%	1	0.10%
Past Record	28*	0.90%	3	0.20%
Human Rights	28*	0.90%	2	0.10%
National Security	37	1.20%	49*	3.30%
HealthCare/Medicaid	54	1.70%	35	2.40%

Environmental/ Global warming	103*	3.20%	5	0.30%
Military/ Defense/ Veterans	66	2.10%	13	0.90%
Others	88	2.70%	76*	5.20%
Total	3208	100	1470	100

Table 2. Summary of Messages Utilized in the Campaign Tweets by Hillary Clinton and Donald Trump in terms of Issues (Agendas), Themes, Tones, Functions and Styles.
  *Represents Individual significant differences

The study revealed that there was a statistical significance between the two presidential candidates tweets in terms of campaign message tones, with $\chi2$ (2, $N = 4678$) = 21.943, p < .000, Cramer's V = .068. Hillary Clinton tweets, were positive (n=1530, 47.7%), negative (n=1,102, 34%), and neutral (n=576, 18%). Similarly, Donald Trump Tweets (40.8%) were positive (n=599, 40.7%), negative (n=600, ?%) and neutral (n=271, 18.4%).

Q1.2: What is the tone of the news media regarding the candidate's speeches and tweets?

The study revealed that there was a statistically significance in the news media tone regarding the candidate's speech and tweets during the 2016 U.S. presidential election cycle, with $\chi2$ (8, N =

516) = 221.093, p < .000. NBC had the coverage of negative tone (n=12, 7%), negative tone (n=40,

22%), and positive tone neutral tone (n=131, 72%). CNN coverage involved negative tone (n=21,

25%), positive tone (n=54, 65%) and neutral tone (n=8, 10 FOX News coverage was in negative tone

(n=31, 46%), positive tone (n=26, 38%) and neutral tone (n=11, 16%). *The New York Times* had 41 (46%) negative tone, 43 (48%) positive tone and 5 (6%) neutral tone. While, *The Washington Post* had 30 (32%) negative tone, 51 (56%) positive tone and 12 (13%) neutral tone. According to Evers,
"tone is an important part of media coverage" (Evers, 2016, p.10).

Source of unit	Tone of media			Total
	Negative	Positive	Neutral	
NBC	12	40	131*	183
CNN	21	54*	8	83
FOX	31	26	11	68
NYT	41	43	5	89
WP	30	51*	12	93
Total	135	214	167	516

Table 3. Tone of Media towards Candidates' Speeches and Tweets

H1: The 2016 U.S. presidential campaign speech/Tweets are full of acclaim as against negative remark and attacks on opponents.

The study did not support the hypothesis that the 2016 U.S. presidential campaign speech/Tweet sis full of acclaims as against negative remarks and attacks on opponents with $\chi2$ (1, N = 4788) = 1.983, p < .159 with yes to praise of self (n=373, 8%) and no to praise of self (n=4415, 92%), with Cramer V of 0.240. For candidate's speech, there was statistical difference with $\chi2$ (1, N = 104) = 5.980, p < .014. Hillary Clinton praised of self (n=10, 27%), but her speeches did not praise of self, while Donald Trump's speeches praised of self (n=6, 9%). For the candidates' Tweets, there was also statistical difference with$\chi2$ (1, N = 4684) = 1.548, p < .0213 Hillary Clinton Tweets were praise of self (n=255, 8%), and (n=2953, 92%), while Donald Trump praised of self (n=102, 7%).

	Praise of Self						Total	
	Speech				Tweet			
	Yes		No		Yes		No	
	No	%	no	%	No	%	no	%

Hillary Clinton	10	27	27	93	255	8	2953	92
Donald Trump	6	9	61	91	102	7	1374	93
Total	16		88		357		4327	4788

Table 4. Praise of Self By the candidates Speech/Tweet

The study also shows that the candidates' speech and tweets include attacks on opponents in differences between candidates with $\chi2$ (1, N = 4788) = .060 p < .807. For candidate's speech, there was difference with $\chi2$ (1, N = 104) = .524, p < .469. Hillary Clinton's speech (*n*=32,87%) attack opponents while Donald Trump's speeches (*n*=61, 91%) involved more attacks of opponents. For the candidates' Tweets, there was also difference with $\chi2$ (1, N = 4684) = 2.565, p < .0109. Hillary Clinton's tweets (*n*=1069, 33%) vs. Donald Trump's tweets (*n*=457, 31%)

	Attack of opponent								
	Speech				Tweet				Total
	Yes		No		Yes		No		
	no	%	no	%	no	%	no	%	
Hillary Clinton	32	87	5	13	1069	33	2139	67	
Donald Trump	61	91	6	9	457	31	1019	69	
Total	93		11		1526		3158		4788

Table 5. For attack of opponent by speech and Tweets.

Although a there is little study done with campaign acceptance speeches, and none with Tweets, the result of the study did not support Benoit & Compton (2014) in general, which found that a candidate can employ acclaims, engaging in self-praise. The more desirable a candidate appears to a voter, the more likely that candidate will receive a citizen's vote. Also, the study deviated from previous study the ads from 2012 employed attacks at the same rate as acclaims functions of presidential primary television spots over time. In the past, acclaims always outnumbered attacks. As opposed to 2008 Republican primary spots, 82% of themes were acclaims (Benoit & Compton,

2014).

H2: Candidates discussed policy in their speech/Tweets more often than individual character or image.

The study did not support the hypothesis that the 2016 U.S. presidential candidates discussed policy in their speech/Tweets more often than individual character or image with statistical difference of $\chi2$ (1, N = 4788) = 4.432, p < .035. About a third of speech/tweets (*n*=1450, 30%) cover specific issues or policy. There was a statistical difference with Cramer V of .30. (*n*=1014, 31%), where Hillary Clinton Tweets discussed policy (*n*=2231, 69%), but Donald Trump's Tweets discussed policy (*n*=436,28%). This is another deviation from Benoit (1999; 2001)'s analysis of presidential television spots from 1952 to 2000 showed that 61% accounted for policy utterances while 31% accounted for character utterances of television ads. Also, Kaid and Johnston (2001) and West (1997) all found previously that U.S. presidential spots emphasize policy over character.

H3a: The incumbent party candidate will use past deeds more for acclaims, and less for attacks,

than the challenger in the speech/Tweets of the 2016 presidential election (Benoit & Sheafer,

2006).

	Specific issues or policy					
	Yes		No		Total	
	No	%	no	%		
Hillary Clinton	1014	31	2231	69		
Donald Trump	436	28	1107	72		
					-	
Total	1450		3338		4788	

Table 6. Specific Issues or policy

The study did not support the hypothesis that the 2016 U.S. presidential incumbent party candidate will use past deeds more for acclaims, and less for attacks, than the challenger in the speech/Tweets of the 2016 presidential election with a statistical significance of $\chi2$ (1, N = 4788) = 1.576, p < .0209. Only 5 speeches and 77 Tweets of Hillary Clinton involved defending her past deed. The result is different from previous study with analysis of I960 to 1996 keynote speeches that incumbents had more acclaims (58%) than attacks (39%), whereas challengers had 58% of attacks and 42% acclaims (Kaid & Holtz-Bacha,1995).

H3b: Candidates Tweets will discourse more on results of actions (past deeds) than about

their private lives.

The study supports the hypothesis that the U.S. 2016 candidate's Tweets will discuss more of actions than their private lives with a statistical difference of χ^2 (1, N = 4788) = 14.748, p <. 000.

Hillary Clinton's Tweets discussed about result of action (n=804, 25%), while Donald Trump's tweets discussed about result of action (n=305, 20%). Both Benoit (1999) and West (1997) reported that past deeds (or domestic performances) are the most common form in the policy utterances

	Is this about candidates' private life				
	Yes		No		Total
	No	%	no	%	
Hillary Clinton	804	25	2441	75	
Donald Trump	305	20	1238	80	
Total	1109		3679		4788

Table 7. Result of past deed or candidates' private lives.

Discussion

It is worthy to note that announcements of speech via tweets and the speech and tweet itself sets the builds the media agenda. Agenda building studies how political actors, elites, political candidates, other outside factors like corporations, and foreign government influences news coverage paying special attention to types of objects, and issues. This study support previous studies (Wanta &

Foote, 1994; Huckins, 1999; Zhang & Cameron, 2003; & Kiousis et al., 2006), indicating that political leaders or elected officials, political candidates running for office, interest groups, foreign governments and political thinktanks attempts to influence media coverage.

In terms of the campaign message speech and Tweets themes, it is worthy to note that about

50% of Hillary Clinton's Tweets were devoted to campaigning. Hillary Clinton spent 4% of her Tweets talking about the economy, 8% to social issues, 3% on abortions and female related issues,

2.3% on education, 3% on global warming, 2% on military/veterans and almost 3% on other issues.

On the other hand, 70% of Donald Trump tweet were devoted to campaigning. Donald Trump spent

2% of his tweets talking about the economy, 4% to social issues, 2% on foreign policy, 3% on National securities issues, 2% on healthcare/Medicaid issues, and 5% on other issues. This study supports Fico & Cote (1999) pertaining election issue being identified as a contention by either candidate (or those speaking on their behalf) or reporters that involved public policy issues in the election or more general about campaigning and how they present their position on issues and position their opponents or themselves relative to the election which include but not limited to the candidate's character, credibility, or fitness for office.

The variables of positive tone, negative tone, and neutral tone were used to assess the tonal qualities of the campaign speeches and tweets of the 2016 U.S. presidential candidates. In positive campaign, both Trump and Clinton had over 40% positive tone in their tweet, although Hillary had a little edge of positive tone more than Trump. She had a more optimistic outlook for the country than Donald Trump. Regarding negative tone, Trump tweets were leaning more to negative tone than Clinton. However, Trump's campaign seemed overwhelmingly negative because he raised more issues, controversial tweets, brash comments, proposed outlandish policy reforms, and not a career politician, not 'politically correct', and finally a candidate from a challenging party seeking change of the status quo. The outcome of the election showed and added to previous studies that supports the use of negative tone may lead to successfully winning election.

The result of this study regarding the neutral tone indicates that both candidates employed in similar amounts of positive and negative since there is no statistically difference between the two of them. It further demonstrates that both candidates did not run solely positive that both candidates ran negative campaigns, although Trump ran a notably negative one. This study indicates that a mixture of negative tone with positive tone may help disseminate political campaign message to the electorate and persuade them to vote or not to vote for a candidate.

There is an ongoing debate on the effects of campaign tone on voters' participation and cynicism (Desposato, 2007). Some scholars are in the camp that believes negative campaign results in low in voters' participation, erosion of trust, and heightened cynicism during the election cycle (e.g., Ansolabehere, Iyengar, Simon, & Valentino,1994; Ansolabehere, Iyengar, & Simon, 1999).

While others, contends that campaign tone does not influence voters' participation (e.g. Wattenberg & Brians, 1999; Goldstein & Freedman, 2002; Finkle & Geer, 1998). And some suggest that negative campaign tones increase political participation because using attack helps to clarify issues and candidates' stances on issues of the day, thereby intensifying keen competition (Wattenberg & Brians, 1999).

For the news media tone regarding the candidate's speech and tweet during the 2016 US presidential election cycle, NBC had 12 (7%) negative tone, 40 (22%) positive tone and 131 (72%) neutral tone. CNN had 21 (25%) negative tone, 54 (65%) positive tone and 8 (10%) neutral tone.

FOX News had 31 (46%) negative tone, 26 (38%) positive tone and 11 (16%) neutral tone. *The New*

York Times had 41 (46%) negative tone, 43 (48%) positive tone and 5 (6%) neutral tone. While, *The Washington Post* had 30 (32%) negative tone, 51 (56%) positive tone and 12 (13%) neutral tone.

As stated by Evers (2016), tone is an important part of media coverage. Since the era of party press till date, the 2016 U.S. presidential elections campaign tone by the cable media matches closely to that of party press times. Although news reporting was acerbic during the Vietnam and Watergate era, it has continuously been growing progressively rancorous with the rise of partisan 24-hour cable news cycle. The 2016 U.S. presidential election supports the media saying that bad news is good news, as the media were quick to report all the negative comments and fallout of the candidate's speech and tweets. According to Patterson (2016), the media was spiraling out of control during the

2016 U.S. presidential elections, and sarcasm is rampant undermining the electorate's confidence in politics and elected officials, and it erodes both the values and principles of journalism.

Paterson (2016) also noted that journalism incentives today lies in getting a story that will go viral and acquiring a reputation as a hard-hitting reporter which encourage journalists to engage in criticism and attack; and that it's gotten to the point where the toughest story for a reporter to write about a politician is a positive story. He contends that hyper-criticism in news reporting and presentation has reached a point where many reporters and journalists have difficulty imagining what a constructive form of journalism would look like as we can see from CNN and Fox news coverage of the 2016 U.S. presidential elections campaign.

As Adams, A., & McCorkindale (2013) contended that social media tools have tremendously influenced political campaigns, and "changed the way online information flows," political candidates can be more transparent on social media by disclose who is managing the social media account; set up a social media policy; answer and respond to all inquiries; be open, honest, and forthright; and finally, be real. They argued that Twitter increases relationship building between candidates and voters. The study tried to answer three research questions bordering oh now Twitter was used by the candidates, were the candidates transparent with their use of Twitter and were the candidates creating meaningful discuss with Twitter.

Also, the use of Twitter by different politicians and their "Twitter styles" is to consider their activity on the platform, time spent reading and writing tweets, whether the account is managed alone or also by the parliamentary attachés (Frame & Brachotte, 2015). There is evidence that most of the tweet by Donald Trump were made by him because of the odd hours

and the errors found in the tweets. Donald Trump during the 2016 U.S. presidential elections showed how the Internet can enable an outsider contest and win the presidential elections by adapting a nontraditional media campaign despite being outspent two-to-one by an establishment opponent.

Due to the legacy media slip, Trump's campaign utilized social media to help fill the void and to reach out to the audience as noted by Persily (2017). Twitter is a key tool for political communication as we saw more than over 1 billion tweets connected to the U.S. 2016 presidential elections campaign period appeared on Twitter. According to CBS news, Trump had thirteen-million Twitter followers as compared to ten million for Hillary Clinton as on elections day (CBS 2017).

Retweeting from Trump's account or from one of his campaign surrogates was rife during the period.

Trump's Tweets were retweeted three times more than Hillary Clinton's, and his Facebook posts were re-shared five times more than Clinton (Pew 2016).

The emergence of Donald Trump as the winner of the U.S. 2016 presidential election may indicate that his victory was hinged on issue campaign as the results show that Trump raised more controversial issues than did Clinton. Used more attack and negative tones. One can conclude that the times are changing and the use of negative tone and having negative press coverage is not bad as it may generate a positive reaction in some members of the electorate who may have been waiting for someone to voice their thoughts and concerns.

The role of negative attack in the 2016 U.S. presidential elections and media framing of the campaigns should be studied to add to the body of knowledge. The U.S. 2016 presidential campaign ads and the patterns of party affiliations and campaign functions, topics, and ideologies will also be nice areas to study. One key factor that functional theory of political discourse takes into consideration is the role of Incumbency. Previous research shows that incumbents tend to use acclaim more than challengers, whereas challengers tend to use more of attack than the incumbent (Benoit, 1999, 2001; Benoit, Blaney & Pier, 2000; Benoit, Wells, Pier & Blaney, 1999; Kaid & Holtz-Bacha, 1995).

This pattern of challengers using attack more was confirmed in the functions of the campaign speeches, 61 out of the 67 Donald Trump speeches were more of attack of Hillary Clinton's record as secretary of state and the policies of Obama presidency. Although, there some references of Hillary Clinton's touting her successes as a senator and secretary of state as the incumbent politician, since incumbents have records of their time in office before contesting in another election, and it is reasonable that incumbents want the voters to perceive their records positively (acclaiming). Just a third of Donald Trump Tweets performed attack functions same goes for Hillary Clintons Tweets.

The challengers, Donald Trump new to politics need to portray the status quo negatively by attacking Hillary Clinton and the whole political elites and the media so that voters will wish a change in the occupant of the office.

Limitations of Study and Suggestion for Future Research

The study did not consider the retweet of the candidates' messages to find out the effect on their messages to the electorate but mainly analyzed the campaign message itself. Also, Facebook played a key role in the 2016 elections and this study did not analyze Facebook data and the study did not examine the visual elements, pictures and illustration of the 2016 U.S. presidential elections campaign messages.

The audiences effect of political campaign messages in the era of social media would make an interesting future study. A combination of framing theory and functional theory of political campaign discourse will also be a good future study.

The role of negative attack in the 2016 U.S. presidential elections and media framing of the campaigns should be studied to add to the body of knowledge. The U.S. 2016 presidential campaign ads and the patterns of party affiliations and campaign functions, topics, and ideologies will also be nice areas to study.

Functional theory of political discourse theory has been used to research newspaper and television ads and candidates debates, but this study did not use data from those area, which hence is a major limitation to the study and the future direction of study.

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Quality workplace relationships and team effectiveness: Intervening effects of team cohesion. *Lipika Neshmin Arif. Ph.D. Student, Business Administration. Mitchell College of Business University of South Alabama 5811 USA Drive South Mobile, Alabama 36688*

Abstract

Employees' relationships in the workplace have long been considered an essential factor in their well-being and overall performance in an organization. The quality of the relationship is the degree to which employees perceive that they receive necessary and robust support from their supervisors and coworkers. This paper's primary focus is to study the high-quality workplace relationships in terms of leader-member relations and peer relations and how these relationships impact team effectiveness. The paper examines team effectiveness as an outcome variable influenced by workplace relationships in which team cohesion plays a mediating role. A conceptual model (Figure 1) was developed to show the link between leader-member relationships and peer relationships, team cohesion, and team effectiveness. The conceptual model suggests that both leader-member and peer relationships are positively related to team cohesion and effectiveness. An extensive amount of literature was reviewed for developing logical judgments regarding propositions. Finally, both theoretical implications and practical implications were conferred in the paper with a direction for future research.

Keywords: Leader-member relationship; peer relationship; team cohesion; team effectiveness

Introduction

The emergent form of organizational structure is highly dependent on organized work around teams (Brueller and Carmeli, 2011). A team forms with two or more people whose work is interdependent and socially cooperative to achieve a common goal (Kozlowski and Ilgen, 2006). In the notion of increased use of the work team in the workplace, work is becoming more interdependent; thus, the organization members' relationships emphasize more than before. The relationship between individuals in the organization is necessary to exchange helpful information and ideas for making effective decisions and finding new ways to improve work processes (Carmeli, Brueller, and Dutton., 2008). Therefore, quality relationships are a significant area to concentrate on accomplishing organizational performance cooperatively.

In the workplace, high-quality relationships are considered the main channels individuals engage in learning behaviors that help the organization achieve its objectives (Lewin and Regine, 2000). Quality workplace relationships need some interdependency level that influences shared feelings and thoughts among organizational members and encourages them to engage in organizational activities together (Velmurugan, 2016). Workplace relationships, as an integration of people into a work environment, motivate employees to work together to achieve organizational effectiveness by satisfying their psychological, social, and economic needs (Love and Dustin, 2014). Quality workplace relationships in terms of leader-member relationships and peer relationships have attained enormous interest from scholars who have applied theories to assess and explain these relationships' effects on organizational performance (Caillier, 2017).

These relationships are associated with a variety of outcomes such as identifying errors (Weick and Roberts, 1993), reducing mistakes through problem-solving skills (Hochschild, 1997), engaging in learning behaviors (Lewin and Regine, 2000), and learning from failures (Carmeli, 2007). Both individuals and organizations benefit from these relationships. From individual perspectives, quality relationships allow individuals to enhance creativity (Yager, 1997) and enjoyment (Fine, 1986). Also, these relationships offer opportunities for improving social support, career development and advancement, employee commitment, morale, and retention (Kram and Isabella, 1985).

Although many studies related to quality workplace relationships and their positive influence on organizational effectiveness, very few researches focused on how quality workplace relationships can positively contribute to team effectiveness. The paper's primary focus is to examine the influence of team cohesion as a possible mediator in the relationship between high-quality relationships and team effectiveness. The current paper is based on a theoretical model that demonstrates how high-quality relationships in both leader-member and peer relationships impact team effectiveness. It is propositioned that both leader-member relationship and peer relationship positively influence team cohesion, and team cohesion, on the other hand, positively influences team effectiveness.

Based on the social exchange theory, it is logical to examine the relationship between quality workplace relationships and team effectiveness through team cohesion's intervening effect. Team cohesion possesses potential characteristics that signify the aspects of interdependent relationships between individuals. The paper has some notable contributions to the literature. The paper contributes to the study of positive social relationships in team effectiveness, focusing on behavioral aspects at work. Positive social relationships can contribute to knowledge and productivity from more knowledgeable to less knowledgeable employees. Mass and Moretti (2009) found that productivity improves when individuals work with experienced and knowledgeable coworkers. The paper conveys the importance of learning in a team context by improving workplace social relationships. Understanding relational aspects and their impact on team effectiveness will help managers promote team resilience and organizational adaptability. Finally, studying quality relationships at work is dynamic as social relationships underpin employee satisfaction, productivity, and overall involvement.

Literature Review
Workplace Relationships

Workplace relationships are concerned with unique interpersonal relationships with significant implications for individuals directly involved in the relationships and the organization where these relationships exist (Sias, 2005). Cultivating and maintaining positive relationships are the inherent needs of individuals (Baumeister and Leary, 1995). Individuals develop these relationships for the well-being of their personal lives and their jobs. Both employees and organizations are influenced by quality workplace relationships associated with positive outcomes. Workplace relationships are significant for individuals as individuals spend most of their time interacting with coworkers. Workplace relationships help employees access information, resources, and career opportunities (Dutton, Roberts, and Bednar, 2010). Access to

information and resources makes employees well-informed. Brown and Mitchell (1993) stated that when employees are well-informed from their workplace, they have greater job satisfaction and commitment. The more quality of the workplace relationships, the better well-informed employees are, thus reducing uncertainty regarding tasks and goals and ensuring better-perceived performance. Quality relationships can determine why an employee continues his/her job and why he/she leaves the job (Heapy et al., 2018). Moreover, high-quality relationships drive employees to build their individual, relational, and organizational identities (Dutton, Roberts and Bednar, 2010; Sluss and Ashforth, 2008) and make more meaningful work (Wrzesniewski and Dutton 2001).

The importance of workplace relationships is extensively highlighted in organizational research, and researchers are currently concentrating on high-quality workplace relationships in their studies. According to Stephens, Heaphy, and Dutton (2012, p. 385), high-quality relationships can be defined as "short-term, dyadic, positive interactions in terms of the subjective experience of the connected individuals and the structural features of the connection." A substantial part of the literature has focused on high-quality workplace relationships from the perspective of mentoring relationships and leader-follower relationships (Graen and Uhl-Bien, 1995). A complete understanding of high-quality workplace relationships deals with many other factors in an organization. Colbert et al. (2016) mentioned that high-quality workplace relationships play an important role in employees flourishing at work from conducting a series of studies. They found that relationship functions, such as task assistance, career advancement, emotional support, friendship, personal growth, and giving to others, positively affect employee flourishing in the workplace in terms of job satisfaction, meaningful work, positive emotions, and life satisfaction. In the workplace's socially dynamic nature, it is expected that every individual will have interactions and collaboration with each other to build and maintain a quality relationship in the workplace. According to Ferris et al. (2009), quality workplace relationships accelerate information exchanges between individuals and groups to accomplish their goals.

Exchanging information is valuable in a valuable quality relationship in collaborative work. When employees are well informed, they are less uncertain regarding their desired goals and make better decisions (Brown and Mitchell, 1993). Participants in high-quality relationships form a connection and feel valued, allowing them to overcome problems and experiment with solutions (Carmeli, Brueller, and Dutton., 2008). The amount of information and resources employees will receive is determined by the quality of their relationship with their supervisors and coworkers. Tran et al. (2018) conducted a study to examine the effect of quality workplace relationships on nurses' behavior in Vietnam hospitals, which affected their performance. The working actions they mentioned are mainly categorized as commitment, stress level, and social impact awareness. They found that the leader-member exchange relationship shows a direct and robust impact on high-quality relationships and nurse performance. The linkage of quality workplace relationships and job performance significantly improves interpersonal interactions and collaborations. To achieve organizational performance, any organization must build and maintain quality relationships with employees to achieve organizational goals.

Given the individual and organizational outcomes from quality workplace relationships, the two significant workplace relationship constructs discuss in predicting team effectiveness: the leader and member relationship and relationships among peers.

Leader-member Relationships

Leader-member relationships or employee-supervisor relationships are frequently used in organizational studies. An effective relationship between a leader and members is obtained when mutual trust, respect, and commitment exist between leaders and members. Every leader maintains a unique relationship with each of the individual members within the organization. The leader-member exchange (LMX) theory is a popular approach used to understand the effects of relational dimensions of leadership in the workplace (Brimhall et al., 2016). The leader-member relationship relies on interaction and attachment between leaders and followers. It highly depends on a people-oriented approach where a leader treats the employee as a valuable member of the organization, and trust is shared equally (Brimhall et al., 2016). A leader's relationship with his/her subordinates may vary depending on the quality of the relationship. A high-quality relationship happens when there is an exchange of a high level of information, communication, mutual support, respect, and trust. (Chen and Tjosvold, 2013). This relationship quality promotes coordination, interaction, and a positive work attitude in the workplace.

An employee's organizational identity can facilitate through the influence of the leader-member relationship. A leader's identity impacts the followers' identity, and a leader can shape the follower's identity through the values he/she communicates with the followers and through role modeling behavior (Epitropaki et al., 2017). A leader's perspectives on mutual and individual identity can foster a feeling of community (Stobbeleir, Leroy, and Buengeler, 2018). The Leader-Member Exchange theory suggests that leaders should facilitate positive interactions between leaders and employees by developing exchange relationships. Based on the situation and different relational identities such as communication, commitment, and trust, a leader can create various relationship qualities with each of his/her members (Dulebohn et al., 2012). The relationship can vary from a low-quality relationship to a high-quality relationship. A low-quality relationship refers to the formal relationship, whereas a high-quality relationship refers to the informal relationship. The supervisor often develops a high-quality relationship with subordinates (assistants and trusted employees) by giving higher levels of responsibility, decision influence, and access to resources due to limited resources and time constraints (Graen and Uhl-Bien, 1995).

Since the relationships' levels vary depending on the relationships' quality, the high-quality relationships are always facilitated by mutual trust, respect, and obligation between a leader and members (Matta et al., 2015). Individuals involved in a high-quality relationship with their supervisor have more access to organizational information and resources than those engaged in a low-quality relationship (Sparrowe and Liden, 2005). Considerable knowledge and research related to the leader-member relationship and its importance on the quality relationship between leader and members significantly contribute to individual and team outcomes (Schyns and Wolfram, 2008).

Peer Relationships

The second significant construct of quality relationships is coworker relationships or peer relationships. Contrary to the leader-member relationship, peer relationship defines as "an individual perception of his or her exchange relationship with the peer group as a whole" (Seers, 1989a, p. 119). The team-member exchange (TMX) results from the quality relationship between individuals and team members. This exchange relationship specifies sharing ideas, feedback, efforts, resources, expertise, and recognition between an employee and his/her peers as a group (Seers, 1989). Sias, Krone, and Jablin (2002) defined workplace relationships as any relationship with a coworker. The stronger the relationship, the higher the unity will be among employees. Seers, Petty, and Cashman (1995) found that the quality of member exchange relationships is positively associated with increased satisfaction with coworkers, high job satisfaction, and increased group cohesiveness. When employees are in a high-quality TMX relationship, it will satisfy their social identity needs. Social identity theory states that the human tendency is to classify themselves into social categories meaningful to them and shape how they interact with others (Tajfel, 1982).

Organizations are now aware of the benefit of quality relationships among coworkers. Research has shown that the perceptions of high-quality exchange relationships are strong motivators of organizational citizenship behavior (Hu and Liden, 2013). Most workflow occurs around teams in an organization where substantial interpersonal and social demands prioritize organizational members (Grant and Parker, 2009). Support relationships are necessary for effective organizational functioning. Bacharach, Bamberger, and McKinney (2000) suggest that peer-support frameworks such as mentoring, coaching, peer review feedback, peer counseling, and crisis interventions are extensively used to develop employees and improve organizational performance. All these aspects arise out of high-quality relationships among peers.

Theoretical Background and Propositions

Social exchange theory has been adopted as a theoretical framework for understanding workplace relationships in the context of organizational behavior. It is the most popular theory that can adequately reflect the characteristics of employees' relationships in the workplace. This theory can be applied in anthropology, social psychology, and sociology and thus develops different social exchanges. The fundamental concept of social exchange theory entails a series of interactions between two or more people that generate obligations (Emerson, 1976). These interactions are interdependent and contingent on the actions of others (Blau, 1964). Social exchange theory has implications for both the leader-member relationship and peer relationship. Social exchange relationships positively impact the organization when employers care about their employees. When employers take care of their employees, effective work behavior and positive employee attitudes improve. According to Cropanzano and Mitchell (2005), social exchange theory provided an influential framework for organizational researchers explaining workplace behavior. This theory suggests an interdependent interaction of two parties where one party provides the valued and necessary information to another party for making effective outcomes. A peer relationship is a social integration where individuals are more likely to be engaged when they understand their group's meaning and purpose (Steffens et al., 2014). In this

regard, the quality of the relationship between team members is a strategic point for understanding the team effort. The relationship between members becomes vital as a series of shared exchanges are involved. The social exchange facilitates quality workplace relationships in which shared and mutual interactions play a vital function.

Shared and mutual exchanges are fundamental principles for developing a team spirit and promoting productive behavior among team members. Social exchange theory appropriately applies to quality workplace relationships and team effectiveness. People are involved in social exchanges for instrumental benefits and intrinsic motivation (Barbuto and Gifford, 2012). In workplace relationships, individuals' view of a workgroup is to satisfy their social and belongingness needs. Individuals who support a strong sense of belonging are more likely to be engaged in teamwork and contribute to their coworkers (Penner, Midili, and Kegelmeyer, 1997). Quality peer relationships are more pertinent to the traditional workgroup because of organizational citizenship behavior among team members. As mentioned earlier, workplace relationships vary depending on the interactions' quality; individuals experiencing low-quality exchange in the team relationship may limit their interaction with team members and task completion. On the other hand, individuals experiencing high-quality exchange relationships are more likely to represent the mutual and shared trust of a social exchange relationship (Liden et al., 2000), which may advance team effectiveness. As the foundation of social exchange theory, this paper examines quality workplace relationships for predicting team effectiveness.

Workplace Relationships and Team Effectiveness

Teamwork is a term associated with collaboration, where people tend to work together to achieve common goals. Collaborative behaviors can influence the factors within the team performance environment (Tosi, Mero, and Rizzo, 2000). The team's collaborative nature encourages team members to perform to the extent where team performance is relatively higher than the sum of individuals' performance (Salas and Fiore, 2004). Providing support to members and contributing time and effort in teamwork are principal criteria for team success. Team supportive behavior identifies teammates' actions in which task assistance, positive recognition, and successful cooperation are available. The team works better when there are difficulties, interactions required, and members' interdependency (Tosi, Mero, and Rizzo, 2000). Brueller and Carmeli (2011) stated that team members frequently need other members such as peers and their managers to help them with the information and different opinions for solving various critical issues. Looking for help from others implicates the quality of the interaction of these people. Peer evaluation and feedback have a positive relationship with team processes and performance as it creates accountability to team members and an effort to help the team achieve its goals (Brutus and Donia, 2010).

Team effectiveness is a positive aspect of any organization. According to Hackman (1987), team effectiveness highlights team output, the members' capability to work together, and the impact that the group experience has on its members. For successful team performance, team diversity captured the attention of those who are interested in team studies. Team members can significantly differ in demographic, cultural, and ethnic backgrounds such as age, religion, gender, and race (Jehn, Northcraftand, and Neale, 1999; Chatman and Flynn, 2001). When a

team consists of individuals from different backgrounds, it brings other ideas, viewpoints, skills, knowledge, and abilities to solve problems and complete the work. In that case, developing a stable relationship is necessary to bring successful team contribution. The role of leader-member relationships and peer relationships significantly affects team effectiveness. High-quality relationships between the leader and members play a significant role in team effectiveness. This relationship encourages the leader and members to discuss with each other openly. This open-minded discussion brings multiple views for mutual benefit that characterizes the interactions between the leader and members (Chen and Thosvold, 2013). Through these interactions, followers feel supported, which results in team effectiveness. The more the leader and members will be involved in a high-quality relationship and supportive interaction, the more members will perform well. The leader-member relationship can directly affect team effectiveness because of the leader's role behavior. A leader's role behavior is influenced by the relationship he/she maintains with his/her members.

The role of peer relationships can also significantly play in team effectiveness. Team effectiveness is highly dependent on team member interactions. Team member interaction is a give-and-take process that expedites sharing information, integrating knowledge and idea, and collaborating with the team members (Wolff, 1999). Members involved in a high-quality relationship with their peers facilitate their interaction and represent a social exchange relationship's mutual and reciprocal trust. Also, individuals engaged in high-quality team member exchange relationships are more likely to assist each other and share information, ideas, and feedback within work teams (Tse, 2008). Peer relationships are valued in team effectiveness as members are more willing to help each other within work teams.

As a result, a team must build and maintain a quality relationship among team members. Based on the above discussion, the paper developed the following propositions:

Proposition 1: High-quality leader-member relationship is positively related to team effectiveness

Proposition 2: High-quality peer relationship is positively related to team effectiveness

The Mediating Role of Team Cohesion in between Workplace Relationships and Team Effectiveness

Workplace relationships, team cohesion, and team effectiveness are fundamentally related. Team cohesion is a multi-dimensional concept that derives from different points of view. Gross and Martin (1952) defined cohesion as the group's resistance to disruptive forces. Team cohesion refers to individuals' desire to work as a team. According to Evans and Dion (1991), cohesion is an individual's desire to remain a group member. Individuals who work as a cohesive team show a stronger desire to stick with the team. Team cohesion is how individuals are willing to work together and are attracted to the team members. Individuals who cannot feel a sense of cohesion are less likely to be motivated and participate in team performance.

Team cohesion is influenced by both the leader-member and peer relationships in an organization. According to Chiniara and Bentein (2018), a leader can encourage team performance by influencing perceptions of low leader-member exchange differentiation among team members, supporting team cohesion. They found that leaders' strong capability to build a quality relationship and support all members' development is determined by how strongly

followers are respected and valued. All followers expect to be appreciated and respected by their respective leaders and perceive no differentiation in the exchange relationship. Although there might be variances in the leader-member relationship due to differences in individual characteristics and needs, a low perceived leader-member exchange differentiation is fundamental in team cohesion. Festinger (1954) stated that it is a natural tendency for team members to rely on social comparisons with peers for judging themselves. Therefore, a low level of differentiation between peers minimizes the tendency to socially categorize themselves into subgroups and maximizes the strength of shared interest toward the team (Chiniara and Bentein, 2018). Therefore, it postulates that leader-member relationships can strengthen team members' ties and positively influence cohesion.

Team cohesiveness can play a significant role in predicting high exchange quality between leaders and members. In a work team, when there is a quality of exchange relationship between a leader and members, group members tend to work together to accomplish a complex and deligated task. Griffin (1979) mentioned that a high-quality leader-member relationship is related to subordinates' growth potential where they prefer to work to ensure successful task completion and accept additional work roles**.** Ashkanasy and O'Connor (1997) stated that individuals with a high-quality relationship with their leader might be more united because of similar value structures, demographics, and attitudes. As a result, a sense of cohesion must develop in individuals.

Proposition 3: High-quality leader-member relationship is positively related to team cohesion

In addition to the leader-member relationship, a peer relationship is necessary for team cohesion. Team cohesion is when team members develop and share the knowledge that enables a team to adjust to challenging issues and improve performance. According to Zaccaro and McCoy (1988), team cohesion is multi-dimensional that involves different focuses: social, task, individual, and group. They suggest that team cohesiveness has various dimensions why team members choose to stick with the group. For example, the social aspect of cohesion is how team members are united to develop a social relationship and activities within the team (Zaccaro and McCoy, 1988). Task cohesion is how team members can work together to achieve the team objective (Zaccaro and McCoy, 1988). The individual focus refers to personal motivation towards achieving the team objective (Zaccaro and McCoy, 1988). Finally, the group focuses on how individuals are motivated towards social relationships and activities (Zaccaro and McCoy, 1988). These factors work as antecedents for building team cohesion and depend on the team's interpersonal and group relationships.

According to Seers (1989), team members' exchange relationship explains the quality of relationships with other team members. Unlike the leader-member relationship, peer relationships are voluntary interactions among team members and rely on individual perceptions regarding the relationship (Tse, Dasboroughand, and Ashkanasy, 2008**).** Peer relationships identify with members' perception of their willingness to assist and share information and ideas with other members and how readily members get information, ideas, and feedback (Seers, Petty, and Cashman, 1995). Therefore, the member's perception of the relationship can determine

member cooperation's effectiveness in the work team. If the members' perceptions of the members' relationships are high, it can be considered both cohesive and well-coordinated.

Furthermore, high-quality peer relationships' perceptions can lead to positive interaction, reinforcing a strong sense of cohesion (Bakar and Sheer, 2013). Besides, Carron and Eys (2012) stated that a higher level of collective efficacy influences the consequences of achieving greater cohesion. When team members sense a high level of cohesion, they also feel a higher collective efficacy level. Collective efficacy improves through facilitating the exchange of information and acknowledging behavior within the team that derives from a high-quality relationship. Therefore, a high-quality relationship among team members can play a significant role in making a cohesive team.

*Proposition 4: High-quality peer relationships are positively related to team cohesion*

Team cohesion is an essential element of team effectiveness. Team effectiveness can be categorized as team productivity, team performance, or goal achievement (Guzzo and Dickson, 1996). According to Carless and De Paola (2000), teamwork literature suggests that team performance is likely to occur when the team has high cohesion because a cohesive team promotes team responsiveness and decision-making under pressure. Various studies have found a positive relationship between team cohesion and team effectiveness. For example, Carron, Bray, and Eys (2002) conducted a study based on task cohesion and team success and found that cohesion and team success are strongly related. Team performance is likely to be improved when team members have high task cohesion. Team cohesion is a vital variable in team effectiveness. When cohesion is high in teams, team members perform better, leading to team success (Martin et al., 2013). Team cohesion contributes positively to team effectiveness. When team members are cohesive, they will confidently utilize their competencies to know each other better (Mach, Dolan, and Tzafrir, 2010). An effective team needs to make agreeable effects in the relationship to work together.

The theory also suggests that when team members are more integrated toward their approach and goal fulfillment, they can implement plans more efficiently (Tekleab et al., 2009). When plans are implemented, team members may judge their team's achievability regarding whether the team can accomplish their goal. In that case, the extent to which teams are cohesive will be more likely to influence their work completion, which affects whether team members perceive the team as meaningful (Tekleab et al., 2009). According to Tabrizi (2007), the cohesive team's nature is to share knowledge through superb communication, facilitating team processes to achieve its goal. Team cohesion provides values for team performance, as there are numerous beneficial outcomes, such as trust, task commitment, job satisfaction, and motivation related to team cohesion. These positive attributes motivate individuals to perform better in the team. Therefore, it can be inferred that there is a relationship between team cohesion and team effectiveness. Based on the explanation of linkage between team cohesion and team effectiveness, the following propositions were developed:

Proposition 5: Team cohesion is positively related to team effectiveness
Proposition 6: The impact of high-quality leader-member relationship and peer relationship on team effectiveness is mediated by team cohesion

Figure 1: Conceptual Model
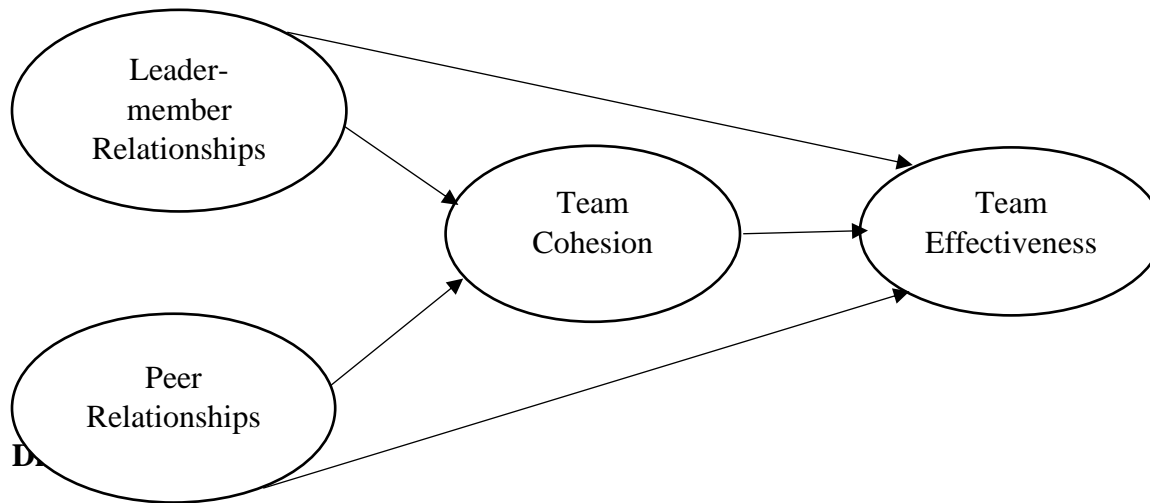
This paper's focus brought a relational perspective on team effectiveness in an organization. As constructs of quality relationships, the discussion of both leader-member and peer relationships helps to understand the impact of workplace relationships within the team context. Both relational perspectives are influential for building a quality relationship in the organization that influences team effectiveness. An extensive literature was reviewed to make a relational argument based on the conceptual model. The paper emphasizes team effectiveness as teamwork can connect with organizational outcomes such as creativity, efficiency, sense of accomplishment, and learning opportunities. A positive workplace relationship brings collaboration and cooperation in team performance through communication, support, and motivation.

Theoretical Implications

The extensive review of this paper's literature gives numerous theoretical contributions to workplace relationships and team effectiveness. Integrating social exchange theory with leader-member relationships, peer relationships, team cohesion, and team effectiveness provide a clear impression of linking interpersonal insights to team effectiveness. The emphasis on differences in exchange relationships from low-quality to high-quality relationships and their underlying impact on team effectiveness determine the LMX differentiation outcome. Moreover, the paper indicates the implication of social identity theory through predicting how individuals are motivated to interact with others in the workplace by classifying themselves into social categories. The most important thing that stands out from this paper is how leader-member relationships and peer relationships positively contribute to building quality relationships at work and thus team effectiveness. This study emphasizes workplace relationships and team effectiveness from a broader context where organizational support and collaboration are necessary to build a high-quality relationship at work.

Practical Implications

There are some significant practical implications for both the organization and the individual. From the studies of the different researchers that were reviewed in this paper, it is clear that team effectiveness enhances an organization's overall outcomes and helps team members develop professionally. Employees who work in a team will recognize the significance of social support in the workplace. Kram and Isabella (1985) mentioned that a quality relationship in the workplace enhances career development and advancement. Therefore, individuals' quality relationships with colleagues and supervisors will lead them to make social connections and make career choices and development. This study discusses workplace relationships from an optimistic viewpoint that will stimulate individuals to behave in a shared or cooperative manner rather than competition. The paper brought social interactions at work based on trusting, collaborative, and positive views that makes employees feel valued and appreciated. As a result, these perspectives will encourage employee inclusion in the workplace. Also, this paper provides considerable support to the argument that the high level of quality exchanges in a team accelerates team cohesion, facilitating the team to perform better. Therefore, organizations should find ways to create a positive workplace relationship to cultivate and support team cohesion to achieve team values and outcomes.

Limitation and Implications for Future Direction

This conceptual paper uses information only from external sources using published scholarly work. In the conceptual model, only team cohesion plays a central role in bridging quality relationships and team cohesion. This study brings the general perception of high-quality relationships without specifying contextual, psychological, or other underlying factors such as individual needs, support, and behavior contributing to high-quality relationships. Moreover, only social exchange theory is explained as an appropriate theory for understanding workplace relationships without considering other approaches such as LMX differentiation theory and organizational justice theory, which may have implications for workplace relationships.

The high-quality relationship is a promising area to study as it can connect with various organizational benefits such as employee engagement, commitment, job satisfaction, etc. It will be an impressive topic if future studies focus on a specific aspect of how a quality relationship develops in an organization. More studies should then be conducted based on what factors facilitate a high-quality relationship in the organization and how long it continues. Are there other variables such as individual identity, inclusion, individual needs impacting the relationship, team cohesion, and team effectiveness? Most of the literature studied for this paper comes from quantitative studies, where data is collected from primary sources. Future studies should consider a mixed-method approach focusing on quantitative and qualitative techniques to bring more substantial outcomes. According to McGuire, Cross and O'Donnell, (2005), globalization, changes in political and geopolitical relationships, economic restructuring, and transforming technologies of the information age are shaping the modern workplace. These forces continuously create pressure for the organization to support their practices and processes with those changes. As a result, future work team needs to develop new competencies to be effective. Therefore, future research should conduct on how LMX can support team development in the workplace for effective team outcomes.

Conclusion

Today's organizations are providing high priority on work teams. Work teams can describe things in many ways, such as a project team, self-managing team, and virtual team. The team comprises an interdependent collection of individuals where each of the individuals shares the responsibility for achieving organizational goals. Teamwork highly relies on mutual trust, cooperation, and interactions with other members of the team. Therefore, high-quality relationships are meaningful within the context of the team to be effective in any organization. High-quality relationships as leader-member relationships and peer relationships are highlighted as primary constructs that influence team effectiveness. Also, team cohesion is conferred as a mediator between high-quality relationships and team effectiveness. Based on different studies and theoretical perspectives, it is acknowledged that leader-member relationships, peer relationships, and team cohesion positively influence team effectiveness. A detailed explanation of these constructs provided substantial support in predicting team effectiveness in the workplace.

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Meeting New Challenges in Education by Creativity. *Dr. Frank Owarish, Ph.D., International Institute for Strategic Research and Training; Dr. Michael Hamlet, Ph.D., International Institute for Strategic Research and Training; Dr. Jet Mboga, Ph.D., DBA., International Institute for Strategic Research and Training; & Anup Sharma, MS Instructional Technologies*

Abstract

Educators adapted to the new normal during COVID-19 by quickly transitioning from traditional to online learning. Dr.Frank Owarish Ph.D., Executive CEO and Director of International Institute for Strategic Research and Training http://internationalinstituteforstrategicresearch.info/ focused on providing fundamentals in education by updating content on Owarish Online University platform as well as sharing knowledge in the international platform arena via sources that include BAASANA, CASA, and Khan Academy. The emphasis still stands that education is the vital source of success for today and upcoming generations and should be made available to all humanity.

Introduction: Educating with Ingenuity

Educators at all levels have been facing countless challenges due to the COVID 19 pandemic. The traditional format did not fit the emerging and evolving albeit new situation. The underlying 'classical' concepts remain valid, but new approaches to delivery have to be found; some known delivery systems have to be re-invented and new ones created. Multimedia do provide a panoply to bank on. Virtual reality became the new normal as learning opportunities shifted online to a large degree, and hybrid is a widespread terminology. The use of simulators and games has grown significantly. Two perspectives have to be kept in mind: the faculty member, albeit the instructor, and the student. The three main types of learning are cognitive, conative, and practical, and in mathematical terms, the combinations of the related tools and techniques are enormous. We have to redefine experiential learning and teaching.   With the cancellation of in-person classes, athletic season, events, admission tours, non-academic gatherings, colleges/universities, and students adapt.

Students, teachers, and administrators have been teleworking using remote technologies. Students attended classes in two modes. When students attend the live Zoom class, attend the course in Synchronous mode. Professors usually record their Zoom class, and thus a student can watch the lesson later in their time zone and therefore participate in Asynchronous mode. Within a Zoom class, teachers use the Zoom breakout rooms to promote students talking to one another in small groups, which helps keep the course interesting. Furthermore, within a Zoom class, teachers use the Zoom Poll option to create surveys and have students click on an option and then discuss the results; this promotes interaction and keeps the class interesting.

Other elements affected are dining, housing, commencement, and student clubs/associations. To lessen the impact, colleges/universities provided wellness resources for students' mental health;

24/7 hotlines, virtual counseling sessions (scheduled and drop-in hours), wellness websites, and wellness apps for mobile phones.

Even though there is a pandemic, students still have to plan and apply for jobs, and many employers have virtual positions.A solution was to use Handshake, which gives access to career opportunities and career counseling, https://joinhandshake.com/students/how-it-works/ For more information on Virtual Career Fairs, go to https://www.nationalcareerfairs.com/career-fairs-2021/

To enable remote learning, colleges/universities provided space away from home to allow students to participate in online classes; the study space provides a WIFI connection and a quiet area to attend class and even study. They also offered virtual tutoring, review workshops.

Facing existing problems: Top challenges facing U.S. Higher Education

Student Enrollment is Declining Overall: In a survey conducted by Inside Higher Ed and Gallup, only 34 percent of the institutions polled met their enrollment targets for the fall 2017 term by May 1 (declining from 37 percent in 2016 and 42 percent in 2015). In addition, 85 percent of senior admission staff reported being very concerned about reaching institutional enrollment targets.

Financial Difficulties: Inside Higher Ed also surveyed 400 chief business officers in 2017 and reported that 71 percent agreed that higher education institutions face significant financial difficulties. This is an increase of 8 percent from 2016.

Fewer High School Graduates: The Western Interstate Commission for Higher Education data estimated that in 2017 there were 80,000 fewer high school graduates than in the previous year, a decline of more than 2 percent. The sharpest declines were in Wisconsin, Illinois, and Indiana.

Decreased State Funding: Multi-year reduced state funding for public institutions and community colleges has reduced critical student services, putting significant strain on institutions.

Lower World Rankings: Decreased state funding for flagship universities is responsible, in part, for the United States slipping in world rankings. Times Higher Education's publication of the 14th annual World University Rankings of 1,000 institutions from 77 countries revealed that America's domination of the orders has slipped. For the first time in the report's history, no U.S. school ranked in the top two spots.

Declining International Student Enrollments: According to estimates cited by ICEF Monitor, 28 percent of all international students were enrolled in U.S. colleges and universities in 2001, but by 2014, the amount dropped to 22 percent. In addition, 40 percent of U.S. college and university deans expected declines in international student enrollments for the fall 2017 term. https://edservices.wiley.com/top-higher-education-challenges/

Four Analyzes Worthy of Attention

The so-called 'Lost Year' in education, a case study: Islip Terrace 17-year-old Appears on Time Magazine Cover (longislandpress.com)

From the learning perspective. Social-emotional learning is a crucial ingredient: Social Emotional Learning — Little Learners NYC.

From the teaching perspective: Teaching: More Pandemic-Driven Innovations Professors Like (chronicle.com)

How far do we push experimenting: Another Round
https://www.youtube.com/watch?v=40X5EX6Us7c

Time-Tested Hybrid Approaches are Here to Stay.

As pragmatism rules, hybrid approaches became popular with technology as a driving force.

Faculty members are making better use of videos, movies, and guest speakers (online and in-person). Better service is being made of work-study and internship. There is increasing use of field trips as well as volunteering (learning by helping others)

A look at the underpinnings: hybrid approaches to learning combine traditional face-to-face classroom experience, experiential learning objectives, and digital course delivery that emphasize the best option for each learning objective (Budhai, 2017; Cheng et al., 2019; Margulieux et al., 2016).

Practical Hybrid Course Design (Kumar, 2016; Trentin, 2016): a delicate process that requires a variety of professional input in course design to reach its full potential and take all facts into account:

- Ground the course in best practices that involve each learner needs
- Example – Hands-on experience learning in a lab setting
- Other Learners find Lab Setting to be – Inaccessible due to disability, scheduling, geographic limitations
- Weigh the needs of the learner population and access to instructor-led training or digital courses
- Work to create modules that can flex to meet the needs of learners

Implementation of Hybrid Approach (Can be customized based on conditions of learners') (Lakhal et al., 2017; Milic et al., 2016)

Hybrid based on 90/10 Model

- Students meet and engage in face-to-face discussions around materials
- Allows for other students to engage (see how others understand the content)
- Get feedback from the instructor

Hybrid based on 50/50 Model

- Weekly classroom commitment for the professor to cover critical concepts
- Reinforcement and reading outside of class

How to get the most out of Hybrid Approach (Habib, 2019; Murad et al., 2018; Rhode et al., 2017; Villegas-Ch,2020)

Use of Learning Management System (LMS)

- Machine learning
- Artificial intelligence (A.I.)
- Both aid in gathering data and identification of trends

Benefits of LMS integration with Hybrid Approach

(Baidada et al, 2018. Beuran et al, 2019; Montoya, & Ochoa-Botache, 2018; Zainuddin, & Perera, 2018).

1. The flexibility of delivery – students get face-to-face time to assist in concepts that require extra Reinforcement and explanations and lab time for a hands-on experience where warranted
2. Independent learning time to work through lesson work and assessments – not "like it or not weekly classroom commitment."
3. Reinforcement of positive behaviors through daily course interactions – Use of individualized analytics and insights
4. Assessment Analytics shape the content and objectives learned – like the students' complete lessons and modules, they are presented with an assessment to shape the learning objectives
5. Retention – Assessment tools to gather information on student retention and mastery of content learned in the offline seminar or experiential form. The use of analytics help assess individual components and if students are performing as desired in their current presentation format

Hybrid Approach

The hybrid approach entails combining face-to-face instruction with online activities (Ko & Rossen, 2017). The classroom time is reserved for student engagement and collaborative learning experiences. In contrast, online time consists of multimedia-enhanced content that allows students to interact and engage in learning activities before, during, and after their face-to-face sessions (Margulieux, 2016).

The delivery method needs to change over time as newly developed tools surface to help learners internalize important concepts (Eagleton, 2017; Kearns, 2016). Also, allow for changing the module and the face-to-face components (based on gathered data) on the delivery effectiveness (Winstone & Carless, 2019).

Getting Back to Normal or Defining the New Normal

In the Fall of 2021, Colleges/Universities expect in-person classes and working in the office for teachers and administrators. Planning is in progress regarding setting up classrooms, dining facilities, housing, campus, including athletic events. The question surrounds vaccines and possible mandates and now the problem with the so-called Delta Variant and the Lambda Variant.

Education has evolved and progressed in recent years, bringing in different notions of learning, classrooms, curriculum, pedagogies, learner profiles, and the overall system, aimed at catering better and practical learning to students, eventually resulting in the success that lasts beyond the

walls of the school. Learning is no more restricted to the age-old classroom lecture strategy. Students and parents expect much more in this digital era where "holistic education" is a trending term and the new norm. Learning has expanded to students exploring the realms of their minds and the boundaries it can push. Teachers are expected to look beyond the ordinary and adapt different styles of pedagogy that do not just appease students but imbibe various intellectual, psychological, and social skills. Parents are more involved in their students' learning journeys and rightly demand their money's worth when it comes to their children's education.

With changing learning environment and expectations – teachers, who are often the first face of education in classrooms, are expected to pace up. The challenges they faced in the last few decades have also changed on par with the changes in the education system.

Here is a look at a few challenges teachers face in the 21st century, as outlined by Jupudi & Tharayil (2018).

1. Personalisation

The age-old "one size fits all" teaching method has long outgrown, focusing on different styles of learners. Students are no longer forced to learn beyond their understanding. Instead, teaching is adjusted to help students understand their learning styles. Teachers are now expected to personalize their teaching methodologies and assessments, depending on students' learning styles, laying the foundation for student-centered learning. Various learning styles clubbed together with fixed periods can make personalization challenges.

Tip for dealing with the challenge: To make personalization less daunting and challenging, teachers must precisely identify learning styles through real-time observation and assessments – psychological and general. Proper assessment, followed by planning and prioritizing learning plans, would simplify personalization and guarantee effective implementation.

2. Making the Right Use of Technology

Digital induction in education goes far beyond merely bringing a computer into the classroom or giving digital homework. Digitalization in classrooms extends to more intrinsic adaptations such as flipped Learning, mobile Learning, A.I. based decision making, data management, e-learning, visual learning, animations, digital assessments, record keeping, etc. Teachers may also get overwhelmed, trying to curate content from varied information sources and keep track of students' learning who may depend on various digital sources.

Tip for dealing with the challenge: Plan your strategy well in advance. Have a clear picture of your goals for the year, and decide which form of digitalization may best meet student needs. Take the help of EdTech platforms to make your job easier and get a precise picture of your students' profiles and relevant approaches.

3. Classroom Management

Classroom management is often misunderstood as simple as keeping the class in control. In reality, however, teachers must ensure that their teaching strategies keep students of different learning styles and behaviors from getting distracted and that they are organized, attentive, focused, and interested in the classroom, and are indeed learning, not merely listening in a class. Changing learning strategies also change a classroom's dynamics, making classroom

management more challenging than before. Students are not just passive listeners anymore. They expect to be active participants and feel influential and respected in the class.

Tip for dealing with the challenge: Effective classroom management requires patience, planning, and perspective. Do not brush off your students' views and opinions. Make them feel heard and understood. Notice and appreciate good behavior, and confront bad behavior respectfully. Create a friendly, open environment in the classroom. Students tend to learn better when the classroom culture does not intimidate them.

4. Curriculum

Teaching was probably far less challenging when learning and curriculum were limited to textbooks and classrooms. Modern Education demands a dynamic curriculum that encompasses content, competencies, and essential skills aimed at the overall development of a student, than mere academic scores. Teachers must create a student-centric curriculum that piques their learning interests and abilities and instills critical, creative, and cognitive thinking, acting as the base for lifelong skill development.

Tip for dealing with the challenge: Create a curriculum in collaboration with students and their learning plans. Regularly review its effectiveness and update if necessary to meet the learning needs of students.

5. Global Awareness

Education today does not just groom students for knowledge, survival, and careers. It aims at creating future leaders and global citizens with an integrated view and approach of communities and the world alike. Hence, teachers are expected to create global awareness in students, helping them understand environmental, social, cultural, political, and economic events in the world and the role they play or can play in it. Students must also be familiarized with various values such as tolerance, empathy, equality, justice, and inclusion.

Tip for dealing with the challenge: Use creative approaches such as literature, language, arts, food, culture, and travel to instill global awareness. Have regular discussions over current events and news updates. Cultivate understanding, empathy, and fairness through conversations and examples.

Student Overall Development

Teachers of the 21st century are undeniably dealing with new challenges. Still, it is to be noted that they are now more accountable for a student's overall development, laying the foundation for lifelong progress. The challenges may have changed, but so have the resources and rewards, and with constant new updates in the education sector, the teaching scenario may only change for the better.

- A critical look at university culture in the U.S.: a case study "Are we as faculty members supposed to place our students in mold or to foster independent reasoning?" https://www.msn.com/en-us/lifestyle/lifestyle-buzz/a-north-korean-defector-says-going-to-columbia-university-reminded-her-of-the-oppressive-regime-saying-she-felt-forced-to-think-the-way-they-want-you-to-think/ar-AAL48L3?ocid=msedgntp

- The Far Right's College Crusade (Eric Kellerman) How extremists are infiltrating and fracturing campus https://www.chronicle.com/article/the-far-rights-college-crusade
- Harvard Project Zero: A comprehensive look at Education https://pz.harvard.edu/projects

Six Things to See In U.S. Higher Education In 2021

Rosowsky (2021) outlines the following:

#1. Colleges and universities will take meaningful steps toward access and affordability, including admissions reforms. Access does not mean seeking the broadest geographical distribution of students. All schools do not need to show they can attract students from every state in the nation. Focus on access locally, regionally, and throughout communities most connected to and impacted by the institution. If schools are genuinely committed to social mobility, this must start locally. Adopt a lean philosophy, abandon the arms race. Recommit to academic program quality and student success. Compete with yourself to get better, more efficient, more focused on outcomes than inputs. Then, reduce costs to students and families.

#2. Colleges and universities will embrace innovation and commit to making needed changes now. Use the urgency of the pandemic and its profound impacts to make changes in how you operate, what you offer, and to whom you offer it. Every other industry sector has evolved over the last 30 years, 50 years, 100 years. Higher ed, by contrast, has remained remarkably unchanged, struggling to be responsive and resistant to significant adaptation even as the world around it has changed. Clinging to traditions has its place, but so does creating new ones. Evolving programs, practices, and priorities does not mean abandoning core values. An implicit core value should always remain current, relevant, forward-looking, responsive, and adaptive. Colleges and universities should embrace innovation across the board, in program offerings, pedagogy, instructional modalities, admission and retention strategies, academic calendar, faculty types and promotion criteria, local and global partnerships, the definition of degrees/credentials, flexible pathways, alumni engagement, capital project construction including public-private partnerships, and experiential learning and internships.

#3. Governing boards (trustees, regents) will charge university presidents/chancellors to make fundamental reforms and then back them through the complicated steps. Boards must stand visibly behind their presidents, stand up to criticisms and resistance, and set clear timelines for needed change. Hire the right leader. Give that leader a mandate, a timeline, cover, support, and job security. Hiring and steadfastly supporting the right individual while setting clear expectations and timelines for achieving milestones and affecting needed change can end the revolving door of campus leadership all too common on our campuses. Stability is a platform for success. These positions are difficult enough without making those that serve sacrificial.

#4. Colleges and universities abandon the rankings. Consider the experiment tried, tested, and failed. National (and now international) rankings have become ubiquitous. They have crept into mission statements, strategic plans, and campus culture. There is scant evidence they have done anything to hold colleges and universities to account, drive real progress, improve applicant pools or student quality, or elevate institutional standings. However, what is clear is that schools are investing significant amounts of time, energy, and money in chasing the rankings. Externally it does little. Internally it creates controversy and strife as faculty (and students) try to understand

why the investments, the competition, and the sometimes seemingly singular focus on rankings. Colleges and universities can do more to advance their mission, impact, and (yes) their standing by competing with themselves to get better, rather than by competing with others. It is a zero-sum game. For one school to move up in a given ranking system, one must move down. If all schools are competing against one another for rankings, the only way for all schools to show they have moved "up" is to have an explosion of new rankings. In that way, everyone can win, somewhere. Once that happens, these rankings have even less value. This is precisely what has happened. Abandon the rankings or at least the chase. Know your peer and aspirant institutions and follow their efforts and progress. Understand the national higher ed landscape and look for success stories and best practices. Know yourself. Set your goals, achieve against them, and tell your story about why commitment and success matter. If they do, people will pay attention. Focusing on academic program quality and student success will never steer you wrong.

#5. Colleges and universities will create even stronger connections with their communities. Public or private, large or small, these institutions are central to the success of their hometowns and should seek to be integral to their communities' vitality, resilience, and success. They should create meaningful ways for students to engage in the community and for community members to engage in the institution's life. Colleges should extend commitments to helping cities and towns recover to assist them in becoming more resilient. Responsibilities should be made to workforce development and job retraining, social justice, and social mobility. Together, cities and universities should develop an inventive program/strategy for attracting, starting, and growing businesses. Opportunities for learning, discovery, arts, culture, athletic and other events should be more than just made available to the public. Community members should be sought out and welcomed. A university's goals should include lifting its community.

#6. Colleges and universities will affirm and communicate their value in more contemporary and hopefully more compelling ways. The public needs to understand the importance of higher education today, the opportunities colleges provide their students, and the many ways they contribute to their neighborhoods and communities. Furthermore, colleges and universities need to better articulate their value proposition to prospective students and families and legislators, business leaders, local government, and the public. They should re-affirm and articulate commitments to access, affordability, career readiness, post-graduation outcomes, social mobility, discovery and innovation (especially on topics that matter most to the non-university audience), service, life-long Learning, program/degree options for non-traditional students, and local/regional economic impact. Finally, they should demonstrate and communicate specific outcomes to close the loop on the articulated (and authentic) value proposition.

Goldie Blumenstyk: Been hearing a lot lately about employers' difficulty filling jobs right now? Just wait. Tracking mass retirements of baby boomers, low birth rates, and declining levels of labor-market participation among millennials and Gen Xers, experts at the economic-modeling firm Emsi have predicted a radical demographic shift that will ripple through higher ed, as well as the rest of the economy (Bersin, 2021).

The Emsi report on this "pandemic" (meaning without people, or in this case, without enough people) is called "The Demographic Drought." The firm is not the first to document these phenomena, but its report is a helpful compendium and analysis of some key trends. Coupled with the latest findings from the U.S. Census Bureau on the nation's slowing population growth

(partly the result of a slowdown in immigration), the report makes for some valuable reading for anyone thinking about where higher education might be beheaded (Bersin, 2021).

Conclusion: The Importance of Research

Research has always been an essential component of education; on the one hand, faculty members research to enrich their teaching and teach students about research methods and undertake research and prepare dissertations and theses, culminating in the Ph.D. thesis. In context, academic conferences constitute essential testing grounds for research papers leading to fine-tuning and publication. Academic conferences also make it possible for colleague professors to undertake joint ventures. Covid 19 has made research even more critical, fostering the need for ingenuity. Here it is the research of an evaluative nature, making it possible to determine what works and what does not, particularly methods of delivery (formative) and results (summative).

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