

Beyond Buzzwords and Bystanders: A Framework for Systematically Developing a Diverse, Mission Ready, and Innovative Coast Guard Workforce

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Dr. Kimberly Young-McLear is currently an Assistant Professor (Permanent Commissioned Teaching Staff) at the U.S. Coast Guard Academy. She has served at a variety of Coast Guard units since 2003. She holds engineering and technical degrees from Florida A and M, Purdue, and The George Washington University (Ph.D in Systems Engineering). She has taught a breadth of courses including Operations and Project Management, Senior Capstone Design, Introduction to Computing, Crisis Mapping & Cybernetics, and Cybersecurity Risk Management. She has been instrumental in enhancing the inclusion of cybersecurity training and education program at the Academy for cadets and faculty. She has also been active in leveraging partnerships with the Department of Homeland Security, and Coast Guard C4IT, acquisitions, engineering, enterprise management, and research and development communities. LCDR Young-McLear has been instrumental in advancing the Coast Guard through STEM. She was selected as the 2017 Capt. Niels P. Thomsen Innovation Award for Cultural Change for her research in leveraging social media for large-scale disaster response during Hurricanes Harvey and Irma. Her efforts contributed to the creation of new solutions for the 2018 hurricane season, including Hurricanes Florence and Michael. LCDR Young-McLear was a key thought leader for the development of the Coast Guard Academy's first cyber undergraduate major. Furthermore as Vice Chair, she leads a multidisciplinary faculty Cyber Council to advance cyber curriculum and research at the Academy. Her research niche is focused on protecting critical infrastructure from cyber threats in the Maritime Domain. LCDR Young-McLear is also the program developer for NET21, a middle school outreach program, designed to systematically close STEM gaps amongst underrepresented students and teachers of color in the field of cybersecurity.

Dr. Sharon Zelmanowitz P.E., U.S. Coast Guard Academy

Dr. Zelmanowitz is Dean of Engineering at the United States Coast Guard Academy and Professor of Civil Engineering. As an institutional change agent, she has catalyzed the formation of a USCGA diversity initiative inspired by the ASEE Engineering Deans Diversity Initiative and has brought faculty and stakeholders together to employ best practices to meet the the Coast Guard's urgent need for more engineers prepared for 21st century technical challenges. Her teaching, research, and capstone projects span a wide array of environmental issues including storm sewer and sanitary sewer redesign, shipboard wastewater treatment, constructed wetlands, and on-site wastewater treatment systems.

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Prior to joining the Coast Guard, Dr. James served with AmeriCorps*National Civilian Community Corps (NCCC) as a Team Leader, he then graduated from USCG Boot Camp class Y-149 in 1996. CDR James attended New Mexico State University under the Coast Guard's College Student Pre-Commissioning Initiative (CSPI) program and worked as a Project Engineer at the Command and Control Engineering Center (C2CEN) and from there was selected for the Academy Instructor Masters program. Dr. James earned a Master's of Science Degree from Columbia University, and began teaching at the academy in 2004. CDR James completed a his Doctorate in Plasma Physics at Columbia's Plasma Physics Lab through Steven's Institute of Technology in December 2008. Since then he has been the PI of the Coast Guard Academy Plasma Lab (CGAPL), Department Equity Officer, Science Lecture Coordinator, Internship Coordinator, Co-founder/Director for CGA's Science Partnership for Innovation in Learning (Project SPIL), Genesis & Spectrum Council (CGA's Black and Gay Student Unions) and the Science Department Diversity & Inclusion Officer. CDR James recently served as the Head of the Physics Section at the Coast Guard Academy, is a co-founder of the New London Freedom School, a Science Technology and Mathematics Magnet School Board Member, and Member of the Nuclear Energy Advisory Council for the state of CT, BEYA awardee, and is currently an AFIT Visiting Faculty Fellow in the Engineering Physics Department.

Lt. Dani Brunswick, Coast Guard

LT Dani Brunswick is currently an Instructor at the U.S. Coast Guard Academy. Their previous units include the Coast Guard Cutter VENTUROUS in St. Petersburg, FL and the Command, Control, Communications, Computers, and Information Technology Department at Base Portsmouth, VA. They hold a Masters of Science Degree in Electrical Engineering from Oregon State University where they focused on the application of control theory to ocean wave energy converters. In addition to currently teaching courses in the Electrical Engineering and Cyber Systems section at CGA, they also help assistant coach the Women's Rugby team, co-advise the CGA LGBTQIA+ Spectrum Council, and is one of four action team leaders for the Engineering Dean's Diversity Initiative, focusing on the health of climate. These action teams stem from a grassroots effort within the CGA's School of Engineering to create a scalable approach to transform any work environment to meet the needs of a 21st century CG. Additionally, within the community of New London, CT, they volunteer for Step Up New London, whose mission is to support the power of Black and Brown parents fighting for justice and equity in the local education system.

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Beyond buzzwords and bystanders: A framework for systematically developing a diverse, mission ready, and innovative Coast Guard workforce

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Abstract:

The U.S. Coast Guard is one of the most premiere law enforcement and lifesaving organizations in the world. As one of the smallest branches of the Armed Forces, the Coast Guard often delivers well above its relative workforce size. To effectively execute the multiple missions of the Coast Guard, the performance of every member of the organization counts. Optimizing its workforce, including the personnel composition, is therefore vital to national security. Historically, the Coast Guard has been challenged by a lack of racial and ethnic diversity, relative to its sister branches of the Armed Services. This paper proposes a framework for systematically developing a diverse, mission ready, and innovative Coast Guard workforce. In 2017, Category 4 Hurricane Harvey made landfall and challenged the Coast Guard workforce in how it responded to one of the largest storms ever recorded in history. Using the framework presented in this paper, more than 100 diverse students and faculty at the U.S. Coast Guard Academy - in a ground-breaking innovative first for the service - directly supported Coast Guard hurricane response operations. This paper defines the key elements of the framework, operationalizes the framework in practice, presents a Coast Guard case study, and states implications for applying the framework for the front lines of Coast Guard operations, which the authors believe are scalable. Furthermore, the authors of this paper serve in a unique position, not only as civilian and active duty members of the Coast Guard, but they are also full-time educators at the U.S. Coast Guard Academy charged with developing 50% of the entire future officer workforce in New London, Connecticut.

Introduction:

The primary mission of the U.S. Coast Guard Academy (USCGA) is to develop leaders of character for public service in the United States Coast Guard. One important trait of a leader is to the ability to develop, create and foster a work environment where all people can thrive. As a STEM institution, the USCGA develops the majority of engineering graduates needed to meet 21st century Coast Guard technical challenges. The importance of culturally competent technical leaders is highlighted by the Coast Guard's Strategic Vision for CGA which includes increasing the diversity of faculty, staff, and cadets while increasing the total number of engineering graduates to meet service needs.

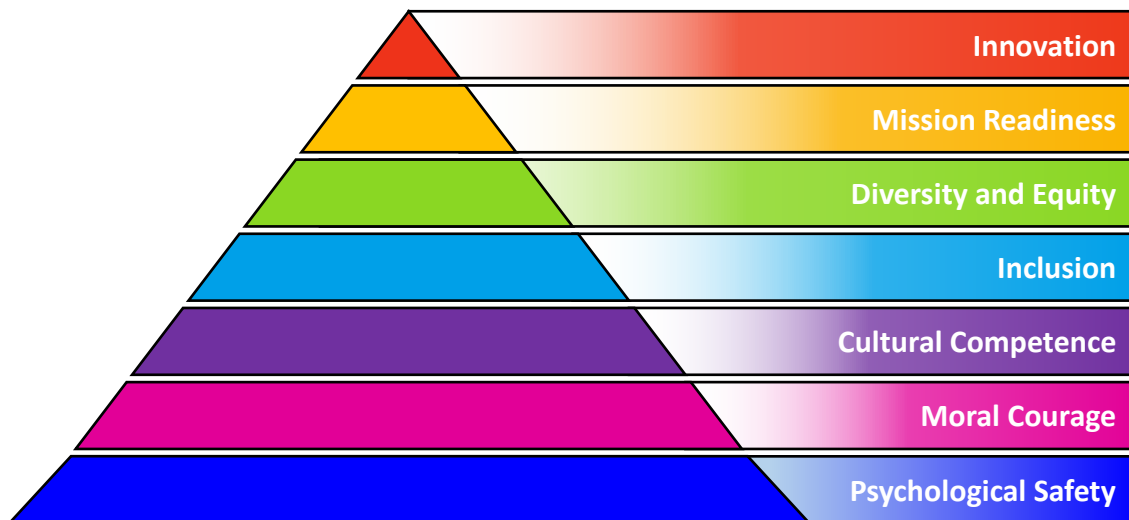
Previous efforts to increase the total number of engineering graduates and to foster equity and diversity among faculty and cadets have had limited success. To remedy this, a USCGA Department of Engineering diversity initiative, aligned with the ASEE Engineering Deans Diversity Pledge, has resulted in a framework for sustainable equity and diversity. Built on a foundation of psychological safety that supports a healthy climate, this framework encourages

moral courage, and empowers faculty, staff and students to come together to reimagine the system to recruit and retain a diverse officer corps.

Because USCGA is the accession point for half of the officer corps, and for most of the uniformed engineering workforce for the Coast Guard, building the foundation for a thriving and healthy Coast Guard workforce should begin at the Academy. But to realize its true potential and benefit, the framework should be applied across the broader Coast Guard to ensure we close longstanding equity gaps and foster healthy work environments. This paper describes how to use the framework to develop a “Ready, Relevant, and Responsive” workforce that meets the complex needs of our 21st century Coast Guard in service to the American people.

A Systems Engineering Approach:

The proposed framework, born from a systems-engineering perspective, is shown in Figure 1. Systems engineering is a field which understands the complexity of the behavior and interaction among individual system components. As a discipline, systems engineering is used to solve some of society’s most complex challenges. Systems engineering is rooted in understanding both natural systems (climate, social systems, etc), as well as, technical and human-made systems (cybersecurity, transportation, aviation, etc). Just as in the human body, organizations have several systems and sub-systems working together to keep the organization healthy. As one system fails or underperforms, it may impact other systems as well as the overall health of the body. Before systems engineers attempt to remedy any system malfunction or failure (perceived or real), a systems mindset is practiced through a series of high-level steps, to better understand relationships among subsystems, which is a practice common in the healthcare profession.



Developed by Dr. Kimberly Young-McLear, U.S. Coast Guard Academy [1]

Figure 1: Framework to Building a Healthy and Innovative Workforce

The steps include:

1. Study the system symptoms (baseline medical history)
2. Understand the malfunction (run tests, obtain 2nd opinions, etc.)
3. Acknowledge and identify the malfunction (diagnose)
4. Develop a solution to address the root cause without negatively impacting other systems (treatment & recovery plan)
5. Monitor the progress (patient feedback if symptoms persist)
6. Engineer controls to prevent similar malfunctions (patient education, diet, prosthetics, etc.)

The Coast Guard must intentionally seek out a diversity of “non-traditional” stakeholders during each of the steps outlined above. A diversity of experience, thought and perspective enriches the problem-solving process. Our Diamond Model, shown in Figure 2, illustrates the need for “survivors” to help solve complex medical problems because the doctor alone cannot make a diagnosis without a complete understanding of the symptoms explained by the patient.

For example, in a shipyard, the welder may have some of the best ship production solutions because they are closest to observing structural cracks and material failure. The Coast Guard must leverage its online crowdsourcing platform Ideas@Work and other structural methods to systematically gain first-hand knowledge of the symptoms, while at the same time, empower the people who are the most impacted by system malfunctions to be the champions for change itself. This approach would foster better results more efficiently and would instill confidence in systematically marginalized groups of people who have been negatively impacted by failing or malfunctioning systems.

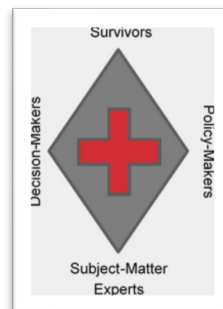


Figure 2: Diamond Model

Our Diamond Model can be specifically applied to each horizontal stage in the proposed framework. It is a non-linear systematic approach to rapidly and effectively drive an organization through each stage of the framework, from psychological safety to innovation, by adequately leveraging diversity of perspectives from decision-makers, subject matter experts, policy-makers, and survivors (or systematically marginalized groups of people). This process must be practiced throughout the entire lifecycle of policies, procedures, and practices within the Coast Guard. Each stage of the framework is described in the following sections.

Psychological Safety:

To serve the American people successfully and compassionately, the Coast Guard must achieve workforce equity and diversity in support of its mission readiness and innovation. It is imperative, however, to first build psychological safety, moral courage, and cultural competence. The foundation of this framework begins with psychological safety, which is defined as a service culture where all members have the confidence to serve as their authentic selves where self-knowledge, initiative, creativity, and self-empowerment are rewarded in an environment of interpersonal risk-taking [2]. Research shows that psychological safety is the most significant component of high performing individuals and teams across an organization [3]. The Coast Guard must commit itself to creating a culture where there is genuine care about the dignity and well-being of its people, so that individuals are valued and bring their whole and authentic selves to work or to the classroom. Employees, and in particular, systematically marginalized groups of people, must be able to share their perspectives and contribute to organizational solutions without fear of marginalization, retaliation, bullying, or discrimination.

The Coast Guard must create a climate where psychological safety is at its core; it cannot be an afterthought, it must imbue the culture, decisions and policies of the organization. Including Diamond Model components is mandatory, because assessing and building psychological safety must involve decision-makers, subject matter experts, policy-makers, and survivors. Because of the nature of safety, it is imperative to ensure that the people most negatively affected by systematic failures are on the forefront for change and a beacon for progress. To lead change, policy and decision makers must critically examine gaps, blind spots and shortcomings in existing doctrine and implement solutions leveraging subject matter experts, survivors and systematically marginalized groups of people. Research demonstrates that any form of oppression can have a significant and negative impact on both mental and physical health for all members of a workplace environment, and disproportionately affects systematically marginalized groups of people [4]. Racism, sexism, homophobia, transphobia, ableism, and all other types of oppression can take on overt and covert, blatant and subtle, and conscious and unconscious forms. For true psychological safety, the organization must be fully committed to eliminating all forms of oppression.

Moral Courage:

Building upon psychologically safe work environments, the Coast Guard must create a morally courageous workforce, where all members have an immediate bias for action to intervene against any culture or practice that inhibits the safety of any of our members. “Managers who treat ethics as a routine activity, by holding people accountable, encouraging reflection and discourse around ethical issues, and responding to challenges with moral courage, can help prepare fellow organizational members to identify and address similar issues before they become full-blown problems [5].” Coast Guard members must have the moral courage to intervene against violations of laws, policies, or the Coast Guard core values of honor, respect, and devotion to duty. Although managers may instinctually prefer employee behaviors that support the status quo, it is important to encourage and value those workers who are willing to speak up and challenge existing conditions [6]. Leaders across our workforce must instill a culture where members not only feel safe to speak up, but also have the full support, tools, and skills to do so.

Developing a “speak up” culture requires humility, patience, compassion, active listening and critical thinking. Additional skills include facilitating constructive argument, giving actionable feedback, taking advice from the team (and acting on it), sharing credit for team success, and maintaining regular contact with team members [7]. The Coast Guard should highlight this approach with examples from other industries such as health care or aviation, to demonstrate how speaking up can save lives and has become integral to the success of their mission. Survivors who have demonstrated exceptional moral courage within the Coast Guard and have tangible experience should be essential role models within the organization. By learning from the experience of others, policy-makers should examine gaps in policies and assess any workforce barriers, such as the prevalence of retaliation, to developing a morally courageous workforce.

Cultural Competence:

Five primary competencies required to develop cultural competence include [8]:

1. Valuing diversity
2. Having the capacity for cultural self-assessment
3. Being conscious of the dynamics inherent when cultures interact
4. Having institutionalized cultural knowledge
5. Having developed adaptations to service delivery reflecting an understanding of cultural diversity

As the Coast Guard endeavors to holistically establish and develop cultural competence from a place of personal psychological safety and through moral courage, each of these five elements must be evident in policy and practice throughout the organization. Developing cultural competence systematically within a workforce requires subject-matter expertise and involvement by systemically marginalized groups. For example, the Coast Guard should have individuals, both as internal or external subject matter experts in race, gender, gender identity, sexual orientation, religion, ethnicity, education, job position, intersectionality, etc. develop training, education, and new cultural norms for employee engagement.

Working effectively in cross-cultural interactions combined with moral courage, will lead to a bias for compassion and tangible action to prevent and respond to social injustices and inequities within the workforce. Individuals must be rewarded for continually developing their cultural competence by increasing their knowledge, skills, attitudes, and awareness about themselves, cultures, institutions, and our organizational systems. The Coast Guard will need to engender cultural competence “...at every level of [the] organization including policy making, administrative, and practice. Further these elements should be reflected in the attitudes, structures, policies and services of the organization [8].”

Inclusion:

A climate of inclusion can be defined as individuals perceiving acceptance within the organization, as well as the ability to bring unique contributions to the workplace [9]. As the organization achieves greater cultural competence the unique contributions of its individuals will be more readily recognized and valued. To be effective and sustainable, inclusion must rest on a

foundation of psychological safety and cultural competence and involve subject-matter experts and systematically marginalized groups in policy-setting and decision-making. Organizations must ensure that the perspectives and ideas of marginalized groups are respected and infused into policy and practice. A review of the book “Meltdown” [10] found that, “as much as we’re predisposed to agree with a group, our willingness to disagree increases dramatically if the group is diverse; deference dissipates...Homogeneity may facilitate ‘smooth, effortless interactions,’ according to the authors, but diversity drives better decisions [11].” Organizations that have invested in building psychological safety, moral courage, and cultural competence, will be better suited to foster inclusion and overcome any perceived discomforts with disagreements. Inclusivity “requires the re-examination of mission statements; policies and procedures; administrative practices; staff recruitment, hiring and retention; professional development and in-service training; translation and interpretation processes; family/professional/community partnerships; health care practices and interventions including addressing racial/ethnic health disparities and access issues; health education and promotion practices/materials; and community and state needs assessment protocols [12].”

Diversity and Equity:

In the traditional sense, diversity refers to the state of having distinct or unlike elements. In the workplace environment, diversity means employing workers who are different from each other or come from different backgrounds. Extending the concept of diversity from attributes such as race, gender, age, etc., to the entire spectrum of human differences, is crucial to efforts to recruit, retain and develop employees from systematically marginalized groups while creating internal structures to sustain an effective diversity program [13]. Diversity competence, at both the organizational and individual level, helps organizations to remain competitive by unbridling creativity, encouraging innovation and by reducing the gap between increasingly diverse customers [14]. In the case of the Coast Guard, the customer is the American public. As discussed at every stage of the framework, diversity programs must be based on input from subject-matter experts and systematically marginalized groups of people. Without psychological safety, moral courage, cultural competence, and inclusion, diversity will be unsustainable and efforts to diversify will be harmful to systematically marginalized groups of people who are often ignored or dismissed when diversity programs are developed and implemented.

The concept of equity goes far beyond fair treatment of everyone. When equity exists within an organization, employees not only have equal opportunities but are also accepted, valued, heard and included for their differences. One interpretation of “equity” is grounded in the equity theory, which is a positive theory pertaining to individual conceptions of fairness and establishes a relationship between fairness and employee effort, i.e., the ratio of contributions and benefits [15]. When an equitable workplace environment exists, benefits such as increased work productivity, improved retention, and the ability to attract new employee talent is realized and the breadth of diversity within the organization matures. When organizations review their equity data, they may lean towards “recruiting” to close gaps without understanding the root causes of how their own systems and overlapping systems disproportionately harm certain employees.

Action Teams Operationalize the Framework:

At the USCGA, the Engineering Deans Diversity Initiative has organized into four Action Teams around the framework to develop a diverse Coast Guard workforce ready to meet 21st century challenges. The four teams seek to systemically address all phases of the framework to ensure sustainable diversity and equity is achieved to support mission readiness and foster innovation. The four Action Teams include (1) Health of Climate, (2) Cultural Competence, (3) Access and Equity, and (4) Strategic Partnerships.

The Health of Climate team strives to foster psychological safety and moral courage. The team is invested in bringing experts together with the community, including members of marginalized groups, to create a psychologically safe environment. A community feedback system is being implemented to ensure that workplace climate issues are identified and addressed in a timely manner. The Cultural Competence team builds on that foundation to cultivate an inclusive culture and to unleash the power of diverse perspectives. This team has sponsored events to promote pedagogy that fuses technical subject matter with cultural exploration and has supported community-based workshop participation to address racism and all forms of oppression. The cultural competence team has also established a shared portal site for posting and sharing ideas and resources. The Access and Equity team researches and applies best practices to recruit diverse student and faculty populations and to ensure equitable opportunities and outcomes. Based on exhaustive data analysis and study of best practice in engineering education, this team has prioritized pipelines and bridge programs to build community and foster student success. Finally, the Strategic Partnerships team seizes opportunities to build relationships that drive mission readiness and innovation. This action team is dedicated to improving existing recruiting programs and is exploring partnerships with minority serving institutions to share best practices and forge research and exchange partnerships.

Applying the Framework from Psychological Safety to Innovation: A Case Study

In 2017, during the Coast Guard's response to Hurricane Harvey and Irma, application of the framework resulted in ground-breaking organizational innovations and lives saved [1]. More than 100 students from the Coast Guard Academy voluntarily participated in monitoring social media for two major hurricanes. An ineffective approach would have been to rely solely on training the students on the technical procedures of monitoring social media and expecting innovation. Instead, response to two of the largest hurricanes ever recorded in history began with faculty members leveraging the Diamond Model to assess the existing structure, policies, systems, and culture within the Coast Guard Academy and Coast Guard as it pertained to using social media for disaster response. Using this new baseline information, faculty then created psychologically safe spaces where the students were rewarded for creativity and open communication with each other, given this was the first time that an academic institution was supporting Coast Guard operations during a hurricane. The psychologically safe spaces and interactions attracted a very diverse group of students to be a part of the initiative. Faculty mentors instilled a sense of moral purpose and the students were energized as they worked inclusively together. Faculty mentors assessed equity gaps between operational needs and the skillsets of the students, such as foreign language, to translate messages posted on social media. Where there were gaps, students sought out additional students with specific experiences, perspectives, and skillsets to address any areas where lack of diversity affected mission effectiveness. Innovation transcended as the team adapted to new obstacles and the Academy

team was able to respond to a second record-shattering consecutive large-scale hurricane. In the following hurricane season, the Coast Guard went on to create a new formal process for leveraging social media for any future large-scale disasters.

Applying the Framework to the Operational Coast Guard

Inclusion, diversity & equity, mission readiness, and innovation, are only truly achievable by building an authentic individual and organizational foundation of psychological safety, moral courage, and cultural competence. By leveraging strong partnerships that exist between USCGA engineering and our stakeholders in the Coast Guard, our systematic framework can be applied throughout the Coast Guard. Ideally, all those who serve will embark on a personal and professional transformational journey to systematically eliminate barriers, such as racism and all forms of oppression within our service. Together, we will stimulate innovation and diverse perspectives to solve complex organizational challenges and achieve results. A marker of success is decision-makers, policy-makers, subject-matter experts, and survivors (systematically marginalized people) all coming together to solve our ever-increasingly complex workforce and 21st century Coast Guard challenges, as we operate in new domains. As our people, systems, culture, practices, policies, and leadership are transformed we can truly become a 21st century employer of choice and achieve our highest potential to serve the American people.

Bibliography:

[1] 2017 Captain Niels P. Thomsen Innovation Award Winner for Cultural Change for leveraging social media for large-scale disaster response.

[2] Edmondson, Amy. (2011). Psychological Safety, Trust, and Learning in Organizations: A Group-level Lens. *Trust and Distrust in Organizations: Dilemmas and Approaches*.

[3] <https://rework.withgoogle.com/blog/five-keys-to-a-successful-google-team/>

[4] <https://www.workplacestrategiesformentalhealth.com/job-specific-strategies/inclusivity-and-discrimination>

[5] Sekerka, McCarthy, and Bagozzi (2011), in *Moral Courage in Organizations: Doing the Right Thing at Work*, ed. Debra R. Comer and Gina Vega (Armonk, NY: M.E. Sharpe, 2011)

[6] Edmondson, Amy; Lei, Zhike. (2014) *Psychological Safety: The History, Renaissance, and Future of an Interpersonal Construct*

[7] <https://hbr.org/2016/01/creating-a-culture-where-employees-speak-up>

- [8] Cross, T., Bazron, B., Dennis, K., & Isaacs, M., (1989). *Towards A Culturally Competent System of Care, Volume I*. Washington, DC: Georgetown University Child Development Center, CASSP Technical Assistance Center.
- [9] Brimhall, Barak. (2018) *The Critical Role of Workplace Inclusion in Fostering Innovation, Job Satisfaction, and Quality of Care in a Diverse Human Service Organization*. Pages 474-492.
- [10] <https://www.wsj.com/articles/meltdown-review-flirting-with-disaster-1522708270>
- [11] Shaywitz, David A. (2018) *Meltdown Review: Flirting with Disaster*. Book Review. *The Wall Street Journal*, April 2, 2018.
- [12] Denboba, D., U.S. Department of Health and Human Services, Health Services and Resources Administration (1993). *MCHB/DSCSHCN Guidance for Competitive Applications, Maternal and Child Health Improvement Projects for Children with Special Health Care Needs*.
- [13] Jayne, Michele E. A. and Robert L. Dipboye, *Leveraging Diversity to Improve Business Performance: Research Findings and Recommendations for Organizations*, *Human Resource Management*, Vol. 43, No. 4, pp. 409-424, 2004.
- [14] De Anca, Celia and Antonio V. Vega, (Translated by Andy Goodall) *Managing Diversity in the Global Organization*, Palgrave Macmillan, New York, New York, 2007.
- [15] Wijek, P. 1993. On equity and utility. *Rationality and Society*, 5(1): 68–84.