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Effect of Substituents within Tantalum Oxide Aerogels for Obtaining High Stability Acidic Oxygen Reduction Electrocatalyst Supports

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Key Word: Substituents, Tantalum Oxide, Aerogels, Fuel Cells, Sol-gel

Introduction

Oxygen reduction reaction (ORR) electrocatalysts that provide high activity, long-term stability, and reduced precious metal content are needed for proton-exchange membrane fuel cells (PEMFCs). Typically, carbon is used as an electrocatalyst support; however, at elevated voltages encountered during start-up/shut-down, carbon corrosion occurs which can significantly reduce the long-term stability of the catalyst. Tantalum pentoxide (Ta_2O_5) is thermodynamically stable under the oxidative potentials and acidic conditions of the oxygen reduction reaction, but prior efforts have largely focused on carbon-Ta_2O_5 supports which can still result in degradation of the catalyst. We investigated carbon-free tantalum oxide aerogels as a support material to obtain a high surface area, conductive, stable support for acidic ORR electrocatalysts.

Methodology

Tantalum oxide (TaO_x) was synthesized using sol-gel chemistry, and the effects of synthesis parameters, processing conditions, and thermal treatments were evaluated. The effect of titanium substitution was evaluated to increase the electronic conductivity. The structure and morphology of TaO_x and titanium-substituted TaO_x aerogels were determined using X-ray diffraction, nitrogen physisorption, and scanning electron microscopy. Electronic conductivity measurements were determined using a two-point probe configuration.

Research

From initial results, incorporation of titanium within the tantalum pentoxide aerogels resulted in higher electronic conductivities and preservation of porous morphology.

Conclusion

The ability to create carbon-free, high surface area, conductive oxides opens up new opportunities for the design of highly active and stable catalyst supports for ORR and other electrocatalytic reactions

High Surface Area, Conductive Niobium Oxides as Highly Durable Oxygen Evolution Catalyst Supports for Water Electrolyzers

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Introduction

Oxygen evolution reaction (OER) catalyst limitations including cost, activity, and stability remain bottlenecks to wide scale adoption of proton exchange membrane (PEM) water electrolyzers, used split water into hydrogen and oxygen. Distributing the catalyst on a high surface area supports can reduce the loading of active noble-metal OER catalysts (e.g., ruthenium and iridium) and lower the cost of PEM electrolysis. Carbon which is typically used as a support material is highly unstable in conditions required for OER which makes it unfeasible for use within electrolyzers. Therefore, new alternatives must be developed. Transition metal oxides such as TiO_2, WO_3, and Nb_2O_5, which are stable in the oxidative potentials and highly corrosive acidic conditions of PEM electrolyzers, have been proposed as promising candidates; however, the highly insulating nature of the support materials have largely resulted in lower performance.

Methodology

In this work, we investigated NbOx, synthesized using a metal alkoxide sol-gel method, to obtain a high surface area and stable support for OER catalysts. The effect of different drying methodologies on the morphology and resulting surface area was evaluated.

Research

From preliminary results, supercritical carbon dioxide drying of the wet gel produced a dried aerogel with a surface area of 672 m2 g-1 which was significantly higher compared with the ambiently dried xerogel form (432 m2 g-1). The crystalline structures of the xerogel and aerogel, were analyzed by powder x-ray diffraction (XRD), before and after thermal treated at 600 ℃ under air. The as-prepared NbOx (i.e. xerogel and aerogel) showed amorphous structures. After thermal treatment, both materials showed orthorhombic Nb_2O_5 structures and had significantly lower surface areas compared with the as-prepared materials. To increase the electronic conductivity, different substituents, tungsten (W), ruthenium (Ru) and titanium (Ti) at a 20 molar % substitution ratio to Nb, were incorporated during the synthesis. The materials were then thermally treated at 600 ℃ in air. The XRD patterns showed single phase structure for Ti-NbOx and W-NbOx and the diffraction peaks were shifted to higher angles, consistent with the incorporation of the smaller W and Ti ions within the NbOx structure. In contrast, Ru-NbOx showed the appearance of new peaks associated to RuOx, indicative of phase separation and thus unsuccessful incorporation of ruthenium within NbOx structure. The conductivities of the unsubstituted Nb_2O_5 and the Ti and W substituted NbOx were very low and below measurable values with current instrumentation. In contrast, the presence of RuO_2 within Nb_2O_5 had a significant conductivity improvement at $1.12×10^{-2}$ S cm-1, which can be explained by the lower bandgap of RuO_2 (1.87 eV). In order to improve the conductivity of Nb_2O_5, the material was thermally treated at 875 ℃ under hydrogen atmosphere. A black powder associated to NbO_2 phase was obtained. From current testing, the conductivity of the synthesized NbO_2 was measured to be $2.43×10^{-4}$ 2 S cm-1.

Conclusion

The development of a high surface area and electrically conductive catalyst support that can withstand the harsh environments of PEM electrolyzers brings the field one step closer to grid-scale chemical energy storage solution.

The Effect of Concussion Education on the Perception of Injury Severity

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Introduction

Over the past several years, concussion education and management has significantly improved sports safety. Despite this, incidents of concussion are still prevalent in all levels of sports (Clay, Glover, & Lowe, 2013). However, education on sports concussion has shown to be one of our best tools in injury prevention. Education on concussion prior to a sports season has been linked to fewer concussions during a season as well as improved outcomes for the athletes following an injury (Tator, 2012). Although the relationship between concussion education and injury prevention has been established, it is still unclear how they are connected. One possible explanation for this connection is that receiving concussion education makes the viewer aware of the symptoms of concussion, increasing their sensitivity to possible concussive hits. The purpose of the current study is to explore the connection between concussion education and injury prevention by examining how the NCAA's educational video titled "Concussions: Don't Hide It, Report It, Take Time to Recover" (2011) affects the perception of injury severity. Videos of NFL tackles were used to demonstrate concussion injuries. It was predicted that participants who viewed an educational video on concussion would rate the injury videos as more severe than those who didn't receive the education. It was also predicted that injuries would be rated more severely by participants who previously received education or a concussion in the past.

Methodology

Participants were separated into two groups: the control group viewed three clips from different NFL games that depicted possible head injuries and the experimental group viewed the NCAA's "Don't Hide It, Report It, Take Time to Recover" educational video prior to the same three clips. Video 1 depicted a normal tackle without any obvious injury and video 2 and 3 both showed a player knocked unconscious following a tackle; the last two videos represented a severe concussion. After the participant viewed each video, they were asked to rate the injury on an adaptation of the Abbreviated Injury Scale (AIS).

Research

An independent sample t-test and one-way ANOVA were used to analyze the data of this study. No significant results were found between the two groups on their ratings of injury severity (p > .05). There was also not a significant difference between participants who received previous education or concussion (p > .05). No relationship was found between concussion education and injury perception and none of the hypotheses were supported by the results of this study. When compared to Physical Therapy doctoral students, both the control and experimental group rated injuries as less severe, but the difference was not significant.

Conclusion

These findings indicate that the educational video was either ineffective in priming participants to recognize symptoms of concussion or concussion education doesn't help prevent injuries by increasing the sensitivity to possible concussive hits. Future studies may consider altering the number and type of injury videos or use an alternative injury scale.

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The Estimation of Carbon Sequestration by Community Gardens in Austin, TX

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Key Words: carbon sequestration, community gardens, net primary productivity, NDVI, ECOSTRESS, PlanetScope

Introduction

Researchers describe the process of carbon sequestration as a way to mitigate the impacts of global warming (Tripathi et al, 2010, Kuittinen et al 2016). Urban green spaces provide ecosystem services in the mitigation of urban greenhouse gases emissions that require more investigation (Kuittinen et al 2016). Community gardens as a type of an urban green space (Source: United States Environmental Protection Agency) represent vacant lots in urban areas with public or private land ownership that community members use for urban agriculture (Schukoske, 2000). This study analyzes the efficacy of the community gardens through the environmental dimension as they represent sustainable practices that benefit both people and ecosystems.

Methodology

This research aims to calculate carbon uptake by the community gardens in Austin, TX, in by applying the Carnegie-Ames-Stanford approach (CASA), proposed by the previous research (Tripathi et al 2010; Field et al 1995, Potter et al 1993). The amount of absorbed carbon dioxide depends on the amount of plants' biomass, which can be measured using the vegetation indexes, such as Normalized Difference Vegetation Index (NDVI) (Christensen et al, 1993).

Research

The analysis of 53 community gardens in Austin with the total area of approximately 93,546 square meters revealed that the average daily amount of carbon sequestration by the gardens in July 2018 was 18.32 kg. (Preliminary results)

Conclusion

This study attempts to estimate carbon sequestration on a small scale of a garden by utilizing the high resolution satellite imagery: the ECOsystem Spaceborne Thermal Radiometer Experiment on Space Station (ECOSTRESS) and the PlanetScope.

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Community College Advisor Perceptions of Professional Development

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Key Words: Advising, Professional Development, Training, Community College, Student Affairs, Higher Education

Introduction

There are information barriers that students must overcome to successfully graduate from community college. In alleviating these barriers, academic advising is now professionalized, as the goals of academic advising are to help students identify a pathway towards career goals and obtain an individual success plan. Overall, advisors hold a strategic position that allows students to connect their academic choices to their larger goals (both academically, professionally, and personally). As community colleges, provide academic advising professional development in distinctive ways, what types of onboarding advisor professional development exist for increasing student college completion outcomes and meeting the predictive advising needs of students.

Methodology

In this pilot study, a focus group discussion will be conducted with ten community college advisors to obtain feedback on their interaction with and views on onboarding advisor professional development. The five questions participants will be asked are:

How many years have you been advising?

What type of advising professional development were you provided during your onboarding?

What is the caseload number of students you currently advise?

What professional advising conferences did you attend during your first year of advising?

What advising activities do you engage in the most? (Mentoring, Course Selection or Academic Procedures)?

Research

The results of this focus group are expected to show that community college advisors are engaged in increasing student completion and their responses in this survey will confirm advisor onboarding professional development needs and provide perceptions on current advisor professional development training.

Conclusion

It is expected that the results of this study will have implications for onboarding community college advisor professional development. Based on the results of study, hands-on training initiatives will be discussed to address advisor needs. There will be more support and buy-in from community college advisors for future onboarding advisor professional development if they know their input was solicited before the training was developed.

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The Effect of External Load on Self Perceived Shoulder and Elbow Function in Elite Junior Tennis Players

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Introduction

Elite junior tennis players undergo rigorous practice schedules and participate in monthly local and sectional tournaments. As a result of this competition, intense training loads are common. Training loads, such as hitting volume, may be related to shoulder and elbow function. The Kerlan-Jobe Orthopaedic Clinic (KJOC) Shoulder and Elbow Score allows players to rate self-perceived shoulder and elbow function. It is reasonable to suggest that training loads may affect a player's self-perceived shoulder and elbow function when measured using the KJOC.

Methodology

Twenty junior tennis players, 15 males (14.5 ± 1.9 years; 170.8 ± 12.3cm; 59.2 ± 12.8kg; 5.2 ± 2.9 years of experience) and 5 females (14.8 ± 2.2 years; 167.1 ± 3.8cm; 56.3 ± 6.7kg; 7.6 ± 1.1 years of experience), from one tennis academy were recruited to participate in a 4-month longitudinal study. Practice hitting volume was collected Monday-Friday using the Sony Smart Tennis Sensor (SSTS). Practice hitting volume represented training load. All players completed the KJOC questionnaire prior to the first day (baseline) of hitting volume collection and at 4 months (post). Hitting volume was organized using absolute loads by averaging volume over a 4-month period for each player. Players were divided into two groups (high vs low hitting volumes) based on the overall median volume for all participants throughout the observation period. A one-way ANOVA was used to determine if KJOC scores differed between high (n = 10) and low (n = 10) hitting volume groups.

Research

The average hitting volume over the 4-month observational period for the high group was (489 ± 50) and for the low group was (353 ± 59). Players in the low volume group had smaller changes in KJOC scores (-4 ± 14) compared to players in the high volume group (-7 ± 18). However, these changes were not statistically significant between the two groups (p=0.67).

Conclusion

Our results indicate that hitting volume in tennis players may not affect self-perceived shoulder and elbow function. While our sample size is small, shoulder and elbow function may be driven by a variety of physical, psychological, and physiological factors. This is the first study to investigate training load and shoulder and elbow function in a tennis population. A larger sample with more variation in KJOC scores would be beneficial for future research.

Cell Cycle Regulator SAPCD2 Contributes to Poor Prognosis of Pediatric Neuroblastoma

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Introduction

Pediatric neuroblastoma is the most common extra-cranial solid tumor in infants and children under 5 years of age. It is an embryonic malignancy that circumvents the normal differentiation of sympathetic neuronal precursor cells into mature neurons, glia, and melanocytes. The poor differentiation status of these precursor cells allows them to retain characteristics of early embryonic stem cells, such as sustained proliferative signaling and indefinite replication, leading to the development and progression of neuroblastoma. SAPCD2 is a newly identified CDK-activating Kinase (CAK) involved in mitotic progression and spindle assembly. Its function appears to be most critical in early embryonic development where it regulates cell polarity, segmentation, mitotic spindle orientation, and planar polarization of cell progenitors. Loss of SAPCD2 function randomizes spindle orientation, suggesting its function as a critical regulator of microtubule and mitotic spindle assembly. Additionally, SAPCD2 appears to be especially important for controlling progenitor orientation in neuroepithelial cells, which are responsible for the early formation of neurons. Furthermore, SAPCD2 was found to be overexpressed in neuroendocrine malignancies relative to normal neuroendocrine tissues. The above findings strongly suggest the relevance of SAPCD2 in neuroblastoma tumorigenesis. However, its role in neuroblastoma has not been investigated. My research goals are to determine the clinical relevance of SAPCD2 in neuroblastoma and to characterize its cellular function in regulating neuroblastoma cell survival and proliferation. My current objective is to investigate whether expression of SAPCD2 in neuroblastoma tumor tissues are correlated with neuroblastoma patient survival in order to provide clinical support for our further investigation of its cellular functions.

Methodology

The correlation of SAPCD2 with neuroblastoma patient survival was investigated through a public genomic database downloaded from http://r2.amc.nl. The analysis was conducted using two data sets containing overall and event-free survival data for a total of 974 patients. The patients were divided into two groups based on SAPCD2 mRNA level (high or low), and the difference of patient survival between the two groups was compared using Kaplan-Meier analysis.

Research

We found that the survival rates of neuroblastoma patients in the two groups are significantly different, with patients with high SAPCD2 expression levels showing significantly poor survival in both datasets. These results suggest that SAPCD2 functions as an oncogene in neuroblastoma and elevated SAPCD2 expression in neuroblastoma cells promote aggressive tumor progression and poor patient prognosis.

Conclusion

Our findings strongly support that SAPCD2 plays a key oncogenic role in neuroblastoma. Its importance in determining disease state suggests that it could be utilized in the future as an important prognostic indicator in neuroblastoma patients. Additionally, these findings present an opportunity to target SAPCD2 knockdown for effective and irreversible tumor arrest. Therefore, we expect our further characterization of the oncogenic function of SAPCD2 and investigation on the clinically administrable approaches to knockdown SAPCD2 expression in neuroblastoma cells will eventually benefit the health and survival of neuroblastoma patients.

Personal Attitudes and the International Appeal of Narcoculture.

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Introduction

Between forcible attempts by the United States and her allies to quell the distribution of illegal drugs and the increasing competition between cartels striving for control over lucrative trafficking routes, the illicit drug trade has given rise to epidemic levels of violence and corruption (e.g., De Choudhury Monroy-Hernandez, & Mark, 2014). But while violence and corruption present the most salient characteristics of organized drug trafficking, the narcotics economy also manifests itself through specific and recurring thematic and expressive cultural elements (e.g., Campbell, 2005). This "narco" sub-culture is propagated through several outlets and serves various functions: amongst the most critical being to normalize the drug trade and glorify its principal actors. Thus, given the potential impact that this narco-subculture has on law enforcement and social well-being – including rates of violence and criminality – it is essential to examine the psychological factors that might be associated with attraction to this particular cultural manifestation (Campbell & Hansen, 2014).

Methodology

Each participant will be given an excerpt to read. After this, the participants will be asked to take the Interpersonal Judgement Scale (IJS) to assess attraction to the protagonist of the excerpt. A message credibility survey will then be administered to examine the participants' confidence in the content reliability of the narrative. Attraction and credibility will be asked in a yes/no format to allow for logistic regression, should some assumptions not be met. Prior to reading the excerpt, participants will be evaluated on personal attitude metrics. These include tolerance for ambiguity (McLain, 1993), belief in a just world (Lambert, Burroughs, & Nguyen, 1999), criminal sentiments (Simourd, 1997), drug sentiments (Pew Research Center, 2014), and sense of alienation (Nettler, 1957). After this, regression analyses and Discriminant Function Analysis will be performed to ascertain whether any combination of personal attitude metrics and/or demography can be used to predict scores for the IJS and message credibility questionnaires.

Research

Study still in progress. Data collection will end in December.

Conclusion

Because many international criminal organizations have come to prominence since the emergence of the illicit narco-economy, policy makers must increasingly consider the actions of these entities through the lens of the unique psychological forces animating them and the criminal sub-cultures which they perpetuate. Fortunately, researchers can help shed light on the internally-motivating attitudes and objectives of organized criminal organizations by obliquely examining the culture that surrounds them, and by this approach, illuminate the specific characteristics and particular socio-economic conditions which make a person vulnerable to the messages being transmitted by these illicit organizations (e.g.,

Campbell, 2005). By thus comprehending the psychological appeal and expressed ideals of narcoculture and the organizations whose values it represents, anti-narcotics agencies and social workers will be better equipped to formulate harm-reduction strategies that emphasize culturally sensitive policies of modifying behavior, lifestyle, and identity such as to reduce recruitment and recidivism into organized crime (e.g., Campbell & Hansen, 2012).

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Whose Truth? Poststructural Feminism as a Theoretical Tool to Center and Explore Multiple Narratives Within the Educación No Sexista Movement in Chile

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Key Words: post structural feminism, social movement, Chile

Introduction

My research explores women's perceptions of the Educación No Sexista movement in Chile. I use a poststructural feminist theoretical framework to center Chilean women's experiences of sexism and harassment within institutions of higher education and the ways in which they perceive the purpose and utility of student activism in addressing these issues. A poststructural lens also centers counter-narratives that coexist within this movement, often obscured by issues of power and privilege (St. Pierre, 2000; Spivak, 2012). For example, whose perspectives might be excluded from the dominant narrative of these protests? Perhaps those of queer women, poor or working class women, or women who experience other forms of intersecting marginalization? Through this framework, I explore and interrogate the many different, and often opposing, truths that complicate Educación No Sexista.

In my paper, I also think within a poststructural feminist theoretical intersection in order to interrogate and explore ideas of limitation and incompleteness regarding my own positionality and what I can claim to know through this research. I question not only the power relations that underlie women's experiences in Chile, but also those that I reinscribe through my own participation in this project. Informed by Pillow's (2013) application of poststructural theory in educational research, in this paper, I too position critical reflexivity "not as clarity, honesty, or humility" but the acceptance of incompleteness and the necessary perseverance in the face of "the uncomfortable realities of doing engaged qualitative research" (2003, pg. 193).

Methodology

I conducted 12 semi-structured interviews with women in Chile in fall 2018. I inquired about my participants' perceptions of gender discrimination and sexual harassment within educational settings in Chile, their perceptions and experiences of the educación no sexista movement, what ways (if any) they experienced perspective transformation as a result of the movement, and to what degree they considered themselves an insider or outsider of this ongoing phenomenon. After transcribing interviews, I used descriptive and values-based first-cycle coding followed by second cycle coding that generated patterns and overall themes (Saldaña, 2015).

Research

Analysis of my data suggest that Educación No Sexista is not a single, unified movement, but rather, many intersecting movements that occur in different spaces, highlighting different (and often conflicting) perspectives. Participants expressed varying degrees of identification within the movement based on age, sexual orientation, and professional identity. My analysis of interview data is modeled after Jackson and Mazzei's approach to analyzing texts using Derridean deconstruction (2012).

Conclusion

My research extends the use of feminist poststructural inquiry in educational research settings and illustrates the ways in which this theory can be used to center marginalized voices and think critically about researcher positionality in transnational research. My paper also contributes to the developing literature on social movement learning and public pedagogy (Sandlin, O'Malley, & Burdick, 2011; Klutz & Walter, 2018).

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A 360-Degree View of Crime: An Exploratory Study of Immersive Eyewitness Experiences

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Key Words: Eyewitness Identification, Immersive Environment, Memory

Introduction

Eyewitness misidentification is one of the leading contributing factors to wrongful convictions (National Registry of Exonerations, 2019). Much of the stimuli used to test eyewitness memories is rather artificial, involving the use of photographs or two-dimensional (2D) videotaped crimes to avoid psychologically harming participants (Wells & Penrod, 2011). As a result, the participant witness is not exposed to a stressful situation as would likely occur with a real witness. Replicating real world witnessing conditions is critical to understanding the factors that affect eyewitness accuracy. Advancements in technology, specifically 360-degree immersive environments (IE), provide a unique opportunity to examine eyewitness memory. Increasing ecological validity can lead to a better understanding of the process and reliability of eyewitness memory, especially under stressful situations.

Methodology

As part of an ongoing pilot study, we developed, filmed, and edited 360-degree and 2D mock crimes. Forty-three participants were randomly assigned to view a crime with a head-mounted display in 360-degree IE or on a computer screen in 2D. Upon completion of the film, the participants were required to self-assess their anxiety levels and the realism of the clip they'd watched. Participants were then presented with a traditional target present six-pack lineup and asked to identify the perpetrator they witnessed.

Research

Participants who viewed a crime in 360 thought the experience was more realistic and stressful, and they were less accurate than those who viewed the 2D crime. Accuracy decreased as stress and realism increased.

Conclusion

This experimental design allows for a test of whether an IE results in a more realistic eyewitness experience relative to the more commonly employed 2D mock crime, and consequently whether there are differences in stress or memory accuracy. Furthermore, these findings suggest previous research utilizing artificial witnessing conditions may overestimate a witness's ability to make an accurate decision relative to more realistic witnessing conditions. A larger study with a more robust sample size would be imperative to provide additional data in addition to creating a more scientific understanding of victims and bystanders' ability to accurately identify a suspect, after enduring a traumatic event. Future goals for this research could eventually lead to the adoption of improved best practices within police departments across the country.

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National Registry of Exonerations, 2019

Wells & Penrod, 2011

The Effects of Tuberculosis on Carl Maria von Weber's Music

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Key Words: Carl Maria von Weber; Tuberculosis; White Death; Consumption

Introduction

Many composers of the 19th century music era fell victim to Tuberculosis, such as Frederick Chopin, and most either lost their capability to compose or no longer wished to continue down their musical journeys. Carl Maria von Weber, diagnosed with the disease in July,1824, however, not only continued to compose, but also published several works before his untimely death in 1826. Currently in the field of music history and musical analysis, there is no literature investigating the effects of the disease upon Weber's compositions and very few analyses exist on other 19th century composers afflicted with Tuberculosis.

Methodology

Using archival and analytical methods, this paper provides a timeline of the illness's progression, as well as the changes in Weber's musical intents, and delivers detailed analyses of Weber's works before and after the illness's onset.

Research

While this is a work in progress, I present evidence that this is a valid hypothesis and that the impact of the illness left great economic pressures upon Weber to produce successful works

Conclusion

This paper will provide for the very first time an in-depth narration of the effects of the 19th century Tuberculosis pandemic on a composer and will provide a methodology for researching the effects of pandemics on composer's and their musical compositions.

Providing Motor Approach Treatment via Telepractice for Articulation

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Deyanira Patlán, Communication Disorders, Texas State University

Dr. Maria Resendiz, Communication Disorders, Texas State University

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Introduction

Cleft palate is a common congenital abnormality that can be surgically repaired,however, compensatory misarticulations and nasal emission may persist. Speech therapy services are often required to assist the individual with learning proper placement of the articulators for speech sound production. However, some children may not have access to traditional face-to-face speech therapy with a speech-language pathologist due to their geographic location or availability of resources. Telepractice allows iindividuals with speech sound disorders access to speech-language pathologists. For individuals with speech sound disorders, delivery of services via telepractice are comparable to services provided face to face (Coufal, Howell, Jakubowitz, Parham, & Reyes, 2018). However, there is a lack of evidence on the optimal treatment approach, setting, or facilitation of speech therapy services for individuals with cleft palate (Bessell, et. al 2012). The purpose of this study is to provide further evidence on the effectiveness of utilizing a motor-based approach via telepractice to improve articulation. Speech-language pathologists need more research to help determine if a motor-based approach will improve articulation for clients with cleft palate. The hypothesis is that a motor approach will result in increased intelligibility and a reduction of nasal emission in a child with a cleft palate.

Methodology

This is a single-subject experimental research design. The researcher provided weekly therapy to a 13-year-old monolingual Spanish speaker. The phonetic approach was implemented by using the elongation technique (e.g., sssssalio) and having the client produce the /t/ phoneme before the /s/. This technique allowed her to make an easy transition to the /s/ phoneme and assisted in directing the airflow to produce the sound. Additionally, the researcher provided instruction regarding the placement of the articulators to produce the /s/ phoneme in isolation and at the single word level. The client was instructed to use motor movements, such as blowing air through a straw and feeling for nasal emission.

Research

The results of this study indicated that the client began producing /s/ with 30% accuracy at the word-initial position when provided with visual and verbal prompts and progressed to the sentence level. She mastered producing /s/ at the word level and began producing /s/ at the sentence level with 40% accuracy. On her final session, the client was able to produce /s/ at the sentence level with 60% accuracy when provided with minimal verbal and visual prompts. The client stated that she preferred using the mirror, as it provided her with visual feedback of nasal emission. The client used self-monitoring strategies like using a straw for analyzing her sound productions, rating herself on a scale of 0-5, and learning auditory discrimination among phonemes. The straw was utilized to monitor her sound production by placing one end of the straw by the nostril and the other end by the ear. However,

she stated "she could not hear the air escaping" from her cleft lip repair; therefore, she used the straw to direct airflow instead.

Conclusion

When working with clients who have a repaired cleft lip/palate via telepractice, strategies that incorporate visual strategies appear to be more helpful. For example, using a mirror to reduce nasal emission provided both the client and clinicians with visual information that could be used to judge the accuracy of productions of /s/. Relying solely on the audio quality was challenging at times, depending on the quality of the internet connection. Listeners in the same room as the client were also utilized when judging the accuracy of the /s/ phoneme at different levels.

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Postmortem Altruism: Understanding Barriers to Whole-Body Donation

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Introduction

Forensic anthropologists rely on donated cadavers to improve identification methods for skeletal remains. Development of accurate methods relies on access to skeletal remains from all ancestral backgrounds. Current donated collections lack diversity and are not representative of the larger population (Christensen, 2006). Given the large Hispanic population in Texas, and the growing number of migrants who die while crossing the border (Giordano and Spradley, 2017), it is more important than ever that forensic anthropologists have access to donated Hispanic skeletal remains. This study aims to understand what is causing the disproportionately low donation rates among Hispanics in Central Texas.

Methodology

The present research uses semistructured interviews with Hispanics in the San Marcos and San Antonio area to understand what barriers exist for Hispanics when choosing to donate their remains. An estimated 15-20 interviews lasting 30-45 minutes with members of the Hispanic community in Central Texas will be conducted in order to understand their reasons for donating or not donating their remains to forensic anthropology facilities.

Research

Interviews and analysis are still underway, but the initial results suggest that a general lack of information within the community has led to the disproportionate donating. Hispanics are less likely to have heard of whole-body donation, and when they had heard of it, were not familiar enough with the concept to make an informed decision regarding the donation of themselves or their family members.

Conclusion

Increasing education regarding whole-body donation will serve to bolster donations from the Hispanic community and make them more comfortable with the process. Once the correct educational system is set in place for the community, it is expected that there will be a rise in donation rates among Hispanics, resulting in better identification methods and research regarding Hispanic skeletal remains.

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Barbell Squat Relative Strength as an Identifier for Lower Extremity Injury in Collegiate Athletes

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Key Words: 1RM, screening, football, softball, volleyball

Introduction

Body weight screening tools have been developed to assess basic movements, range of motion, and balance in an attempt to identify athletes at risk for injury. These screening tools have been shown to have low validity in identifying athletes at higher risk of injury and lack a measure of an athlete's muscular strength. Greater muscular strength has been shown to increase athletic ability and decrease injury rate (Suchomel et al. 2016). This study explored the efficacy of using the relative strength level of Division I athletes in 1RM barbell back squat as an identifier of seasonal lower extremity (LE) injury.

Methodology

1RM back squat (kg) and reported LE injuries were retrospectively collected for Division I male football (n=46), female volleyball and softball athletes (n=25). Maximum pre-season absolute and relative (body mass normalized) back squat strength values were compared with four ANOVAs ($p < 0.05$) between injured and uninjured male (football) and female athletes (softball & volleyball).

Research

Absolute back squat strength showed no significant differences across injury status in both males and females. Relative back squat strength was significantly (d= 0.86 to 0.89) lower in injured athletes than uninjured athletes in both males (F = 6.03, p = 0.02) and females (F = 4.68, p = 0.04).

Conclusion

These data indicate the potential of 1RM back squat relative strength serving as one tool in multi-factor pre-season screening for LE injury risk in these sports. Male athletes with relative squat strength below 2.2 and female athletes below 1.6 in these sports could be more susceptible to LE injury over a season. This hypothesis should be explored in future studies of more athletes, sports, and particularly prospective research tracking changes in relative strength and injuries with resistance training targeting athletes initially with low relative strength.

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Socialization Among Latinas in Doctoral Programs: A Review of the Literature

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Introduction

The Latinx (or Hispanic) population represents the largest racial/ethnic minority group in the United States (U.S. Census Bureau, 2017). Despite this, the Latino community remains the most underrepresented major racial group among college/university faculty (Ramirez, 2017), with only 7.2 percent of conferred doctoral degrees being given to Latinx community in 2015 in the United States according to the National Center for Educational Statistics (NCES). Furthermore, of those doctoral degrees only 7.3 percent of them were earned by Latinas (NCES, 2015). This creates a lack of representation of Latinas within the professoriate. This issue has a negative effect on self-confidence in those thinking of pursing a profession in academia (Martinez, 2018). Given this reality, it is important to investigate and understand the issues keeping Latinas from matriculating at much higher rates. Researching this topic is important in order to keep up with the growing population and to create a more equitable and just society, while increasing faculty of color in the professoriate.

Methodology

This will be a qualitative, systematic analysis of the literature regarding Latinas socialization through doctoral programs. I am interested in how Latina doctoral students persist through the degree and move into the professoriate. I will begin this task by first reviewing what previous literature says regarding the socialization of Latinas in doctoral programs. Socialization has been defined as "the process in which an individual learns and adopts the values, skills, attitudes, norms and knowledge necessary for entry into a professional career within a specific field" (Martinez, 2018). The primary question guiding the exploration of the literature is: What does socialization for Latina doctoral students into academia look like?

Research

The purpose of this literature review is to examine Latina socialization in doctoral programs. This analysis was limited to peer-reviewed articles published mostly within the last ten years, with a few pieces that would give seminal efficacy to the topic at hand. Four main themes emerged from this search: (1) Cultural Capital, (2) Unequal Socialization, (3) Role of Mentoring, and (4) Building Bridges with "familia".

Conclusion

I believe this initial review demonstrates tenets of Latina socialization in PhD programs that enable the reader – regardless of their background – to (1) better understand the Latina doctoral experience, and (2) assist in "la lucha" (the resistance) against the systems that have oppressed their educational and professional advancement for far too long. Lumbreras and Rupley (2017) end their article with this: "Although success of any endeavor is the responsibility of the person who initiates the project, it is also the responsibility of the educator(s) to see that success is achieved" (p. 391). I, too, believe that success can only be achieved when the needs of both student and professor are met. It is important to make

connections to support persistence (Rodriguez, 2016), not only to increase Latina presence in the academy, but to bridge the lives of the oppressed into a world without limits.

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Discourse as a Leadership Legitimization Tool in Game of Thrones

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Key Words: Leadership, Discourse, Legitimization, Game of Thrones

Introduction

The inhabitants of Westeros, the mythical setting of HBO's hit show Game of Thrones (GoT) (2011), are largely divided into nobility and common folk. Noble men are addressed as "ser", while noble women are to be addressed as "lady". However, once a man becomes king or a woman queen, they are no longer to be called "ser" or "lady", taking on the adage "your Grace" instead. This study looked at the use of the term "your Grace" as a legitimization tool for the claim to the throne of two noblemen, through the framework of leadership, social construction, and discourse provided by Barge and Fairhurst (2008). By ensuring that their subjects refer to them as "your Grace", aspiring kings and queens hope to co-construct a reality in which they are recognized as legitimate rulers.

Methodology

A content analysis of two episodes (S01 EP09 "Baelor" (Benioff, Weiss, & Taylor, 2011) and S02 EP03 "What is Dead May Never Die" (Benioff, Weiss, & Sakharov, 2012) of GoT was performed. The content analysis focused on scenes involving King Joffrey and King Renly. The language used in these scenes was analyzed through the framework of Barge and Fairhurst (2008) that describes three major points of major and minor discourse construction (sensemaking, position, and play). In addition, this study considered how discursive leadership legitimization is a process involving both Discourse and discourse. Discourse is a set of linguistic tools used by an organization, derived by culturally embraced systems of thought and language, which become key at a macro level. It can be understood by insiders and observers alike. discourse stands for the everyday use of language, based on context, which then creates more contexts. discourse often is then what makes up Discourse.

Research

A noticeable shift in appearance and demeanor with both noblemen vying for the kingdom when reffered to by mistake by the wrong title exemplifes the importance of having the proper D/discourse surrounding their claim to the throne. For example, in the case of King Joffrey, by allowing himself to be called "ser" instead of "your Grace", he would be de-legitimizing his own claim. A similar result was observed in King Renly's scenes.

Conclusion

Both kings understand the importance of communicatively constructing their claims to leadership. Being called "your Grace" is the mark of a king. Thus, both attempts to make it part of their Discourse, by first ensuring that it is a part of the discourse surrounding them. Since leadership, according to Barge and Fairhurst (2008), is discursively co-created, it is clear how this d/Discourse can help legitimize their leadership position. Through the repeated and forced use of "your Grace", both leaders attempt to legitimize their claims through discourse and conversation. This research can further the scholarship on socially co-constructed leadership, and the use of discourse/Discourse and specific language tools to legitimize leadership in workplace environments.

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An Examination of Selective Exposure and the Sports-Self

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Key Words: Selective exposure, Sports, Self-concept

Introduction

Knobloch-Westerwick & Meng (2011) established that the amount of self-concept tied to political partisanship guides one's exposure to politically charged messages; a phenomenon denoted as the "political-self". Like political partisanship, sports fandom is a divisive societal force. While often seen as independent, politics and sports have one unmistakable similarity in their effect on the masses: like watching our preferred political candidate lose an election, an individual can also experience negative emotion upon seeing their favorite team lose. Thus, this paper posits that selective exposure of sports media will follow patterns similar to those of political messages, based on factors such as pre-dispositions, self-concept and self-consistency, and avoidance. This will lead to selection of positive or negative content, dependent upon the amount of self-concept tied to sports franchises. The study proposes an examination of the sports-self: the effect of the level of fandom for a sports franchise on the selection of media.

H1: Higher self-reported fandom levels toward a preferred sports franchise will lead to selection of more positive than negatives messages regarding said team.

Methodology

This study proposes an experiment, designed for conduction in Cincinnati, Ohio, in which fandom is measured using an adapted version of the eFANgelism scale (Dwyer et al., 2015). The 10-question measure will use a 5-item Likert scale to measure fandom of either the Cincinnati Reds or Bengals, based on participants' personal preference of baseball or football. Upon completion, participants will be directed to a selection screen with four short videos, two positively and two negatively valenced about the participant's team of choice. After selecting and watching one video, participants will then repeat the process again with a new selection of videos. Selection will be recorded each time, utilizing unobtrusive software.

Research

Participants will be assigned to "high" or "low" fandom based on survey results. Participants scoring 40+ will be considered "high" in fandom, while participants scoring 39 or below will be considered "low" in fandom. Participants will then be categorized into one of three groups based their video selections: Negative-Negative (NN), Positive-Negative/Negative-Positive (PN), and Positive-Positive (PP). Statistical analysis will be conducted to find which of the three possibilities of video clicks (NN, PN, PP) is the most common for both the high fandom and low fandom groups. Based on the role of self-concept, it is anticipated that those with high fandom will select a greater amount of positive messages. Participants in low fandom are expected to select at least one more negative video than those in high fandom.

Conclusion

If H1 is confirmed, this study could help further explicate ideas regarding amount of self-concept tied to a particular topic and selective exposure. It would expand upon Knobloch-Westerwick & Meng's (2011)

conclusion on the relationship between amount of self-concept and exposure to political messages, by demonstrating that amount of self-concept can be a determinant for selectivity in other contexts (specifically, sports). This could lead to other studies regarding selectivity in other media contexts vis-a-vis amount of self-concept.

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Becoming an Autonomy-Supportive Tutor for Multilingual International Students: A Writing Center Tutor Handbook

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Key Words: autonomy-supportive instruction, writing center practice, peer-tutoring, multilingual students, tutoring writing.

Introduction

Whether on one-on-one peer tutoring or through collaboration with faculty, writing centers' missions are to support students to practice strategies and build skills to become successful independent writers regardless of their disciplines, background, and abilities (Greenfield & Rowan, 2011). The peer-tutoring practices, however, can make it difficult for some writers, specifically multilingual international students (Cheatle, 2017).

According to Wang and Machado (2015), colleges and universities in the U.S. educate 40 percent more international students than a decade ago. In the 2018 Open Doors Report, the number of international students in the U.S. reached a new high of 1.09 million. More and more international students with diverse linguistic and cultural knowledge and writing skills will visit the writing center. However, without having formal training on serving for multilingual writers, tutors often face challenges to incorporate autonomy-supportive practices in their tutoring sessions. Furthermore, there is a dearth of research or resources available for the writing tutors to become more autonomy-supportive tutors for multilingual international students. Addressing the gap, we explore the following research question grounded in the self-determination theory framework (Ryan & Deci, 2007): what are the best tutoring practices promoting autonomy in multilingual writers?

Methodology

With a multidisciplinary approach, this research project was conducted with a systematic review of existing literature in the fields of English language teaching and learning, writing center practices, and educational psychology. First, we used the university library database, Wiley, Scopus, and ERIC databases to conduct a search for published academic journals and books. The search terms included: writing center practices, English as a second language students at the writing center, English language learner writing styles, teaching writing to English as a second language students, autonomy-supportive instructions, and peer-tutoring practices. Second, we conducted an analysis of the relevant literature. Then, we reflected on our previous teaching experiences serving multilingual students and examine our analysis with our reflections.

Research

Teachers can influence students' confidence, competence, and their sense of autonomy with positive feedback and opportunities that align with the students' perspectives (Borg & Al-Busaidi, 2012; Reeve & Jang, 2006; Noels, 2001; Noels, Clément, & Pelletier, 1999; Sinclair, 2000). Theorizing from the literature, as well as reflections on our teaching practices serving for multilingual students, we propose a model of autonomy-supportive (Reeve & Jang, 2006) writing tutor practices for multilingual students

consisting of 11 autonomy-supportive instructional behaviors and 8 controlling instructional behaviors. Based on the preliminary model, we present a training handbook designed for tutors in the writing centers to better prepare them in promoting autonomy in multilingual writers.

Conclusion

Currently, there is little research exploring the best writing tutoring practices to promote autonomy with multilingual international students. There is also a lack of resources and training available for writing tutors serving for multilingual international students. The proposed model, therefore, provides a framework for designing training into writing centers in institutions of higher education. Furthermore, it provides a new research direction.

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Exploring the Thematic Coherence of a Chinese Lesson on the Topic of Unit fractions

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Introduction

Existing studies reveal that coherence is an essential characteristic of mathematics classroom instruction in Asian countries like Japan and China (e.g., Hiebert et al. 2003; Shimizu, 2007; Wang & Murphy, 2004), and that coherent mathematics lessons promotes students' connected and coherent conceptual understanding of mathematics (Fernandez, Yoshida & Stigler, 1992). Therefore, I conducted this study in China where classroom data might contain instances of instructional coherence.

Studies show the positive effect of instructional coherence on students' learning as it helps to promote students' understanding and engagement (Okazaki, Kimura, & Watanabe, 2004). One of the challenges of research is to identify critical aspects of coherent lessons. Chen and Li (2010) examined a Chinese teacher's instructional coherence by analyzing a sequence of four consecutive lessons on the topic of fraction division. The study analyzed the thematic coherence within one lesson by identifying a central theme for that lesson. The researchers showed that the central theme was embedded within an individual lesson while also showing that the content difficulty of the four lessons gradually increased. Also, Chen and Li (2010) identified the teacher's use of explicit discourse to make a transition between each activity and make a connection between prior knowledge and the intended knowledge as a key aspect of coherence.

The theoretical framework that I use for this study is the zone of proximal development (ZPD) which was first presented by Vygotsky (1978). This theory not only explains how people learn but also guides the instructional method which leads to the theory of scaffolding. Vygotsky describes this process as "what is in the zone of proximal development today will be the actual developmental level tomorrow- that is, what a child can do with assistance today she will be able to do by herself tomorrow" (Vygotsky, 1978, p.87)

Methodology

I collected the data in Shier elementary school in Dongying, Shandong, China. Ms. Liu, a grade 3 mathematics teacher in Shier elementary school is the participants in this study. Ms. Liu has 21 years of teaching experience and she was recognized as an experienced teacher and recommended by the principal of Shier elementary school for my study. I observed and videotaped a series of eight consecutive lessons on the topic of the introduction of fractions. The first lesson was about unit fractions.

I will use the video transcripts along with the video recording to analyze how the teacher's discourse facilitated the thematic coherence of the lesson. The examination of thematic coherence is attending to the content of the lessons. Specifically, the goal is to explore the interrelationship of each topic and how the teacher guides and supports students to build their knowledge on prior knowledge. In my analysis, I first divide the lesson into several episodes based on the content covered in the class. An episode begins as the teacher starts a new activity or a new topic. For example, when the teacher asked students to find the fraction ½ by folding area models, it refers to a new episode. Moreover, I will present the sequence of the topic presented based on the sequence of the episodes.

Research

The sequence of the lesson: Ms. Liu started the lesson with a real-life problem: there are four apples, two bottles of water, and a mooncake, how to share them between two students? By solving the problem, Ms. Liu tried to let students make a connection between the daily language "half" and the numeral "one half". Ms. Liu further guided students to represent half by a numeral which promote students' cognition of one half as a numeral. After that, in the episode three, Ms. Liu guided students to explore the key to get a fraction: evenly divide, based on the problem-solving experience in the first episode.

The first three episodes prepared students with a knowledge base of how to create 1/2. Then in episode 4, Ms. Liu asked students to represent ½ using paper models, which is a practical way to explore ½. As shown in the figure 4, the activity in episode 4, 6 and 7 have the same goal which is to represent a fraction by folding the paper model, but the complexity of the tasks is progressively increased. Also, the activity in episode 6 is to represent ¼ instead of 1/3, which is because it is more accessible for students to make four equal parts than three equal parts.

In episode 10, Ms. Liu showed students the picture of two shapes with parts of them shaded, she asked the students to identify the fractions represented by the shaded area, which has been practiced in both episode 5 and episode 9, then Ms. Liu let students determine the magnitude of the fractions by compare the area of the shaded parts of the two shapes.

Conclusion

The teacher in this study developed thematic coherence in this lesson by presenting the mathematics content in a specific sequence and guiding students to learn new knowledge through connections to their prior knowledge. Based on the logic connection of each episodes of the lesson, we could find a promising evidence of the teacher's attempt to make her instruction coherent. This preliminary study not only revealed a Chinese teacher's instructional coherence in one lesson, it also has the implication for the future study on the coherence among different lessons.

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Oral Cultural Values and Technical Communication Pedagogy

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Key Words: Orality, literacy, technical communication, pedagogy, collaboration

Introduction

Orality fosters participation, empathy, and community, while literacy and writing tend to be purposefully "objectively distanced" (Ong, 1982). Traditionally, technical communication as a field has been synonymous with areas like software documentation and scientific writing, which stress objectivity and precision. Technical communication education shares such literacy values. While these are valuable writing goals, the scope of technical communication is increasingly broadening, with more global collaboration and engagement in areas like social justice, feminist approaches, and rhetorical theories. One reason is that context today can be multifaceted and ambiguous. With the popularity of electronic media, for instance, there has also been a revival of secondary orality, where technical communication is no longer limited to print platforms, combining oral and literate, and electronic media values. In such expanding academic and professional environments, technical communication pedagogy cannot restrict itself to only written discourse but must incorporate oral values in teaching methodologies in the context of electronic distribution modalities and analyze the effects of orality on human consciousness. The presentation asks the question, "How can oral values inform technical communication pedagogy?"

Methodology

In this presentation, I use the characteristics of orally-based thought and expression, as outlined by Ong (1982), focusing on three values of collaboration, empathy and situational thinking. I also analyze literature on technical communication pedagogies to examine how integrating orality with literacy in the classroom can help students meet rhetorical challenges of real-world professional situations.

Research

Oral values of community and collaboration are vital in our professional life. According to recent estimates, group-based work methods exist in nearly 70% of US firms (Lowry, 2006), and collaboration comprises 75% to 85% of workplace writing (Burnett, 2013). A literature review reveals that while there are some advocates of orality in technical communication, who use teaching strategies such as role-play (Batorsky and Renick-Butera, 2004) and story-telling (Bridgeford, 2004), technical communication pedagogy is primarily literacy-based. One reason is the multi-disciplinary nature of technical communication, where students have different backgrounds, which makes it difficult to prepare a syllabus that caters to everyone's requirements. More group projects and in-class activities, positive interdependence on each other, and participation through dialogue in seminar-style classes will help students foster team spirit, be more empathetic to different perspectives, and develop understanding of context.

Conclusion

Writing encompasses only one aspect of communication, and is devoid of non-verbal signals like gestures and body language. With the popularity and spread of electronic media, we are also in the midst of a revival of orality. As technical communicators, we limit ourselves if we only develop skills in the written aspect of technical communication. Imparting oral values does not imply we abandon textual and written values. Rather, the presentation suggests that oral values can be an addition to the existing pedagogy, and provide a newer dimension to composition and technical communication, which will facilitate navigating an increasingly complex world of information.

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A New Mindset for Primate Polyspecific Associations

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Key Words: primates - polyspecific associations - theory

Introduction

Primate polyspecific interactions in natural environments are associations between sympatric species that occur in response to external pressures such as predation, communication, and foraging requirements. Primates around the world have been found in interactions with other primate species as well as a variety of non-primate species. While some of these associations are considered detrimental, the majority of seen interactions in primate species are deemed mutually beneficial to all participating individuals through positive impacts such as reduced predation and increased foraging benefits. Polyspecific associations in primate species are found at high frequencies in a wide variety of species. The high incidence of these relations suggests their importance to the participating species, requiring more detailed knowledge of their instigation and results. Though these polyspecific interactions are ad lib noted in many scientific field studies, they are not commonly the focus of research. This lack of focused research has left polyspecific associations often without scientific knowledge of instigation, endurance, significance, and cost-benefit analysis. Due to the gap in the known true significance of these interactions, this paper suggests a new mindset regarding the associations that allows for more successful study of these interactions through a new template for polyspecific-association-related thinking.

Methodology

The paper will discuss a new methodology for expanding the current knowledge of primate polyspecific associations while building upon the previously established features of primate ecology and life history through a positive feedback mode of study. Detailed study on the core features of polyspecific associations, such as predation and communication, can provide information related to the interactions themselves while specific study of the associations can provide greater insight into the life history features of primate species.

Research

This new mindset and theory for understanding primate polyspecific associations provides the foundation for a new method of thinking. This new methodology of thinking allows space for a positive feedback loop of research between polyspecific associations and the life history components within the interactions. This new mindset creates space for more extensive study on both the interactions themselves and their component life history features.

Conclusion

This positive feedback loop mindset in regard to feature of the polyspecific association and its components will not only provide a stronger foundation for the study of polyspecific associations but add to knowledge of primate ecology. Life history information such as predation and communication can flow into polyspecific interaction knowledge. Once more knowledge of the associations is obtained, the new data can then flow back into the life history features of the primates. Creating an opportunity

for primate polyspecific interactions to be more-fully researched in the field allows future research to gain beneficial knowledge related to primate social interactions, life histories, and ecology.

Community Health Screening and Education through Laboratory Science Workshop: Participant Evaluation of the 2018 Pilot Program in Aco, Peru

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Jamie Vreeland, Clinical Laboratory, Texas State University

Francisco Jaimes, Clinical Laboratory, Texas State University

Key Words: Community Health, Laboratory Science, Public Health, Screening and Education

Introduction

Public health outreach initiatives frequently overlook laboratory medicine students and professionals. This is a missed opportunity to engage lab science students in the health screening and education of their local communities as well as in partnerships with lab science students from other countries. This poster will discuss a novel bilingual community health screening and education (CHS & E) through laboratory science service-learning (SL) study abroad (SA) program that could be utilized to improve community engagement and understanding of public health and laboratory science. In collaboration with The Foundation for International Medical Relief of Children (FIMRC), Clinical Associate Professor and Adult, Professional, and Community Education doctoral student (2019 cohort), Joanna Ellis traveled with five CLS senior-level students to Huancayo, Peru in June of 2018 for a CHS & E through laboratory science SL-SA program. Utilizing the self-powered Lab-in-a-Suitcase from International Aid, the group conducted four CHS & E through lab science events in four different communities.

We conducted hemoglobin, urinalysis, glucose, cholesterol, and sexually transmitted infection screenings on 161 people. The CUY Project was the most involved activity with six interactive stations for the families to learn about anemia, parasites, and nutrition through lab tests. Parents and children learned more about their conditions through fun and interesting laboratory science activities and tests. This poster will describe the preparation, implementation, and first stage of action research evaluation of the CHS & E through laboratory science workshops.

Methodology

This poster discusses the first stage of community-based participatory research where Joanna Ellis consulted with local physicians and community members to design, implement, and evaluate the pilot Community Health Screening and Education through Laboratory Science workshop. The evaluation of the first workshop iteration presented in the poster was based on workshop participant surveys.

Research

This study indicates that interactive clinical laboratory science activities enhance understanding of

public health topics. Study participants gained significantly more knowledge about

anemia ($p=0.006$) and diabetes ($p=0.001$) with a statistically insignificant increase

in hygiene knowledge ($p=0.341$).

Conclusion

When this type of workshop is conducted in a community with pre-identified screening test needs and culturally appropriate education materials provided, the surveys show that 90-100% of study

participants agree or strongly agree with the following statements:

• This information will help me make decisions in caring for my children. (100%)

• This information will cause me to read food labels when purchasing groceries. (90%)

• This information will cause me to consider iron content when selecting foods. (100%)

• This information will cause me to consider sugar content when selecting foods. (90%)

• This program was effective in helping to prevent future health problems. (100%)

Collaboration as an Asset in College Advising

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Key Words: College Access, College Advising, Collaboration, Higher Education, School Improvement

Introduction

Attaining higher education is a tool for social mobility and ending familial poverty (Knight-Diop, 2010), however, not all populations have access to this tool (Kezar, 2009). Students from underserved backgrounds have a significantly less amount of college preparation resources in high school compared to students from privileged backgrounds (Pineda & Drummond, 2018). Underserved students depend on their schools for assistance in accessing higher education (Stillisano, Waxman, Brown, & Alford, 2014). Unfortunately, schools often have high student to counselor ratios (Christian, Lawrence, & Dampman, 2017). College access programs exist to aid underserved students in accessing higher education (Aidman & Nelson, 2016). Discovering how college access programs at a Title I High School can effectively collaborate in supporting underserved students in accessing higher education is crucial to underserved students' attainment of higher education. A study examining College Counselors' perspectives on college access and collaboration was conducted. A theoretical framework consisting of three theories was used to guide the study: collaboration empowerment theory (Fawcett et al., 1995), challenge and support theory (Sanford, 1962), and the community capital theory (Emery & Flora, 2006).

Methodology

A layered case study with multiple objects of study (Patton, 2002) was utilized. Purposeful sampling (Merriam, 2009) was used and six College Counselors served as participants. To learn more about participants' views on college access and collaboration data collection consisted of a Q-sort activity, interview, survey, and field notes. A deductive and inductive analysis (Patton, 2002) was used to analyze the data.

Research

It was revealed in the data that as College Counselors challenge students to pursue college they support them through the college access process. College Counselors describe their role in providing college access to underserved students as one that requires having a relatable, trusting, mentor relationship with students. College Counselors collaborate the most during students' senior year to provide support services for learning about higher education, applying to college, and accessing financial aid. It is evident in the data that underserved students need more early college intervention programming and college entrance exam preparation. The data suggests the need for the Title I High School to collaborate with the college access programs in providing college entrance exam preparation in school day classes. It is also evident that college access programs need larger budgets for college access programming.

Conclusion

College Counselors aid in the college access of underserved students by providing them with capital assets which is congruent with Emery and Flora's (2006) community capital theory. When students are provided with assets such as college advising and financial assistance they are able to "spiral up" (Emery & Flora, 2006, p. 22) enabling them to access higher education and use it as a tool to break familial poverty. The college access programs' collaborative efforts can be enhanced through the

implementation of a long-term plan ensuring the sustainability of increased resources and services (Fawcett et. al, 1995) offered to underserved students to eliminate barriers hindering their access to higher education. The findings of this study will contribute to strengthening collaborative support for underserved students accessing college.

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Music Enhances Source Memory and Confidence for Novel Verbal Information

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Introduction

Past research into the use of musical mnemonics as an aid in memory enhancement, has been somewhat limited; focusing on patients with Alzheimer's disease and healthy older adults, as well as inconsistent: different outcomes between experiments (Simmons-Stern et al. 2010, 2012; Deason et al. 2012, 2018). In a set of studies, we examined recognition memory for novel sung lyrics compared to spoken lyrics in young adults to further explore the efficacy of musical mnemonics as well as its effect on source memory.

Methodology

In experiment one, during a "study" phase, participants listened to a set of novel lyrics, either sung or spoken. Following the study phase, participants were presented with new "unstudied" lyrical recordings, as well as original "studied" lyrical recordings. Participants were then asked to make an old/new recognition judgement. The second experiment followed the same old/new paradigm, however, in the test phase, instead of hearing the old or new stimuli, participants were shown a set of lyrics, and had to make a source judgment and decide if and how they heard the lyrics during the study phase by selecting sung or spoken, or had not heard the lyrics and would then choose new.

Research

We found that participants had greater recognition memory for sung lyrics compared to spoken as well as better identification of a lyric's source. We also found increased confidence for memory judgments about sung lyric recordings compared to spoken lyric recordings.

Conclusion

These findings suggest that pairing new information with music can improve both recognition and source memory.

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Impact of Cell Growth Phase and DNA End Structures on Repair of Double-Strand Breaks

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Nestor Rodriguez, Biochemistry, Texas State University

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Introduction

Defects in DNA repair pathways in humans have been associated with many human genetic disorders, which leads to an increased cancer incidence. Double-stand breaks are the most lethal type of DNA damage, as these may lead to chromosomal loss or rearrangemens and cell death. This project focuses on one of the pathways that repairs this type of DNA damage, Nonhomologous end-joining (NHEJ). NHEJ consists of three primary protein complexes, the Yku70-Yku80 (Yku), Mre11-Rad50-Xrs2 (Mrx), and Dnl4-Lif1-Nej1 (Dnl). The goal was to analyze how different cell growth phases and DNA end structures influence effective NHEJ repair.

Methodology

The primary method utilized is a plasmid assay used to test the efficiency and accuracy of DNA double-strand break repair via Nonhomologous end-joining. A double-strand break is induced in plasmid DNA that contain selectable markers that allow for the quantification of the effectiveness of the DNA repair in yeast strains that have an inactivated gene in one of the primary proteins involved in Nonhomologous end-joining.

Research

The results have shown that the cell growth phase does have an impact on the requirement for the Mrx complex, as cell cultures with higher levels of G1 cells show a requirement for the Yku and Dnl protein complexes, but not Mrx. It was also shown that the DNA end structures were important in determining which protein complex was required, because cells with 5' single-strand DNA overhangs showed less of a requirement for the Mrx complex than those with 3' overhangs.

Conclusion

Efficient NHEJ repair is affected by multiple factors, including the cellular growth phase and the structure of the DNA ends. Current results have shown that while the Yku and Dnl complexes are always required for effective repair, that is not the case for Mrx. We have shown that in the case of the Mrx complex the requirement may be more situational. Knowing how different circumstances influence NHEJ repair is essential to understanding the mechanisms involved in accurate DNA repair. Future experiments will focus on the role of chromatin remodeling and DNA end processing proteins to uncover how these processes interact for effective NHEJ repair.

Service-Disabled Veteran Nicholas C. Funari -Owned Small Businesses and Government Contracting: Assessing the State of Texas Procurement and Contract Management Guide Using the Federal Acquisition Regulation

Nicholas Funari, Public Administration, Texas State University

Introduction

The purpose of this research is threefold. First, this research identified best practices related to procurement practices used by Service-Disabled Veteran-Owned Businesses (SDVOB) and developed a framework for the assessment of such practices. In particular, this framework was developed by using sources such as the Code of Federal Regulations (CFR, henceforth) and other scholarly sources. Next, this framework is used to assess procurement policies pertaining to SDVOSBs in Texas. Finally, this research provides recommendations to refine Texas procurement policies.

Methodology

This research used document analysis as a method of data collection. This research gauges the eight best procurement policies for SDVOSBs and then makes recommendations for the state of Texas based on the findings. This research focused heavily on the policies most often used in federal procurement. These policies have a proven track record called Federal Acquisition Regulation (FAR) policies. By using document analysis to review the rules and regulations contained in the FAR, this research sought to provide the state of Texas with recommendations derived from the document analysis method of data collection.

Research

Set-aside policies deal with nearly half of the overall policies found in the federal standard reviewed by this research. Set-asides are a fundamental component in government contracting and instrumental for SDVOSBs. By using the federal standard, policy recommendations for the State of Texas Procurement and Contract Management Guide are made.

Conclusion

It is clear based off this research that set-aside policies are heavily used by SDVOSBs in federal government contracting, but this leveled playing field is not offered by the state of Texas for SDVOSBs. Because set-aside policies deal with nearly half of the overall policies found in the federal standard reviewed by this research; it can be concluded that set-asides are a fundamental component in government contracting and instrumental for SDVOSBs. All of the policy areas found in the federal standard that were reviewed in this research serve the best interests of SDVOSBs. Each policy found in the federal standard would also play a significant role in representing the interests and needs of SDVOSBs if implemented into the State of Texas Procurement and Contract Management Guide. Should only one policy topic be chosen for implementation into the State of Texas Procurement and Contract Management Guide, this research recommends set-aside policies to be selected. This is because of the significant value

that set-aside policies bring for SDVOSBs and the number of times they were included in the federal standard.

Depression Increases Susceptibility to Barriers to Adherence

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Key Words: Adherence, barriers to adherence, depression

Introduction

Medication nonadherence is a major issue in health care. In order to address nonadherence, it is important to assess barriers to adherence, as well as to identify patients that are high-risk for nonadherence. This study attempted to identify if depression is indicative of increased susceptibility to specific barriers to adherence, which have previously been found to influence rates of adherence. Ultimately, the findings could provide a means of identifying patients that may be high-risk for nonadherence. Any increase in the understanding of nonadherence contributes to combatting the issue. This study separated participants into two groups based on their scores on the Patient Health Questionnaire (PHQ), a questionnaire designed to evaluate levels of depression. Results indicate that participants that scored higher on the PHQ, showing increased levels of depression, were significantly more susceptible to the specific barriers to adherence efficacy, side effects, problems taking medication, forgetfulness, access, physician-patient relationship, lack of support, and beliefs about medication. These findings support previous findings that depression complicates adherence to treatments of specific diseases (Goldstein, Gathright, & Garcia, 2017), suggesting that depression may be implicated in nonadherence to various medication regimens and medical treatments.

Methodology

A total of 487 participants were recruited and assessed using the online survey platform MTurk. Participants were separated into two groups, depressed and not depressed, based on their scores on the Patient Health Questionnaire (PHQ). A measure of 61 items representing multiple barriers to adherence was developed by the co-authors. Barriers to medication adherence were assessed using a set of statements rated on a 5-point Likert scale. This study focused on the following barriers: efficacy, side effects, problems taking medication, forgetfulness, access, physician-patient relationship, lack of support, and beliefs about medication.

Research

Independent samples t-tests comparing the depressed and not depressed groups in their susceptibility to the specific barriers to adherence were conducted. Findings indicated significant differences between the two groups in their susceptibility to every tested barrier to adherence, with 57 or the 61 individual items assessing the barriers to adherence being significant. Further analysis are being conducted.

Conclusion

This study supports differences in susceptibility to specific barriers to adherence based on depression. This information is valuable in increasing the understanding of factors that influence nonadherence, one of the most prominent issues in health care worldwide. Increased understanding of the various factors influencing nonadherence will lead to an improved ability to combat nonadherence.

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Do You Dare to Compare?: Identifying Key Characteristics of Social Media Users Who Frequently Make Online Upward Social Comparisons

Merab Gomez, Psychological Research, Texas State University

Introduction

Social media platforms and social networking sites are heavily focused on self-presentation and impression management. Past research has described social media as a facilitator for social comparisons, specifically increasing the frequency of upward social comparisons due to positive biases in content shared by users. Little is known about social media users who are experiencing these elevated levels of upward comparisons.

Methodology

The present study aimed to identify salient social media behaviors and psychosocial factors most associated with high levels of upward online social comparisons. A sample of 1,314 participants of varying ages (M = 35.74; SD = 11.70) were recruited to participate in an online survey in order to assess their demographic backgrounds, social media activities and mental health. Univariate and multivariate analyses were conducted in order to identify the key characteristics related to high levels of upward social comparisons.

Research

Results revealed three psychosocial factors related to high upward social comparisons: those with low quality of life (p < .001), low perceived social support (p =.026) and those high in fear of missing out (p < .001). Additionally, the three social media behaviors related to high upward social comparisons were: high levels of social media addiction (p < .001), frequent censorship to avoid judgment (p = .018) and feelings of safety while using social media (p = .027).

Conclusion

Although research on social media and mental health is in its early stages, this study provided additional insight to the complexities of both spheres. The findings of this study further supported some of the existing literature emphasizing that the manner in which we use social media is crucial in determining whether we are positively or negatively impacted by it. More importantly, the findings of this study helped to firstly identify potentially harmful behaviors in social media users for which no research has done before and secondly offer inferred methods for addressing them.

Self-Diagnosis in Puerto Rico

Sarah Nicole Haimann, Anthropology, Texas State University

Introduction

In Puerto Rico, the healtcare infrastructure is struggling to provide access to Puerto Ricans. The economic issues in Puerto Rico had led many civilians searching for cheaper methods of treatments. Many Puerto Ricans diagnose themselves and use plant or spiritual based treatments to complement biomedicine. The reasearch focuses on the actual process of self-diagnosis and self-treatment, and thereasons benhind it.

Methodology

Qualitative methods were used for the research to grasp the reason for Puerto Ricans to self-diagnose. The age and gender of the sample was mixed. An interview of approximately one hour was conducted for each interviewee. The recordings were coded to display any consistencies that showed up during the interviews. Participation observation was practiced to further examine the mechanisms and procedures the participants used for their alternative treatments. The participants filled in a demographic survey to establish a statistical report.

Research

The majority of the participants recognized a lack of specialists and medical practitioners in the healthcare system and the cost for treatments. The reason Puerto Ricans avoid meeting a medical practitioner is the amount of time they had to wait. The participants with public or private health insurance described their problems of attaining treatment from Western-Style medicine. Many of the participants expressed hardships with their economic situations, especially the cost of the diagnostics and treatments in biomedicine. A decreased amount of specialists and the high cost of treatments in biomedicine forced the participants to search for quicker and cheaper forms of treatment and diagnosis.

Conclusion

Puerto Ricans face a continuing struggle of attaining treatments for their health problems. As the healthcare infrastructure depletes in quality and quantity, the increase of needs in treatments forced Puerto Ricans to search for alternatives. The confidence and acceptance in using alternative medicine is widespread throughout the island, and will continue until the healthcare system increases in access. The purpose of the research shows how the struggles in healthcare may lead people to start using other methods and decrease their trust in biomedicine.

Doublet Emitters Derived from Stable Carbenes for Potential OLED Applications

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Dr. Todd Hudnall, Chemistry, Texas State University

Introduction

Organic light emitting diodes (OLEDs) typically exhibit low quantum efficiencies (~ 19%) due to quantum mechanical limitations and spin statistics. In traditional OLEDs, the emitting excitons are either singlet (25%) or triplet (75%) spin states. Because decay from triplet states is spin forbidden, the internal quantum efficiency of fluorescent devices is limited to a theoretical maximum of 25%.[1] To circumvent this problem, modern OLEDs rely on triplet, phosphorescent emitters, that require the incorporation of often expensive heavy atoms to facilitate intersystem crossing between the singlet and triplet excited states, thus increasing triplet emission.[2] In contrast to the widely explored triplet emitters, this presentation will describe our recent efforts to prepare cationic and neutral doublet emitters derived from carbenes and triarylmethyl- or triarylboryl-centered radicals, respectively. In principle, doublet emitters have theoretical quantum efficiencies of up to 100%, making them ideal candidates for next-generation light-emitting devices.

Methodology

To try and solve this issue we are taking triarylmethyl- and triarylboryl- cenetered compounds and adding them to a carbene. We then further reduce these compounds to a radical and then test for emission.

Research

We have succesfully developed two radical devices that emit. We are doing further research to see how efficient these devices are compared to OLEDs on market today.

Conclusion

If these OLEDs are shown to be as, if not more, efficient than those currently in use, we will have succesfully removed heavy metals from these devices. This not onl will cause costs to decrease but will also be more environmentally friendly than current OLEDs. All the materials used for our devices are cheap and renewable, unlike the heavy metls normally used.

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A Quantitative Analysis on Internet Access and Postsecondary Enrollment in the United States

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Hannah Edwards, Sociology, Texas State University

Introduction

The academic achievement gap is well documented in the literature. Students with low socioeconomic status backgrounds perform worse academically when compared to students from higher socioeconomic backgrounds (Gearin, Fien, and Nelson 2018). The internet can be an incredibly useful tool when it comes to academic involvement and achievement; whether that pertains to studying, finding academic articles, watching video tutorials, and enrolling in college (Long, Person, Gratz 2019). People with low socioeconomic backgrounds have limited access to the internet which produces various technological inequalities (Ball, Huang, Rikard, and Cotton 2019). One major barrier in internet access for low income individuals is the high cost of computers (Andonian 2018).

Methodology

We will be using the Current Population Survey, October 2010: School Enrollment and Internet Use Supplement. The data are collected by the United States Bureau of the Census, United States Department of Education, National Center for Educational Statistics, and the United States Department of Labor Bureau of Labor Statistics. The dataset consists of two surveys: The Current Population Survey (CPS) and a survey consisting of topics related to Internet Use in the United States. We will run a logistic regression using variables related to internet access and postsecondary school enrollment.

Research

As the literature suggests, we predict that there will be a strong correlation between internet access and postsecondary enrollment.

Conclusion

Currently within the field of sociology, there is limited research regarding internet access and postsecondary education enrollment. Most studies about internet access and postsecondary education have been conducted in other countries and are qualitative in nature. It is important that we contribute to the literature with a quantitative approach in order to produce generalized findings using sources within the United States.

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Loudmouth Soup: The Visual Rhetoric of Beer

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Introduction

For years, the question, "Would you have a beer with this candidate?" has informally indicated candidate likability and accessibility in political elections. Candidates from George W. Bush to Elizabeth Warren have taken pains to curate their images of alcoholic consumption, toeing the line between being too exuberant about adult beverages and being too puritan or snobbish about them. Brand choice of beer can be telling about an individual's personal values, such as social status and ties to place. As a physical object and visual image, beer itself tells a story, each type, brand, and container communicating a rhetorical narrative and message about it own identity, its place in society, and its individual consumer. Using rhetorical analysis as well as the theoretical framework from studies on images in political campaigns, this paper examines the visual rhetoric of beer.

Methodology

Using visual analysis tools, such as framing (of an image), symbolism, color, and interaction between image and text, this paper analyzes various beers from a visual communication angle. Examples include national brands such as Budweiser, more local brands such as Lone Star—"The National Beer of Texas"—and international brands, such as Heineken. Recent examples of candidates leveraging their images with beer during the 2020 presidential race—for instance, Warren's Instagram-broadcast consumption of a Michelob Ultra and Pete Buttigieg's decision to opt for a root beer in Iowa because he was "still on the clock"—will also be examined for their rhetorical strategies and purposes.

Results

Although choice of beer might on the surface appear arbitrary, studies about Greek, Australian, and South African beer clearly show that brands, types, and containers of beer send and signify important social, cultural, rhetorical, and at times even political messages. Brands design their labels, bottles and cans to resonate with consumers for different reasons. For instance, the Lone Star brand, and most local brands, try to activate consumers' pride in place. International brands, such as Heineken, communicate with their design their cosmopolitan status and history. Furthermore, consumers such as political candidates, when seen drinking beer, choose their brands, as well as containers—such as a bottle, can, or a glass—to communicate ideologies, messages, and their identity.

Conclusion

Several studies have shown the importance of images in political campaigns, especially relating to the construction of a candidate's likability. This paper will braid together ideas about marketing, political communication, and visual communication with rhetorical analysis to further examine the impact of the rhetoric of beer as a curated image within social systems.

Nutritional Support for Substance Use Disorder Recovery

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Introduction

The recovery stage of addiction is a challenging phase characterized by withdrawal symptoms, cravings, and a 40-60% risk for relapse. Nutritional psychiatry is an emerging field of medicine focused on optimizing mental and physical function by providing essential nutrients, treating deficiencies, and using food as medicine. Nutritional intervention has the potential to enhance recovery success by providing the brain with needed nutrients to heal and by reducing withdrawal and craving symptoms. To this end, we conducted a systematic review of preclinical and clinical nutrient interventions showing evidence of reducing relapse or craving.

Methodology

Separate searches were conducted utilizing the SCOPUS and the PubMed databases. After eliminating duplicates, the combined search yielded 9,452 peer-reviewed studies. The original search ended on February 23, 2018 and a final search through PubMed and Scopus was performed on June 28, 2018, yielding 30 applicable studies. Articles were assessed by three investigators for inclusion using the following criteria: (1) Clinical or preclinical studies of any diet or nutrient including vitamins, minerals, amino acids, and fatty acids (or any miscellaneous food-based supplement); (2) studies of any drug of abuse including alcohol, nicotine, and cannabis; (3) randomized controlled trials; (4) studies during abstinence with the outcome measure as reduction of craving or relapse. Studies including participants currently undergoing MAT (e.g. Methadone and Buprenorphine) or smoking cessation (nicotine or cannabis) studies were also included.

Research

This systematic review encompasses trials that include male and female subjects, as well as individuals with different ethnic backgrounds to provide a subject pool representative of the population. Results of the review show that two minerals, one amino acid, and polyunsaturated fats may significantly reduce craving and/or withdrawal symptoms related to addiction.

Conclusion

For each reviewed nutrient, possible mechanisms of action are explored such as neurotransmitter and gene regulation. Future directions will include research of the nutrients' mechanisms of action and possible synergistic effects. Further, a nutrient based polypharmacological approach may be beneficial for supporting recovering in individuals suffering from substance use disorder.

What are the Differences in Strategies that Clinicians use During Tele-Practice for Speech versus Face-to-Face Therapy?

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Introduction

As access to the internet is increasing worldwide, telepractice is a growing method of speech-language therapy delivery that has the potential to provide services for populations in underdeveloped areas. Many graduate students studying speech language pathology do not have the opportunity to experience this method of therapy intervention before graduating and entering the workforce. There is limited research into the implementation of service delivery through telepractice. Further, current research indicates clinicians and clients have varied experiences and perspectives regarding the use of telepractice for speech-language therapy. No studies, as of 2014, discussed clinician satisfaction with telepractice for assessment (Taylor & Armfield, 2014). The aim of this study is to measure student clinician's perspectives of therapy strategies used during telepractice and gain insight into the views of the next generation of Speech Language Pathologists.

Methodology

This research investigates this issue through an in-depth survey of 10 graduate student clinicians who recently conducted international telepractice therapy targeting articulation for children under the age of 18 with cleft lip and/or cleft palate in Latin America.

Research

Preliminary results of the survey indicate that some clinicians felt the use of technology negatively affected the effectiveness of therapy due to poor call quality. Clinicians stated they had to alter the strategies they used during telepractice from how they would provide therapy if the session was face-to-face. A common alteration reported was increasing visual and verbal cues and feedback due to the inability to use tactile feedback or interactive rewards and activities.

Conclusion

Due to the ever increasing availability of internet use worldwide and the consistent need for speech language therapy services, telepractice is likely to continue as an alternative to traditional face-to-face therapy. Therefore, it is important to understand clinician perspectives of the therapy's strengths and limitations and obtain data on efficacy and client success to enhance the quality of service delivery for clients. There are three parts to evidence-based practice: (1) the client perspective, (2) the clinician perspective, and (3) published research in peer reviewed journals. Graduate students training to be speech-language pathologists appear to have some reservations when it comes to the use of

telepractice. While clients feel telepractice is successful, even when there are challenges, future speech-language pathologists appear to be more critical of the delivery method.

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Exhibiting Change: Exploring the Presentation of Climate Change in Aquarium Exhibits

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Key words: Climate Change, Socioscientific Issues, Localized Conservation, Science Communication, Science and Culture

Introduction

From the production of 50% of the planet's oxygen to supporting the livelihoods of over three billion people, the world's oceans play a vital role in sustaining all life on Earth. Yet, across the globe, the increasing impacts of climate change intensify the pressures humans have already placed on the delicate ecosystems found within the oceans. Aquariums are places people can go to connect with marine and aquatic species, as well as learn about the impacts socioscientific environmental issues like climate change have on the environment in non-threatening, easy to comprehend formats. The largest way aquariums do this is through their exhibits. Therefore, exploring how climate change and its impacts on marine/aquatic ecosystems are presented through aquarium exhibits is necessary for understanding how to better engage visitors in conservation dialogue and action. This sub-study is a part of my dissertation research designed to examine aquarium exhibits in Association of Zoos and Aquariums (AZA) and World Association of Zoos and Aquariums (WAZA) accredited facilities. Traditionally used as a framework for facilitating dialogue about controversial science issues in the formal classroom, I updated a socioscientific issues framework (SSI) to be more inclusive of multiple types of learning environments, including aquarium exhibits. The SSI framework serves as a guide for answering the overarching question how does the presentation of socioscientific environmental issue messaging in exhibits influence visitor beliefs and perceptions of conservation issues?

Methodology

I observed and documented exhibits from 45 AZA/WAZA accredited aquariums around the world to identify in what ways do aquariums present the impacts of climate change to visitors through their exhibits and what trends exist in exhibit design and messaging. Using an exhibit load classification matrix and Tilden's Principles of Interpretation, preliminary results revealed that few (n=9) aquariums incorporate climate change into their exhibits.

Research

Those exhibits that do share similar characteristics across aquariums in their specific focus on the impact's climate change has on coral reefs, the incorporation of four or more of Tilden's Principles of Interpretation, and the inclusion of moving components visitors can watch. These exhibits contained no references to how climate change could impact those communities local to the aquarium.

Conclusion

This is concerning as many people feel far removed from climate change and its impacts due to an inability to connect with the issue. If aquariums are to continue contributing to the science literacy of the communities, they are a part of, then they need to provide visitors with opportunities to connect with complex and sometimes controversial environmental issues. Additionally, the results from this sub-study have the potential to influence the design of future exhibits and programming by encouraging a deeper integration of local cultures. If exhibit designers localize issues associated with climate change,

they can increase opportunities for visitor connections, help visitors understand how climate change may already be affecting them, and present visitors with steps for taking action towards mitigating climate change.

The Stochastic Trauma System Configuration Problem

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Introduction

Physical trauma, sustained from accidents and/or natural phenomena, is an essential aspect of healthcare operation, management, and expansion of any government, either Federal or State. Due to families and individuals migrating to urban centers across the country, rise in the national population, and socioeconomic disparities, it is crucial to provide adequate medical services to both rural and urban areas. Growth in infrastructure allows for better access to trauma facilities, but reaching them in time is the prime focus behind any expansion projects. It is simply not viable to place a facility in a region where it is underutilized, resulting in a waste of finances and personnel. Physical trauma varies in severity and requires a dedicated facility, adequately equipped with designated personnel, to be able to provide care and assistance. Trauma centers are designated by Levels ranging from I-IV, with IV being the highest, most comprehensive facility, being able to provide treatment to the most severe cases. The analysis of patient arrival trends will supplement the strategic placement of designated hierarchical trauma care facilities.

Methodology

There are two major research objectives undertaken by the study. The first goal is to analyze data on trauma incidents in different regions in Texas. These incidents can occur in varying environments, personal, industrial, public, including natural disasters. Forecast models for separate regions shall be produced. The models will be based on appropriate time-series behavior (trend, seasonality). Data sets will include several parameters which will be used to generate constraints for the optimization model for our second objective. These data sets will include injury severity, incident time and date, incident location, and trauma center designation for subsequent treatment and care.

The second research objective is to formulate a decision-making model for our objective i.e Trauma System Configuration. The model will be based on the Trauma Resource Allocation Model (TRAMAH) (Branas.et .al, 2000) and will function as a supply and demand network. Demand nodes represent regions that are to be serviced by trauma centers which are represented as the supply nodes. The proposed model will incorporate hierarchical levels of trauma centers to account for varying injury severity of patients. Due to limited resources, there is a limit on the number of facilities that can be placed or designated, based on forecasts. As an example, there can only be a certain number of Level IV facilities due to several factors involved, as mentioned previously, personnel, resources, and equipment.

Research

Data analysis of patient trends shows the time series plots on a yearly basis. Subsequent stages will involve testing different forecasting models such to find the best fit for the data set concerned.

Conclusion

This study aims for a dynamic, non-deterministic approach to the problem of providing quality care to residents across designated geographical zones. The study acknowledges that it is not feasible to simply erase the existing framework and start from scratch. Considering this aspect, it is important to forecast the demand existing facilities will face in the long run and redesignate the latter's roles and responsibilities, if need be, to better utilize expanding healthcare services. This study can be used to suggest expansion scenarios to prepare regions that are prone to natural disasters such as hurricanes and ensure that residents have access to quality trauma care.

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Sexual Minorities' Social Media Behavior

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Introduction

The aim of this study was to identify key differences in social media behaviors of individuals that identified as sexual minorities compared to individuals that identified as heterosexuals.

Methodology

Data were collected from adults recruited online using the Amazon Mechanical Turk survey administration system (N = 1294). Participants completed validated psychosocial questionnaires and responded to questions regarding specific social media behaviors, use of Facebook or Twitter and sexual orientation. Univariate comparisons assessed differences in social media behaviors between the sexual minority group (n = 178) and the heterosexual group (n = 1,116). A stepwise binary regression model evaluated specific social media behaviors that were most associated with the sexual minority group.

Research

Based on the multivariate analyses, the key social media behaviors most associated with the sexual minority group included more hours per day on Facebook and Twitter, greater Need for Social Media, and higher levels of Social Media Addiction. Additionally, a higher likelihood of making both Upward and Downward Social Comparisons, a greater Fear of Missing Out, and a higher need of "hoping to go viral" were also significantly associated with the sexual minority group as compared to the heterosexual group.

Conclusion

The overall findings of this study highlights key differences in social media behaviors associated with sexual minority individuals compared to heterosexual individuals. Due to the negative psychological consequences of these particular social media behaviors, sexual minorities should be made aware of the impact of their social media use and be conscientious of their mental well-being. Further research is needed to investigate more mindfulness strategies that can be implemented to assist in deterring negative psychological effects of social media behaviors.

Using Direct Sequence Spread Spectrum and an Adaptive Interference Cancellation Technique to Increase Efficiency in Passive RFID Systems.

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Key Words: RFID Passive tag systems, Tag collisions, Interference, Code Division Multiple Access (CDMA), Efficiency

Introduction

Radio Frequency Identification (RFID) is an emerging technology used in numerous applications including warehouse management, anti-theft systems, and supply chain. RFID identifies objects using radio frequency signals to read ID numbers from RFID tags attached to any objects. The key function of RFID technology is to read, send, and process the data between the RFID reader and tag. Our research focuses on passive RFID tags and aims to improve the energy efficiency and accuracy of systems [2].

PROBLEM STATEMENT

Interference is the biggest challenge in RFID tag systems. Our research improves the throughput and accuracy of RFID systems by giving the ability to cancel the effect of interference from the desired signal. In a dense environment, oftentimes multiple tags end up sending their information to the RFID reader at the same time. This results in mixing of signals, also known as tag collisions [3]. Additionally, some environments employing RFID tags have high background noise which reduces the system's reliability.

THEORETICAL FRAMEWORK

The RFID reader energizes the tags in its read range to begin communication. The tags reply with their unique ID's using RF signals. The RFID reader captures and stores the data from each tag to a database. Tag collisions occur if multiple tags reflect their signal (unique ID number) to the reader simultaneously. In the present scheme, if tag collision occurs, the process repeats from the start and results in performance degradation [1]-[4].

Our research is developing a new algorithm that combines Code Division Multiple Access (CDMA) technology with an Adaptive Interference Cancellation Technique (AIC). Since tag collisions create a negative impact on the overall system's performance, CDMA technology provides the ability to reduce collisions, and the AIC method helps to cancel interference from the signal.

Methodology

The three research objectives (ROs) of our work are as follows:

RO1: Develop a mathematical example to demonstrate the concepts of multipath, CDMA and the AIC process.

RO2: Design, then expand a MATLAB model to make the system robust practically.

RO3: Evaluate the results from the simulations to determine the range of applications.

Research

We have developed and are currently running a series of MATLAB simulations. Our preliminary results show that for environments with high noise the proposed system is approximately twice as energy-efficient as the present system. This increase in energy efficiency can increase battery life in hand-held readers, extend the range of RFID systems, and improve system accuracy.

Conclusion

The proposed solution of combining spread-spectrum CDMA and an AIC algorithm will overcome interference and multipath issues (thus increasing throughput and accuracy). This method will save system operation time, increase the read range capability of the reader, and increase efficiency. We will develop and run a series of MATLAB simulations to present optimum solutions to attain greater efficiency, accuracy, and speed than current systems.

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Uncertainty Quantification of FRP Reinforced Concrete Beams under Cyclic Loading

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Key Words: Uncertainty, Limit-state, FRP, Concrete beam, Failure probability, System reliability

Introduction

In this investigation, the randomness involved in the mechanical properties of fiber-reinforced polymers (FRP) and concrete are taken into account in the structural assessment of FRP reinforced concrete beams. As the uncertainty raised by the material properties can significantly affect the reliability of structural responses, it is of great significance to quantify the associated uncertainty.

Methodology

The main framework of this study is the iteration between finite element models and reliability-based approaches. The limit-state functions are defined based on concrete crushing and FRP ruptures failure mode. The system reliability analysis is employed to calculate the joint failure probabilities for the defined limit-states. Latin Hypercube Sampling (LHS), which is the variance reducing the probabilistic method, is used in this research.

Research

The results indicate the influence of each material uncertainty on the structural reliability responses. Moreover, the effects of different failure scenarios on the failure probabilities are determined.

Conclusion

The outcome of this investigation can be used for the guideline modification purposes of the reinforced concrete members and buildings.

The Academic Outcomes of Participatory Gifted Education Programs: A Meta-Analysis Study

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Introduction

When Sir Francis Galton (1869) investigated the nature of geniuses he suggested that the intelligence was hereditary and constant. According to this understanding which is known as "Constant Intelligence", one's knowledge level cannot change over time, mental abilities such as speed of information processing, remembrance, etc. were constant, and they were determined by heredity. Approximately 100 years later, researchers ascertained that brain interacts with the environment and intelligence is not fixed. In line with this new concept which is called interactive intelligence brain development doesn't stop at 18 and depending on environmental factors intelligence level can either develop further or it can decline (Clark & Castel, 1988, p. 5).

Traditionally giftedness defined as to be in top 2% of in Stanford-Binet intelligence test or an equivalent one. This view argues that knowledge level, vocabulary, etc. can develop by education or environmental factors, however mental abilities do not change over time. In agreement with the traditional understanding of giftedness; gifted people don't need help; they'll do fine by themselves (NAGC, 2009).

Modern definitions emphasize different component of giftedness they see giftedness as emergent after interaction with the environment and a dynamic process (Gagné, 2005; Subotnik, Olszewski-Kubilius, & Worrell, 2011; Ziegler, 2005). If giftedness is a developmental and dynamic process, then their development should be supported by a suitable educational environment. Without this kind of support, gifted children's mental abilities will get wasted and they will never realize their true potential. According to this dynamic and developmental understanding in order to reach full capacity, a gifted mind needs continuously challenging environmental factors (Rogers, 2007). Despite the dynamic and developmental nature of minds, especially a gifted mind, today some states of USA (NAGC & CSPDG, 2015) and Turkey support only limited practice of gifted education under extreme conditions (Shaughnessy & Sak, 2015). The research question of this study is: "Independent from program type, what is the effect of participatory gifted education programs on academic achievement?".

Methodology

This is a meta-analytic review of gifted education literature. Key terms for data collections are as follows: "gifted", "gifted education", "talented". The databases that searched for this meta-analysis where ERIC, Sage, Taylor-Francis, ProQuest and for Turkish studies National Thesis Center. To answer research question more than 18000 studies had been searched and 36 experimental and quasi-experimental studies met the inclusion criteria.

Research

For each study Hedge's g was calculated then their results were combined under random effects model. The overall effect size of participating in a gifted education is (Hedge's g) 1.005. this effect size can be classified as large (Cohen, 2013).

Conclusion

The overall effect size that is calculated in this study reveals that there is a large size achievement gap between gifted students that who is participated in a gifted education and who did not. That indicates gifted students can benefit from support program that meets their educational needs.

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Prescription Drug Use, Misuse, Other Substance Use, and Sexual Orientation: The Significance of Educational Status and Psychological Distress in US Young Adults

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Introduction

People that identify as sexual minorities (e.g., lesbian, gay, and bisexual people) report higher rates of substance use than heterosexual people (1-3). A substantial amount of research has attributed these differential rates of use to minority stress (4-6). Less research has investigated demographic characteristics that could potentially promote favorable health outcomes for sexual minorities. This research intends to fill that gap by examining the effects of education, sexual orientation and their interaction on rates of substance use. Specifically, on prescription drug use/misuse and other substance use variables in U. S. young adults aged 18-25.

Methodology

By using national data from the 2015-2017 National Survey on Drug Use and Health surveys, we examined past-year prescription opioid, stimulant, and benzodiazepine use/misuse, as well as past-year marijuana use, any substance use disorder and past-month binge drinking and daily smoking in young adults (N=38,298). Prescription drug misuse was defined as using prescription drugs in ways that were not intended by the prescriber, such as the medical misuse of one's one medication. Educational status was determined by the participants' enrollment as a college student or recent college graduate versus those not in college. Regressions evaluated the relationship between substance use prevalence, education status, and their interaction.

Research

Consistent with previous work, sexual minorities had higher rates of substance use, except for in the binge drinking and prescription stimulant misuse variables. When psychological distress was included in the models, prescription use/misuse was no longer significantly higher in sexual minorities, except for opioid misuse. Education was associated with both lower and higher substance use rates, depending on the substance, and did not protect bisexual males against substance use. Sexual minority females may be more vulnerable to substance use disparities than males.

Conclusion

Sexual minority young adults are at higher risk for opioid misuse and other substance use, with evidence of female-specific benefit from higher education. Screening for psychological distress, opioid misuse and other substance use is needed in sexual minority young adults, with culturally-sensitive intervention for those at-risk. Further research on the link between psychological distress and sexual minority substance use is also warranted.

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The Relationship Between Interpersonal Attraction, Ethnic Identification, and Attitude Similarity

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Key Words: Interpersonal Attraction, Ethnic Self-Identification, Attitude Similarity, Social Psychology

Introduction

The relationship between attitude similarity and interpersonal attraction has been well established. As our society becomes increasing multicultural, however, what role does ethnic self-identification play in influencing interpersonal attraction?

Interpersonal attraction is a person's affective and behavioral response to another individual, and percent of attitude similarity has been shown to influence interpersonal attraction (Byrne & Griffitt, 1973; Montoya, Kershaw, & Prosser, 2018). Ethnicity is a type of social identity that often includes values and attitudes that a group shares (Lee & Gudykunst, 2001). Some previous research has found that for interactions between people of different ethnicities, similarity of attitudes still predicts overall attraction (Lee & Gudykunst, 2001). This present study explores the influence of ethnic self-identification on interpersonal attraction.

Methodology

Participants (N = 34) were undergraduate psychology students who volunteered for two lab sessions. Instruments included the 12 item Survey of Attitudes (Byrne, 1961), the Ethnic Self-identification Scale (Davis, 2006), and the Interpersonal Judgement Scale (Byrne, 1961).

Independent variables were the degree of attitude similarity between the participant and a stranger, and degree of similarity in ethnic category ranking on the Ethnic Self-identification Scale between the participant and a stranger. The dependent variable was the Interpersonal Judgement Scale, a six-item measure of attraction to the stranger.

During session one, participants completed the survey of attitudes and the Ethnic Self-identification Scale. For session two, participants were randomly assigned to one of four conditions in a 2 X 2 factorial design. They received copies of the attitude survey (similar or dissimilar attitudes) and the ethnic scale (similar or dissimilar rankings) purportedly filled out by a stranger. After they had read both the attitude survey and ethnic self-identification scale of the stranger, they completed the dependent measure, the Interpersonal Judgment Scale, to report their evaluation of and attraction to a stranger.

Research

Results were analyzed with a 2x2 ANOVA. There was a significant main effect of level of attitude similarity on attraction. Participants were significantly more attracted to a similar stranger than a dissimilar stranger, $F(1, 30) = 60.86$, $p < .001$, $\eta^2 = .670$. Participants did not differ significantly on attraction to an ethnically similar stranger compared to an ethnically dissimilar stranger, $F(1, 30) = .66$, p

= .423. No interaction was found between level of attitude similarity and level of ethnic similarity on interpersonal attraction, F(1, 30) = .11, p = .747

Conclusion

Results from this study were in-line with past work that observed a positive relationship between level of attitude similarity and interpersonal attraction (Byrne & Griffith, 1973; Montoya et al., 2018). However, in contrast to past research which has observed that ethnic differences typically denote an outgroup, with outgroups implying less interpersonal attraction (Lee & Gudykunst, 2001), level of ethnic similarity did not significantly influence attraction. A small, uniform sample size of students in Texas could make these results difficult to generalize. Data collection is still underway; a larger, more diverse sample size could address some limitations of the current findings.

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An Investigation of Blunt Force Trauma from Four Individuals Involved in Motor Vehicle Accidents

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Key Words: blunt force trauma, motor vehicle accidents, fracture patterns

Introduction

Motor vehicle accidents (MVAs) are those which occur when a vehicle collides with another vehicle, pedestrian, or other object. In the United States alone, 32,000 individuals are killed each year from MVAs[1]. Understanding the factors that play a role in MVAs and the patterns of trauma resulting from them can impact decisions made regarding medical treatment or vehicle design. Such factors include victim-vehicle relation, a person's ability to control the vehicle, as well as the category, speed, and condition of the vehicle. All of these factors and influences lead to dynamic degrees of skeletal trauma in the persons involved. The purpose of this project is to identify patterns of skeletal trauma resulting from four different fatal MVAs, which can provide context about the scene and events for law enforcement and medical professionals.

Methodology

The four individuals used in this study were selected from the Texas State Donated Skeletal Collection at Texas State University. The individuals were involved in different MVA scenarios: (1) a pedestrian struck by a vehicle, (2) a pedestrian who walked in front of a truck, (3) a driver who struck an object while behind the wheel, and (4) a motorcycle rider. Fracture patterns and regions of trauma were identified, photographed, and analyzed.

The findings from this project were consistent with previous research on MVAs. The most common regions affected in all four of these cases include the skull, ribs, thoracic spine, lower limbs and the pelvis. Each individual in this study exhibited fracture patterns consistent with their respective MVA scenarios[6].

Results

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Conclusion

This presentation will impact the forensic science community by adding to the research and investigation of fracture patterns and fatal motor vehicle accidents.

Understanding fracture and trauma patterns can provide valuable context about the scene and events that may have occurred. Overall the fractures patterns, severity of fracturing and regions affected are dependent on many variables, including the position and relationship of the individual to the motor vehicle. Further research using a larger sample size and more detailed police and medical records is recommended, to see if the patterns found in this study are consistent on a larger scale.

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An In-depth Analysis of the Life Transitions of Resettled Asian Refugee Emerging Adults

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Key words: Asian refugees, emerging adults, life transitions, refugees in higher education

Introduction

Approximately 151,000 Asian refugee youth have resettled in North America in the past 10 years (Zong & Batalova, 2016). The literature on the migration of immigrant and refugee young adults suggests that this population may face significant social, cultural, and economic challenges which can affect their experiences of resettlement, employment, well-being, civic engagement and identity (re)constructions (Bajaj & Suresh, 2018; Shields & Lujan, 2018). Fewer studies, however, focus on the complex practice and meaning of transition among Asian refugee emerging adults.

Methodology

Qualitative research and tools such as narrative interviews were principal to the study and were used to extract information on transitional experiences of resettled refugees. Using a representative sample of eight Asian refugee emerging adults, an ethnographic approach was used to understand the negotiation of adult identities, transitioning into society and the preservation of cultural distinctiveness.

Research

Numerous difficulties await resettled refugees working to reestablish their lives in a new country. These challenges range from education differences, language barriers, work disparities and acculturation. Yet, despite these challenges, many Asian refugees are finding success in higher education as they transition from high school to emerging adulthood and from refugees to U.S. citizens.

Conclusion

This presentation will contribute to a deeper understanding of how Asian refugee emerging adults simultaneously experience transitional phases in their lives through the lenses of educational learning and identity (re)construction. Information gathered from this presentation will help adult educators, institutions of higher learning, and policy-makers develop a better sustainable environment for immigrant and refugee youth in education.

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Who Volunteers and Why? Understanding Environmental Stewardship Through Community Geography Partnerships with Two Environmental Nonprofits in San Marcos, Texas

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Key Words: community geography, environmental stewardship, volunteerism, nonprofits, motivations

Introduction

Environmental stewardship is a growing phenomenon in the United States and a crucial asset and component to many environmental nonprofit organizations that function at various scales. Community geography is a research approach that aims to affect positive community change through emphasizing participatory research techniques and building partnerships between universities and nonacademic organizations. The purpose of this study is to understand environmental stewardship through a community geography lens by partnering with Texas Stream Team and San Marcos Greenbelt Alliance—both based in San Marcos, Texas—to (1) understand stewards' demographics and motivations in general and (2) explore what differences, if any, exist in demographics and motivations across organizational scales. The knowledge obtained will be used by both community partners to improve organizational capacity through recruitment and retainment of a diverse volunteer pool.

Methodology

Two online surveys were administered via Qualtrics over summer 2019.

Research

Preliminary, descriptive results (n=487) indicate stewards are largely white, female, well-educated, and over the age of 55. Top motivations are "I want to help or enhance the environment"; "I want to help the community"; and "I want to get outside and connect with nature." Most stewards disagree or strongly disagree that they are motivated by career advancement or engagement(s) with other people. Major differences in motivations that may be attributable to organizational scale are social interactions with like-minded people (San Marcos Greenbelt Alliance) and learning/sharing knowledge (Texas Stream Team).

Conclusion

Community geography proves to be a valuable approach for understanding environmental stewardship, but implications for future research are if the research results can be effectively implemented to affect positive community change (the goal of community geography).

Feelings We Cannot Utter: Minimalist Writing and Empathy

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Introduction

The magic of minimalist writing might be easy to explain, and no one has captured it better than Hemingway with his iceberg theory—in exposing purposely only the tip of an iceberg, readers are more likely to use their imagination and seek the truth underneath, using their own cognitive skills to form a deeper understanding rather than being pushed into other people's shoes, especially when they are not prepared to do so in the first place. Influenced by the "Less is More" aesthetics, minimalist writers clearly are putting readers' responses into careful consideration when they are crafting every word in their writing, knowing which part to disclose and which part to omit. For example, when Mary-Elizabeth Vaquer talks about her minimalist writing, she notes that "By keeping the style minimal and more vague, I express the same sentiment that I wished to express, but I leave openings for the reader to enter and engage in an experience of his or her own" (Vaquer 98).

But how does this system of understanding minimalist writing aid our current understanding of empathy—probably one of the most intricate human emotions? How does these minimalism writing build this unspoken trust between the writer and the reader?

Methodology

In this literature study paper, I am going to employ Suzanne Keen's conceptualization of literature's impact in influencing readers' empathetic responses, and I am using textual evidence to support my conclusion. For example, I am going to use two minimalist writers' short stories—Ernest Hemingway's "Hills like White Elephant" and Amy Hempel's "The Harvest"—to analyze ways minimalist writings have employed in shaping readers' empathetic responses, and offer some assumptions about the possible correlations between one factor and another.

Research

When writers try hard to achieve make readers' feel with them, they have to take the collective consciousness of modern readers into careful consideration; the sudden change from classical writing to modern writing, as well as the appearance of minimalist stories, marked, unconsciously, a sudden change of modern psyche, especially in America: the increased loneliness, shorter attention spans, desires for instant and accelerated gratification and a general mood of indifference and detachment. In a word, it is harder to move modern readers, when their everyday life is dominated by incessant information intake, emotional burnout and their own increasingly complicated way of living. So minimalist writers, in their seemingly effortless expression, strive hard to maintain a very complicated balance for readers to fill their own emotions into the vacant created by the minimalist way of writing.

Conclusion

Minimalist writing, in its way of aversion, misdirection, and repetition, reflects the distance inherent from one's heart to another; in an effort to not communicate fully because knowing how difficult it must be, it is more likely to achieve better communication, and thus better emotional resonance—empathy.

This topic about minimalist writing and empathy has not been researched in the study of empathy, a rather hot concept due to the empathy crisis worldwide.

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Orthorexia Nervosa Inventory (ONI): Development and Validation of a New Measure of Orthorexic Symptomatology

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Introduction

Orthorexia Nervosa (ON) is a condition in which individuals exhibit obsessive thoughts and compulsive behaviors regarding healthy eating. While ON is not currently recognized by the DSM-5 as a psychiatric disorder; various healthcare professionals have recently noted an increase in the number of patients seeking treatment for ON related-impairments. Diagnostic criteria for ON include obsessive behaviors and preoccupation with nutrition and/or restrictive health-oriented dietary practices, intense emotional distress as a result of violating dietary practices, physical impairments or health complications associated with malnutrition, and psychosocial impairments occurring as a result of other ON diagnostic criteria. Previously constructed ON measures assess obsessive behavior, emotional distress, and psychosocial impairments, but do not address the physical impairments associated with ON. The goal of the present research was to construct a more inclusive measure, assessing all diagnostic criteria for ON.

Methodology

Researchers constructed the Orthorexia Nervosa Inventory (ONI), a 30 item measure assessing ON symptomology. This was administered to 847 participants as part of an online survey about their health-related behaviors, diet/food consumption, and ON symptomology. Two weeks after the initial survey, students completed a follow up survey consisting of only the ON symptomology items.

Research

Factor analysis revealed three factors with 9 items assessing behaviors and preoccupation with healthy eating, 10 items assessing physical and psychosocial impairments, and 5 items assessing emotional distress. All scales demonstrated excellent internal consistency (Cronbach's alpha = .88 to .90) and two-week test retest reliability (r = .86 to .87).

Overall, ONI scores were significantly higher among vegetarians and vegans, individuals who exhibit greater levels of disordered eating, obsessive-compulsive tendencies, and compulsive exercise. Furthermore, ONI scores did not differ significantly between men and women. Finally, scores were negatively correlated with BMI.

Conclusion

Our findings suggest that the ONI is a reliable and valid measure of ON, such that reliability values are consistent with or greater than those of previously established ON measures. The ONI further expands upon these measures by adding items assessing physical impairments associated with ON, a diagnostic criterion not previously assessed, and a greater number of items assessing emotional distress.

The Influence of Paternal Parentification, Anxiety, and Locus of Control on Self-Reported GPA in Female College Students

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Introduction

Parentification is a role-reversal phenomenon between parents and their children such that children are the physical and/or emotional caretakers of their parents. Researchers have largely focused on relationships between children and mothers, and researchers have shown that parentification is associated with increased anxiety, depression, and lower academic performance. We were interested in whether these findings also extended to paternal parentification.

Methodology

One hundred eight-one female college students completed a parentification questionnaire, locus of control measure, and anxiety questionnaire. Participants also reported their GPA.

Research

We found that parentification predicted self-reported GPA, but anxiety and locus of control did not.

Conclusion

This finding may suggest that parental parentification may have a detrimental impact on female college students' GPA. Future research should explore potential reasons for this finding.

Consumer Mobile Shopping Behaviors

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Key Words: M-shopping, Mobile shopping, mobile device, smartphones, m-commerce, retail, e-commerce, consumer behavior

Introduction

M-commerce, economic transactions completed on mobile devices, now make up more than a third of all business-to-consumer transactions in e-commerce (Hubert et al., 2017). Within m-commerce, m-shopping is the performance of shopping activities on a mobile device. Although m-shopping can be performed on any mobile device; in most cases, consumers use smartphones to m-shop. In response, businesses have created digital interfaces tailored to these devices. To date, the academic literature has failed to address the specifics of m-shopping activities and sometimes ignores the distinction between m-shopping and e-shopping. This is an important distinction since clickstream data suggests consumers behave differently when using smartphones, compared to computers, when shopping (Raphaeli et al.,

2017). While differences across platforms have been noted, the literature has been mostly silent about consumers' perceptions and behaviors when m-shopping across customer segments. To fill this void in retail, m-commerce, and consumer behavior literatures, this research reveals vital information about consumers' m-shopping activities, perceptions, attitudes, and differences within and across user groups.

Methodology

To uncover this information, this research utilizes qualitative methods to explore consumers' mobile shopping experiences based on participants' life-stage. Face-to-face interviews were conducted with 25 individuals and digital short-answer surveys were completed by 44 respondents. Specifically, this study investigates the differences and similarities within and across user life-stage groups – young adults, families, empty nesters, and retired. This approach was taken since previous research suggests that shopping activities in traditional stores differ between user groups (Dholakia, 1999) and that some mobile activities differ based on age (Fuentes and Svingstedt, 2017).

Research

Findings include consumers' frequency and attitudes toward m-shopping across life stages, which affect the way a consumer approaches m-shopping activities. This research found that all lifestyle groups participated in m-shopping activities but in different ways. These behaviors were taken with different preconceived risks and perceptions about m-shopping. There were disadvantages to m-shopping that each lifestyle group took into account when choosing preferred retail channels for different shopping activities. Some of the disadvantages of m-shopping, such as not being able to try on clothes, were recognized by all lifestyle groups while other disadvantages were specific to the lifestyle user group, such as the fear of privacy loss. There were also benefits to m-shopping that were acknowledged by different life-stage groups; these include convenience, comparison shopping, and the wealth of information available at one's fingertips.

Conclusion

The results of this study have several managerial applications for businesses and other organizations currently or considering offering m-shopping channels for their customers. Currently, many companies have adaptive websites which are virtually the same website for the laptop and mobile devices with minor adjustments because of screen size. However, this study shows the importance of tailoring the mobile experience dependent on the life-stage of the organization's target market. This will positively impact customers satisfaction with the m-shopping experience. Understanding their target market's desired experience when m-shopping aides organizations to make informed decisions about what features to include when designing the mobile experience.

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Intrapulmonary Percussive Ventilation: An Overview

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Introduction

Intrapulmonary percussive ventilation (IPV) was originally proposed by FM Bird in 1980s.[1] IPV delivers rapid, high flow, small tidal volume burst of gas into the airways to promote airway clearance, recruit areas of the lung, and improve pulmonary gas exchange.[2-4] These oscillations are created by a unique sliding venturi mechanism, the phasitron.[5] IPV can be superimposed on spontaneous breathing or mechanically ventilated patients via invasive and noninvasive interfaces.[2,6-8] When conventional therapies have failed, this modality is extremely effective for patients with chronic lung disease, neuromuscular impairment, neurological disorders, and postoperative patients.[2,4,9]

Methodology

Over 55 articles were evaluated and compiled to provide a comprehensive review of intrapulmonary percussive ventilation.

Results

Intrapulmonary percussive ventilation (IPV) therapy is a safe and efficient options for patients requiring bronchial hygiene therapy, hyperinflation therapy, and patients receiving bronchodilation therapy. As a practitioner, it is important to understand the wide array of clinical applications IPV therapy can provide for patients ranging from neonatals to adults. Similarily, it is important to understand the benefits of using IPV therapy in conjunction with mechanical ventilation, ECMO, and chest percussion therapy. The purpose of this manuscript is to provide an overview for IPV therapy for clinical application to patients of all ages.

Conclusion

As a practitioner, it is important to understand the benefits and hazards of IPV therapy prior to the initiation of clinical practice. IPV therapy provides a safe and efficient way to mobilize secretions from the airways of patients of all ages when used appropriately. Additionally, IPV therapy is a viable option of therapy for patients suffering from atelectasis, experiencing an increase in airway resistance, and some difficult to extubate patients.

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Small Burst of Euphoria: A Critical Analysis of Queer Theory Presented in HBO's Euphoria

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Key Words: television, euphoria, media, queer theory, sociology, qualitative, critical analysis

Introduction

This paper is a qualitative critical analysis that examines concepts pervasive in queer theory and how it applies in HBO's Euphoria. Through each character's storyline, queer theory's argument is shown upending the heteronormative binary as a social norm. For many queer theorists, the term 'queer' is defined as those who choose to not conform to one identity; instead, these people actively choose to ignore labels and defined identities (Ritzer and Stepinsky 2018). According to Arlene Stein and Ken Plummer (1994) there are four hallmarks pieces to define queer theory. Each of them is represented in this television show. One, sexuality is understood through all aspects of social life, known or unknown. Second, sexuality, gender, and identity are presented as not a solidified aspect of self, but as an ever-evolving piece. Third, sexuality, gender, and identity are simply part of life and as such, all people should be respected and acknowledged. Fourth, sexuality, gender, and identity are rejecting the notion that any of it is abnormal behavior (Ritzer and Stepinsky 2018).

In the opinion of the authors, Euphoria chooses to ignore common tropes and stereotypes for an updated, if at times dramatized, representation of the human self in modern times. The teenagers are presented as capable, forward thinking individuals, while the parents are less influential over their children's identity compared to past media representations. Gender and sexuality do not solely define the character's morality, nor does it directly dictate the rest of their identity or how the viewers are meant to perceive them. The fluidity in gender, sexual identity, and sexual ownership in Euphoria is presented as a given norm, rather than as abnormal behavior. Even characters in 'normative' heterosexual relationships are given storylines that lend themselves to queer theory through different aspects in gender and sexual identity. Therefore, in our opinion, HBO's show Euphoria brings to the mainstream media an honest display of queer theory.

Methodology

Our approach will be a qualitative critical analysis using queer theory to explain how HBO's Euphoria presents itself in a modern television show, thereby updating previous queer culture presented in media.

Research

Queer theory is successfully presented in a unique way, extending the scope of queer culture in current media.

Conclusion

Euphoria is a 2019 show and therefore allows us to present a current, updated display of gender and sexual identities, or lack thereof, among youth today. This is an important impact since past research has examined shows that are outdated and stereotypical in presenting gender and sexual identities.

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Lost on the Trail: Investigating Hiking Wayfinding and Trail Navigation within the National Parks

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Key Words: wayfinding design, experiential design, hiking, trail navigation, biomimicry

Introduction

Every year, thousands of search and rescue (SAR) operations are performed to locate and save lost or missing persons within our national parks. On average, Yosemite National Park's SAR team responds to approximately 250 rescues per year. Nearly 70 percent of those rescues are to locate lost, missing, or injured hikers. (Dill 2019) The primary factors contributing to hikers becoming lost or reported as missing include losing the trail accidentally (and then being overcome by darkness), taking the wrong trail, and miscalculating the time or distance of the planned route. In addition, inadequate signage placement, poor typographic design, and lack of signage at decision points are among the many issues when analyzing the wayfinding throughout the park. The purpose of this project is to investigate Yosemite National Park's hiking trail wayfinding system to design an improved solution in order to reduce the amount of SAR operations for lost or missing hikers.

Methodology

Primary research will examine trail wayfinding and trail navigation in order to identify shortcomings with hiking trail wayfinding within our national parks. On average, Yosemite has approximately 60,000 overnight hikers annually, therefore, the research will include the impact darkness has on navigating trails at night. (Park Statistics 2014-2018) The practice of biomimicry will be used to influence the overall design outcome through the analysis of nature's navigational processes and bioluminescence. Multidisciplinary collaboration with the natural sciences will be a necessary component of this project.

Research

The results of this project will be a proposed nature-inspired, sustainable wayfinding solution. The solution will be designed using best practices around environmental graphic design to create effective communication for trail navigation. All design will take into consideration the design guidelines already established within Yosemite to create a cohesive voice and consistent system with little impact to the existing trails and natural environment.

Conclusion

Yosemite National Park is an ideal research environment for this project because observational research has identified multiple areas for hiking wayfinding improvements. Yosemite is also one of the most visited national parks in the United States. The project will conclude with a proposed nature-inspired solution to reduce the amount of SAR operations for lost or missing hikers.

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A Framework for Financial Analysis of Hydroponic Systems

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Key Words: Economic Analysis, Hydroponics, Sustainable Food, Sustainability, Sustainability Economics

Introduction

Although agriculture is a necessary part of preserving human life, agriculture and activities associated with it have been known to have a variety of harmful environmental impacts. Agriculture is responsible for 25% of the manmade greenhouse gas, deforestation, soil degradation, irrigation (70% of our freshwater), and waste production. Hence, one can see that exploring new methods of sustainable agriculture, reducing its environmental impact, and minimizing its water usage can be of great importance to the sustainability of our food supply, and environmental safety.

Automated hydroponic agriculture, a soilless method of farming in a controlled indoor environment, is considered as one of the possible solutions for farming's harmful environmental impacts and as a sustainable food source. Hydroponic systems provide a unique set of advantages:

Reduces the mentioned harmful environmental hazards of traditional farming.
It does not require prolific land to; thus, prevents deforestation.
It is remote and portable
Climate volatility does not affect its production or in other words independent sustainability.
It requires only a tenth of the water that traditional farming requires to develop crops.

However, Hydroponic systems have a wide range problem as well:

Most hydroponic ventures are pretty small in scale
the technology has not reached its most efficient state
Hydroponic farming can be energy and labor-intensive.
Questionable economic feasibility.

Feasibility of implementing hydroponic systems can be quite volatile depending on several factors. For instance, if we establish a small size hydroponic system right next to a large-scale automated tomato farm during tomato season, we are probably not going to be able to compete with the farm. However, if we put that same hydroponic container in a populous area, perhaps a place with uncultivable land, shortage of rainfall, volatile weather conditions, expensive water rates, low energy rates and expensive land in a time period that is not tomato season, we actually might be able to compete with the regular tomato farmers.

Methodology

One can see that a variety of factors could influence the feasibility of establishing hydroponic systems. In this study, we aim to develop a comprehensive framework for determining the economic prospect of implementing a hydroponic system in different regions and conditions.

Identifying the factors influencing Hydroponics economic feasibility.

Collecting the related data with regards to the factors.

Developing a model representing the economic state of Hydroponics based on those factors.

Collecting regional data from multiple locations.

Simulating hydroponics economic performance in multiple regions.

Identifying the profitable and non-profitable regions.

Analyzing results to guide us towards a better understanding of Hydroponic economics.

Research

Factors and their primary relations to the model have been identified.

Conclusion

There are not many studies if any that provide insights on finding appropriate approaches for implementing hydroponic systems in the marketplace by considering environmental factors, regional markets, transportation, labor, and energy cost, and products, etc. It is our hope that this would be a starting point to encourage further attention to examining the potential of hydroponic systems both as a sustainable environment food source and as a prolific business practice.

Opening the Floodgates: Property Owners Inundated with Takings

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Key Words: Eminent Domain, Inverse condemnation, Taking Clause, Fifth Amendment Takings, Texas Taking Clause

Introduction

In an era of increasing natural disasters/declared emergencies in the U.S., federal and state governments often exercise eminent domain to take property for necessary government actions. For example, the Federal Emergency Management Agency (FEMA) assists local authorities to alleviate suffering resulting from disasters by hazard mitigation projects, which include government-induced flooding from dams, and other condemnation takings. Federal takings also ensued from the multiple declared emergencies at the U.S. – Mexico borderlands, resulting in land seizures. Research of takings statutes and cases proved authorities only fairly compensated inverse condemnation when forced by judicial or legislative action and determined property owner's constitutional rights were rarely adequately protected under current statutes.

Methodology

Methodology: Research of Legal Definitions, Statutes, and Cases

Eminent domain is the power of the government to take private property for public uses deemed necessary to protect the public welfare. It occurs every time a governmental authority takes private property for a public use, but few of these takings meet the requirements of a Fifth Amendment taking as defined by U.S. Supreme Court caselaw.

Federal statutes include the Taking Clause, and the Tucker Act 28 U.S.C.A. § 1491(a)(1). Legislative Acts passed to take a specific property: the Declaration of Taking Act, under the General Condemnation Act. The Texas Taking Clause, the equivalent of the federal Taking Clause, also recognizes property rights under the Texas Constitution Article I § 17.

Unprecedented numbers of inverse condemnation suits were filed during the twenty-first century following natural disasters/declared emergencies, although few property owners were reimbursed for the takings. One taking case found for the property owner, Arkansas Game & Fish Commission v. U.S. (2012), set a new Supreme Court precedent for government-induced floodings, emphasizing new legal rules for inverse condemnation.

Research

Results: Land Condemnation But No Just Compensation

Illegal activity at the United States-Mexico border resulted in multiple Congressional declarations, to condemn land for border infrastructure. The Declaration of National Emergency by President Trump's Executive Order also ordered land takings to facilitate the construction of a border wall, primarily in Texas. Cases such as U.S. v. 1.04 Acres of Land and Eloisa G. Tamez, reveal land was taken under the Secure Fencing Act of 2006 without just compensation for borderland property owners, many of whom are still waiting for reimbursement.

Conclusion

  Diverse federal and state cases researched prove constitutional rights are inadequately protected under current statute following emergency inverse condemnation. To make a compensable claim for a taking requires extensive knowledge of the ever evolving caselaw and statutes governing eminent domain, meeting numerous taking rules, and lengthy litigation. In Texas, lawmakers continue to fight for ongoing statutory changes to provide landowners with more protection in condemnation proceedings.

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Arkansas Game and Fish Commission v. United States, 568 U.S. 23 (2012).

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U.S. v. 1.04 Acres of Land, More or Less, Situate in Cameron County, State of Texas and Eloisa G. Tamez, 538 F. Supp.2d 995 (S.D. Tex. 2008).

"…nor shall private property be taken for public use, without just compensation." U.S.C.A. Const

Program Planning and Strategies in Working with Individuals Experiencing Vision Loss

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Introduction

When an individual experiences vision loss there is a dramatic shift that takes place. They are left with trying to find resources and services to adapt to this new reality. The primary services that are offered involve job training. There are very little resources available to assist individuals in coping with vision loss.

Methodology

Working with a local non-profit a program was developed to address the issue of coping with vision loss. There was a needs assessment conducted with key stakeholders. These stakeholders included non-profit staff, social workers, individuals experiencing vision loss, and their families.

Research

The program developed was a workshop which addressed both the emotional and practical aspects of coping with vision loss. The workshop is a two-hour training. The first hour resources and services are provided. The second hour a group discussion is facilitated about the experiences of vision loss and strategies of coping. The workshop is facilitated by social workers and non-profit staff.

Conclusion

The program offered addresses both a gap in services and the literature in regard to coping. Through this program individuals experiencing vision loss are better positioned to lead happier and healthier lives. Their family members are more aware of new systems of support.

The Postmodernist Illusion in Kurt Vonnegut's Breakfast of Champions

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Introduction

The shortest possible summary of Kurt Vonnegut's Breakfast of Champions (1973) is: a narrative about narratives. Whoever has brushed with the term postmodernism in literature is now already alarmed... Metafiction became an obsession of narratological research on postmodernist text. And yet, most academic authors had to admit that metafiction is not exclusively postmodern. Linda Hutcheon states in Narcissistic Narrative: The Metafictional Paradox, "the kind of 'postmodernist' fiction of which Barth speaks and writes is only one of many forms metafictional self-consciousness can and does take today" (3). Kurt Vonnegut, an author commonly associated with postmodern US Literature, has earned this classification as often due to the "metafictional aspect" of his novels (Peterson 16). But here lies a gap in the line of argumentation about how we formally think of postmodern US Literature: if metafiction is not exclusively postmodern, the sheer metafictional aspect alone cannot make a postmodernist text.

Methodology

Back in 1993, Werner Wolf already claimed to have identified a missing link of research on metafiction and 'postmodernist literature' (3): narrative illusion. The concept of narrative illusion has always been implicitly central in the diachronic analysis of US fiction. This is reflected in its understanding of the term realist itself as it refers to the aim of illusionistic literature to imitate the perception of reality (ibid. 93). We see it in the need for a new term when literature turned anti-illusionistic; the big rupture that poses modernist text. In dialectical logics and according to postmodern writers, e.g. John Barth (1980), postmodernism should therefore be the synthesis of both. Thereby, metafiction as an indicator of postmodernism is even more problematized, because, according to Hutcheon, metafiction is simply "breaking the traditional illusion" (Narcissistic 148)—this would leave postmodernism as a continuance of modernism, not a synthetic 'other.'

Postmodernism as a term and concept itself will only be discussed very briefly and within its prevalent meaning within the discipline of (English) Literature along the works of Hutcheon, McHale, and Barth. Rather, I will focus on the parallels and tensions between postmodernism and the narratological concept of narrative illusion. My central concern is to analyze aspects of Breakfast of Champions which relate to metafiction and have a non-typical effect on narrative illusion, therefore creating new understandings about the toolkits of narratology. The aspects in question here are heterocosm, mise-en-abyme, and metalepsis.

Research

Approaching a solution and disagreeing with Hutcheon's statement on metafiction's sole illusion-breaking purpose, I argue that by looking at metafiction under the lens of narrative illusion, one can in fact reveal the synthetic quality and realization of postmodernism in a novel that is generally considered postmodern. In Breakfast of Champions, Kurt Vonnegut uses traditionally illusion-making and illusion-breaking narrative devices to their opposite effect and thereby expresses a postmodern concern with worldly systems of meaning.

Conclusion

My analysis will show how the formal treatment of metafiction from the perspective of narrative illusion justifies a more conclusive classification of Breakfast of Champions as postmodern literature.

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Culture Tsunami: Japanese Reactions to the Korean Wave

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Key Words: Japan, South Korea, soft power, k-pop, hallyu, popular culture

Introduction

Post-World War II, Japan dominated as the hegemonic soft power in East Asia; however, over the last twenty years, South Korea garnered a massive rise in cultural and economic influence through a phenomenon known as hallyu. As Japan is exposed to more South Korean-produced media, noticeable shifts in sentiment emerged between two countries that have shared a contentious history.

Past surveys on hallyu focused strictly on one form of media or on responses by political groups or specific populations, rather than on individual opinions. Additionally, prior research did not examine temporal variables of exposure to hallyu media. This study posed two questions: did exposure to hallyu affect individual Japanese opinion of South Korea over time, and did type of media affect opinion? As the hallyu phenomenon is verging on twenty years, this paper theorized that longer exposure to Korean entertainment would produce more favorable personal views of Korea and aid in mitigating discriminatory beliefs and practices against South Koreans and Zainichi Koreans in Japan.

Methodology

Our study was conducted through a survey that was administered online to individuals in Japan. It received 70 responses. Two multiple choice questions asked what Korean media was used and how long. The remaining items were questions representing varying stereotypes about South Korea. Respondents used a sliding scale of their personal opinions on the statement and responses were compared to a predetermined baseline. Data analysis was correlated based on temporal exposure, media type, and positive/negative outlooks.

Research

Our expected outcomes were that the longer individuals were exposed to South Korean media and the more types of media they utilized, the better their perceptions of South Korea would be.

Preliminary results found that:

Majority of respondents had no exposure to Korean media.

Of those that had exposure to Korean media, the majority only had exposure to one type.

Of this group, the majority had over seven years or more of exposure. The next largest group had less than one year of exposure.

Those with the longest exposure did not necessarily have the most positive view of South Korea.

Music was the most popular form of exposure.

Music had the greatest positive influence on outlooks of South Korea, followed by those with exposure to more than one media type.

The majority of responses were either positive or neutral.

Conclusion

This research sought to gauge if and how the hallyu phenomenon is affecting Japanese personal perceptions of Koreans. If this can be established within the field, the data can be used strategically to improve foreign relations between these two countries, as well as the quality of life for Zainichi Koreans in Japan. The preliminary results from this research both confirmed and challenged the expected outcomes. As such, a new survey is being conducted to determine how patterns of gender and age affect perceptions and to expand the survey to larger groups with more questions to determine if the patterns found in this study are an accurate representation of the Japanese population.

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Deep Pressure Therapy (DPT) Use in the Reduction of Challenging Behaviors for an Individual with Autism Spectrum Disorder and Intellectual Disability

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Key Words: autism, deep pressure therapy, intervention, single subject, sensory integration therapy

Introduction

Sensory integration therapy (SIT) has been used as an intervention for sensory sensitivities in individuals with autism spectrum disorder (ASD) for decades without clear empirical evidence of its efficacy. Recent research has supported the use of deep pressure therapy (DPT) when applied in varying degrees to the upper body.

Methodology

The T.Jacket (an app-driven vest with air bladders and pump) is an emerging and novel approach to DPT. This single-subject study examined the effects of the T.Jacket on off-task behavior and challenging behaviors in an individual adolescent with ASD, speech impairment, and intellectual disability.

Research

Experimental control was not established across all settings and phases for off-task behavior and challenging behaviors.

Conclusion

Rationale is given for future research in an area of symptoms recently recognized in the DSM-5 (i.e., hyper- or hyporeactivity to sensory input) for ASD yet has little to no empirically based intervention.

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Discovery of Novel Differentiation-Inducing Compounds for Treating Neuroblastoma Cell Lines

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Introduction

Neuroblastoma is one of the most common malignancies in children between the ages of 6 months and 5 years old and makes up about 15% of childhood cancer related deaths. It stems from neural crest cells that fail to differentiate into mature peripheral neurons during embryogenesis. Remission is achievable using multimodal treatment which includes post-remission maintenance therapy. Current post-remission maintenance therapy includes the use of differentiation agent 13-cis-retinoic acid which inhibits proliferation and promotes differentiation of immature neuroblastoma cells. However, approximately 50% of patients treated become unresponsive to this agent, leading to eventual relapse. The discovery of new differentiation agents is necessary in order to treat patients resistant to current available therapies. Using a high content phenotypic screening of a small compound library, which measures neurite outgrowth as a morphological marker for neuroblastoma cell differentiation, three novel neurite-inducing compounds (Compounds 3, 4, and 10) were identified. My objectives are to determine whether these compounds have generic differentiation-inducing activity in neuroblastoma cell lines with different genetic backgrounds, and further investigate the mechanisms underlying their differentiation-inducing activity.

Methodology

To validate whether the identified compounds truly induce cell differentiation, western blots were used to examine the protein expression levels of molecular differentiation markers. To characterize the generic effect of these compounds on neuroblastoma cell survival, a cell viability assay and clonogenicity assay were performed with three genetically different neuroblastoma cell lines.

Research

Our results demonstrate that compounds 3 and 10 decrease viability and inhibit proliferation of neuroblastoma cell lines BE(2)-C, KELLY, and CHLA-90, suggesting these compounds have a generic effect on suppressing cell proliferation. Western blot analysis indicated that compounds 3 and 10 also induced expression of the molecular differentiation marker neuron specific enolase, thereby validating the differentiation-inducing function of these two compounds. Overall, compounds 3 and 10 were validated as differentiation-inducing agents in neuroblastoma cell lines with different genetic backgrounds.

Conclusion

We expect that further investigation and development of these compounds will lead to new differentiation agents that can be used to effectively treat neuroblastoma patients resistant to the current available therapies. We expect that this will eventually increase neuroblastoma patient survival and health.

The German Church Hymn Ein feste Burg by Martin Luther: Its Reception in Germany and in Korea During and Between the World Wars

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Introduction

In contrast to the intent of Martin Luther, the church hymn Ein feste Burg ist unser Gott [A Mighty Fortress is our God] was misused in the 19th century as a 'national anthem' [Nationalhymne] by the Germans and as a 'fight song' [Kampflied] against Englishmen, Russians, and Frenchmen during World War I. At that time, Ein feste Burg was sung not only in Germany, but also in other countries, used in a political context. At the beginning of the 20th century, for example, it was introduced through American missionaries to Korea. It appeared for the first time in the Korean hymnal Chansyeongsi [Church Songs] of 1905. Luther's Ein feste Burg was sung not only in worship services, but also outside of church. It played an important role for Korean Christians, especially during the Japanese colonization (1910-1945). Under the Japanese rule, Koreans aimed at the independence of their country. Among the activities by the resistance, the March 1st Movement [Samil Undong], which took place in 1919, was of significance. Although it was brutally oppressed by Japanese soldiers, it spread throughout the country. It was there, where the Korean Christians sang Luther's Ein feste Burg.

Under these different circumstances (in Europe and in Asia), the church hymn by Luther was sung in different political contexts in Germany and Korea during and between the World Wars. Because of its reception history in Germany, Luther's hymn is nowadays criticized. In contrast, it is still a favorite song for the Korean Christians. The comparison and relationship between the reception of Luther's hymn in Germany and Korea have not been explored in existing peer-reviewed literature.

Methodology

This study focuses especially on the text of Luther and its reception, because it was modified during the World Wars, depending on the context. For this research, it was necessary to find the texts used at that time in order to compare them with the original.

Research

Through comparing the texts, we found that the original was modified during wartime. In addition, Luther's lyrics are characterized by dualistic thinking. This can cause a variety of interpretations and different views towards the church hymn. For the Germans, the lyrics supported to gain victory over other countries, whereas it provided the Korean Christians strength and courage against their oppressor.

Conclusion

This research makes clear why and how Luther's hymn was used in different political contexts. With regard to its reception in Korea, this paper is exploring why it was used as one of the favorite songs in the first half of the 20th century. This research with interdisciplinary dimensions will show how a religious song was used in particular political situations. Thus, it would be of significance in the literary, hymnological, musicological, and theological realms.

The Early Career Grants Development Program: A Grant Coaching Model for Junior Clinical Faculty

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Introduction

Junior clinical faculty at the Long School of Medicine are interested in engaging in extramurally funded research but have not received training, formal or otherwise, in grant writing. Clinical obligations, lack of other research-oriented role models within their home department, and the demands associated with a primarily clinical academic appointment often preclude the ability to concentrate on developing these skills. Building on successful models from other institutions, the Long School of Medicine implemented the Early Career Grants Development Program to meet this need. Through didactic sessions, mentoring, and protected time for proposal writing the program's goal is participant submission of a competitive proposal to an extramural funding source within 12 months of program completion. Using structured workshops for skill building is well described in the literature, however, the use of peer mentoring and required protected time for clinical faculty is less prevalent.

Methodology

The Early Career Grants Development Program is a four to six-month intensive program consisting of four didactic workshops covering the major components of NIH funding proposals, weekly peer and individual senior faculty mentoring, and one-on-one development sessions with the Director of Faculty Research Development. Participants are recruited from clinical departments at the Long School of Medicine. A letter of support from the department chair is required, including a certification of release from clinical obligations for a minimum of two hours per week, during which proposal development and mentoring will be conducted. Mentoring from peers and senior faculty provides a sense of community and professional identity development. Facilitating mentorship and fostering community were both identified as organizational strategies necessary to support physician-scientist faculty by Lingard et al (2017), and professional identity development was identified in 1979 by James Wyngaarden.

Research

Twelve faculty have participated in the program to date, including a pilot cohort. The completion rate of the program is 92%, and 73% of participants to date have submitted a proposal for extramural funding within 12 months of program completion. One quarter of those who have submitted an extramural proposal have received funding as of August 2019. These results alongside data from program satisfaction surveys suggest the Early Career Grants Development program is a successful model for engaging this population to write and submit proposals for extramural funding and develop their careers as clinician-scientists.

Conclusion

The Long School of Medicine will continue to conduct evaluations beyond the 12-month follow-up period to determine if program participants continue to submit proposals for extramural funding and success rates. The program's short-term outcomes indicate it is a good model to support junior clinical faculty, particularly those in departments without a well-developed mentoring infrastructure or strong extramurally funded research portfolio. Additional data is necessary to determine further resource allocation and long-term skill development of program participants.

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A Chicana Feminist Epistemology in Adult Educational Research: A Review of Literature

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Introduction

Epistemology is the branch of philosophy that studies how we acquire knowledge and what are deemed truths. Chicana feminist epistemology is then, a non-traditional theoretical concept that validates the knowledge of those oppressed (Delgado Bernal, 1998; Martinez, 1996). This concept transcended through literary Chicana/Latina scholars in academia to reclaim and validate their educational research and knowledge. It is a framework that resists traditional research methods ensconced in only one truth i.e., White male researchers. The discipline I find myself in is adult education, a historically activist and critical consciousness-raising discipline (Guo, 2015). A Chicana feminist theoretical framework is thus relevant to adult educational research because it negates the current political climate against immigrants and other marginalized groups (Tummala-Narra, 2019), which make up a large part of adult education classes (Willson Toso, Prins, & Mooney, 2013). The problem is that research exists in adult education about issues concerned with marginalized groups but does so through traditional research methodologies (Peña, Everett, Quintero, 2018). As educational researchers, scholar-activists and members of a marginalized group, we must find and choose theoretical frameworks that speak to our unique experiences. We must incorporate new critical ways of thinking in regard to the discipline of adult education. My guiding research questions are, how can I, as an educational researcher, adopt a Chicana feminist epistemology framework to enhance my research in the field of adult education and has it previously been attempted?

Methodology

The use of this theoretical framework disrupts the traditional educational research paradigms and attempts to create critical research inclusive to indigenous, marginalized and gendered groups. Chicana feminist epistemology can integrate several theories or methods in educational research. Testimonios is one methodology that many Chicana scholars adopt for their research. The use of testimonios in educational research implies that the researcher and participant are collaborators in uncovering hidden truths (Acevedo, 2001; Perez Huber, & Cueva, 2012; Blackmer Reyes & Curry Rodríguez, 2012). The participant, or narrator, shares his/her experiences through probing open-ended interview questions. Previously the narrator has not shared their experiences because they were not warranted as subjective truths. The narrator, or testimoniadora (witness storyteller), are part of a marginalized and oppressed collective and their stories are not warranted nor taken at face value by mainstream educational research (Blackmer Reyes & Curry Rodriguez, 2012). This contends the notion that traditional methodologies are analyzed through a deficit lens criterion. Chicana/Latina's consciousness', and the pedagogy of Chicana researchers, educators and scholar-activists are at the forefront creating resistance to traditional research (Delgado Bernal, 1998; Villenas, 1996). Furthermore, this theoretical concept was born out of a necessity to rupture the exclusivity of academic scholars (i.e., mainstream traditional

research through a white, male perspective), researchers, and those who claim objective knowledge of indigenous, marginalized, gendered and othered individuals.

Research

The gap in the literature was the lack of connection that the discipline of adult education and Chicana feminist epistemology have. Adult education has not adopted this theoretical framework to date.

Conclusion

This is an interdisciplinary research approach that seeks to adopt a Chicana feminist theoretical framework into the field of adult education. This combination has never been attempted before, as the literature suggests. It impacts research in adult education because using a Chicana feminist theoretical framework can incorporate innovative tools and methods and also create decolonization of methodologies.

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Investigating Potential Risk Factors for Problematic Internet use Among Australian University Students

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Introduction

While the internet has provided an abundance of advantages to individuals (easier communication and connecting to others around the world), internet use can also be associated with negative consequences or result in excessive and problematic use. This current study investigated the complex relationships between loneliness, motivational and attitudinal factors for internet use, and problematic internet use.

Methodology

A total of 164 university students (78.7% female) were recruited in 2015, with the mean age of all participants being 21.5 years (SD = 7.51). The majority (85.1%) were undergraduate Psychology students from Queensland University of Technology (QUT). Participants completed an online survey about their internet use which included hours of internet use and the following questionnaires: Internet Addiction Test (IAT), Internet Behaviors and Attitudes Scale (IBAS), and UCLA Loneliness Scale (UCLA-LS).

Research

Total hours of internet use were not significantly associated with problematic internet use, as measured by the IAT, questioning the applicability of hours of internet use as a proxy. Individuals who scored higher on feelings for loneliness, along with motivations and attitudes such as social confidence, social liberation and competency of internet use, reported significantly higher negative symptoms due to their internet use, increasing their risk of problematic internet use.

Conclusion

This study uncovered potential risk factors for developing problematic internet use in Australian university students and warrants future research to further untangle the motivations and attitudes an individual hold towards using the internet.

Implementation of Smart Automation on an Off-Grid Hydroponic Farming Facility to Promote Power Stability.

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Introduction

Most power systems match supply to meet demand. To ensure power stability they create a slight oversupply to account for inaccuracies in their predictions, wasting energy. Renewable energy powered grids are worse because their oversupplies are larger. Furthermore, their power stability comes from the use of inefficient, quick start generators.

Methodology

The focus of this project is to create a stable, off-grid system that is powered solely through renewable, solar energy with hourly energy fluctuations smoothed out by a small battery bank. A hydroponic farm was chosen for the base system because it is an energy intensive process that is not bound to a fixed power schedule. Two research paths were used. First, the system is being progressively automated. It started off as a manually controlled system and is transforming into a smart system that adapts itself to changing conditions. This smart system turns on or off subsystems based on the available energy supply. The second path is modelling the system. Basic modelling lets the system know how much usable energy is generated on an average day. Advanced modelling lets the system exploit subsystem interactions to reduce overall energy usage.

Research

The initial system was highly unstable and inefficient. The power supply was routinely exhausted and would remain off for hours or days at a time. Additionally, the power schedules were not optimized for the plants. Mildly automating the system using timers improved the power scheduling. The main stability issues were resolved through basic system modelling. This modelling found the average daily power generation and when this power was produced. The timer schedules were then synchronized to the generic energy production schedules. This increased power stability from roughly 50% of the time to >90%. Future work for automation involves creating an adaptable network of sensors and microcontrollers. Hundreds of data points are taken. These results are inputted into the control algorithm used to regulate the dozens of subsystem. Further simulations will use current and historic weather data to accurately predict daily energy consumption as well as how to harness system interactions.

Conclusion

Hydroponic farms represent an efficient use of water, land, and fertilizer. These benefits are negated because hydroponic farming is an energy intensive process. Solar energy is a clean, renewable resource but is inherently unstable in its power production. This research is impactful because it combines these two distinct systems, letting them exploit each other's strengths while eliminating their own weaknesses.

Life and Debt: Predatory Lending in Texas

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Introduction

Due to lax laws regarding lending and usury, Texas has become a "Wild West" for predatory lenders. These lenders often provide what are referred to as "payday" loans. These are smaller loans with incredibly high interest, the principle of which is often due on the borrowers next payday, hence the name. This paper discusses how lenders are able to get away with predatory lending practices, and what, if anything, can be done to prevent the further exploitation of poor working class people, who are often the target demographic for these loans.

Methodology

Through examining the history and common practices of lenders in Texas, and how this evolved into what the state currently legally allows in regards to lending, I was able to get a grasp of the nature of the industry, and what measures are being taken to curb the predatory practices of these lenders.

Research

The payday lending industry in the state of Texas is highly unregulated, and several bills that have been introduced to curb the more predatory practices have been shot down or buried.

Conclusion

It is difficult to put pressure on the State of Texas to curb these predatory lending practices, as several lobbyists and think tank leaders have sway at the Capitol.

Business Plan or Bust: Comparing Experiential Learning Methods for Entrepreneurship

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Key Words: entrepreneurial, experiential, competencies, assessment index

Introduction

Within formal entrepreneurship education, researchers have yet to come to a consensus about the skills and competencies necessary to be a successful entrepreneur (Miles, de Vries, Harrison, Bliemel, de Klerk, & Kasouf, 2017; Morris, Webb, Fu, & Singhal, 2013). There has been, however, recognition that experiential learning may better serve to teach higher education students and adults entrepreneurial competencies through "hands-on" methods (Chang & Rieple, 2013; Liang, Howard, Dunn, & Khananayev, 2016; Miles et al., 2017; Niehm, Fiore, Hurst, Lee, & Sadachar, 2015; Politis, & Gabrielsson, 2009). Liang, Howard, Dunn, and Khananayev (2016), however, note "very limited research or empirical studies to analyze the impact of experiential learning incorporated in entrepreneurship education" (p. 128). The question, then, is what types of experiential teaching achieve desired outcomes.

Methodology

The researcher conducted a brief literature review, comparing and contrasting the impacts of varied experiential entrepreneurial activities and from start-up and closure business operations. The eight articles encompassed four business accelerator programs, a University-based business plan competition, four team course assignments (two using student start-ups and two pairing students with existing businesses in service-learning or live projects), one teaching method comparison (lecture v. case study v. simulation), and an established entrepreneurs survey.

Six articles reported positive results and significant learning through accelerator programs, simulation, student start-up team assignments, service-learning projects, and entrepreneurial experience in starting and closing businesses. Participants reported higher levels of self-confidence, self-efficacy, and a stronger entrepreneurial identity, as well as, stronger soft skill development (e.g., teamwork, communications, learning from failure) (Liang et al., 2016; Niehm et al., 2015) and hard skill development (e.g., procurement, production, accounting, cash flow management) (Liang et al., 2016). Actual business start-up and closure experience led to more positive attitudes toward failure, and in turn, enhanced coping, assessing, and acting abilities—all part of broad entrepreneurial competencies spelled out across the literature (Politis, & Gabrielsson, 2009).

The researcher then created and is currently using a matched, pre- and post-survey design to study the degree to which traditional and experiential lessons facilitate higher education students' self-perceptions across 13 entrepreneurial competencies (Morris et al., 2013). During the semester, each student participates in four different learning projects (traditional methods, one individual research and presentment assignment, one individual opportunity recognition and development assignment, and one team-based business concept development assignment), as well as, classroom discussion and dialogue, and reflections about their own work—a fundamental component of experiential learning (Miles et al., 2017)—collaboration, and learning. Post-instruction, students are also asked to judge the degree to which the individual activities impacted competency development.

Research

Pre-test preliminary results will be shared in this presentation, including an analysis of the assessment instrument's performance and a description of the research path forward.

Conclusion

Current studies suffer from a lack of consensus and non-generalizability. Therefore, the researcher's first aim is to validate a shorter, 40-item competency assessment based on Miles et al.'s (2017) 141-item index. Once validated, the researcher plans to expand the study to include adult entrepreneurs and different learning activities. With more data, the researcher expects to identify effective experiential teaching activities and optimal programming design.

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The Out-of-Touch Adult in 13 Reasons Why: Harmful Health Messages in Media for Teens

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Introduction

Although season 1 of Netflix's controversial teen television show, 13 Reasons Why has been criticized for its graphic, realistic depiction of a suicide act, the show contains many other harmful health messages for teens. Many health communication scholars have analyzed the impact of 13 Reasons Why on teen and young adult mental health (Bridge, et al., 2019; Santana da Rosa, et al., 2019; Thompson, Michael, Runkle, & Sugg, 2019; Cooper, et al., 2018; Jenney & Exner-Cortens, 2018). One especially harmful health message throughout season 1 of 13 Reasons Why is that the adult characters in the show are absent and clueless. Although the absent and clueless adult troupe is commonplace in media directed to teens, the central conflict and plot of 13 Reasons Why revolves around the inaction and missteps of a few key adults. Teen audience may susceptible to being influenced to think of all adults as clueless and absent due to the framing of adults in this show. In this abstract, I will briefly describe my rhetorical analysis into the framing of the absent and clueless adult in 13 Reasons Why in order to better understand this harmful health message. I used the following research question to guide my analysis.

RQ1: In what ways does the framing of adults as absent or clueless in season 1 of 13 Reasons Why depict harmful health messages for teens?

Methodology

I conducted a rhetorical analysis of the first season of 13 Reasons Why using the tenets of Fairhurst and Sarr's (1996) The Art of Framing. I focused my analysis on scenes featuring interactions between teens and adult characters where they engaged in explicit or implicit conversations about mental health. Scenes that depict teens discussing adult behavior, adults discussing teen behavior, and teens and adults discussing their behavior together were examined. These three categories of interaction between characters provided necessary structure to examine in what ways adults were being framed as clueless or absent.

Research

Season 1 of 13 Reasons Why framed adults as clueless and absent in explicit and implicit ways that are evident in conversation between characters and in character motivation. The adult characters often fail to react to the behaviors or revelations of teen characters in ways that would be productive or helpful to the teen characters. The most egregious example of this failure is when the school counselor Mr. Porter fails to react appropriately to Hannah Baker's revelation that she was sexually assaulted and is suicidal. This failure is heavily foreshadowed and is revealed in the last episode of season 1 as the final reason why Hannah follows through with her suicide attempt. The teen characters are also unnaturally good at hiding or deflecting information from their absent parents, and several jokes and comments are made about the cluelessness of adults. Throughout the first season, the main protagonist, Clay Jenson, is injured, acts out, and carries a cassette player in present time with little push-back from his family.

Lastly, in scenes where teen characters are discussing mental health issues with adults, the conversation never reaches the point to where the adults have enough information to play an active role in helping the teen characters make healthy choices for themselves.

Conclusion

Although existing literature about 13 Reasons Why has focused on the impact of graphic depictions of suicide on teen viewers, it is important to look at all harmful health messages featured in the series. It is important for teens to understand that there are competent, well-intentioned adults, like parents and school counselors, who want the best for them and can help them make sense of challenging situations. The framing of all adults as clueless or absent can teach teens that they are responsible for thinking through complex topics like mental illness on their own. This framing portrays negative health messages that should be considered harmful just like the graphic depiction of a suicide.

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Does an Adult Participating in Speech Therapy Have Different Expectations for Therapy Outcomes than a Parent of a Child in Speech Therapy?

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Introduction

Parental expectations and involvement have long been an important factor in recovery/treatment outcomes for children with speech sound disorders associated with cleft palate. Many children with speech sound disorders associated with cleft palate often have misarticulations that carryover into adulthood. As these children age, their therapy needs change and may differ from the expectations set by their parents in childhood.

Therefore, to better serve the needs of both adults with cleft palate and children with cleft palate, this study seeks to understand the differences in expectations for speech therapy outcomes of adult clients and parents of children in speech therapy. The current study aims to answer the question: What are the differences in expectations of an adult with a repaired cleft palate and the parent of a child with a repaired cleft palate receiving speech therapy via telepractice?

Methodology

This is a descriptive comparative study that analyzes previously recorded interviews that are part of the case history for each of the participants. Two participants, an adult attending speech therapy and the parent of a child in speech therapy, completed case histories in an interview format. These participants are located in El Salvador where speech therapy services are limited and difficult to find. This may influence participants' views on speech therapy. For this study, the sessions were recorded and de-identified. We hypothesize that the parent will have more positive expectations on speech therapy outcomes than the adult participating in the study

Research

Pilot data suggests that the adult participant views speech therapy positively. He stated that speech therapy would help him pronounce difficult words and identify any speech problems he may have. The adult participant also stated that if he had the time, he would prefer therapy face-to-face.

Conclusion

Results from this study will allow clinicians to provide treatment that is more client centered and based on their unique needs.

Preliminary Double-Cross Antenna System for Future CubeSat Communication

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Key Words: Antenna, NOAA Satellite, Cube Satellite (CubeSat), CubeSat Launch Initiative, Texas State

Introduction

NASA has a recent history of citizen science projects that are intended to facilitate outer space research. One such example is the CubeSat Launch Initiative, where NASA provides low-cost opportunities for conducting experiments in space by launching small satellites (CubeSats) often times made by students. In an effort to take advantage of this opportunity, we have worked on developing a satellite communication system to expand astronomy and space research at Texas State to use in conjunction with a future student-made CubeSat.

Methodology

We explored designs for low-cost omnidirectional antenna for satellite communication. We used Raspberry Pi and an RTL-SDR dongle to receive NOAA satellite data. The antenna operates in the VHF-Band (147 MHz) and receives weather data (images) by tracking the desired satellite with the GPredict software. Signal processing is accomplished with the help of open-source software: GQRX, SDR, and Audacity.

Research

We have successfully designed and constructed an omnidirectional antenna. Signal from weather satellites (NOAA-15, NOAA-18, and NOAA-19) was acquired and processed. False-color images were constructed from the captured signal utilizing a Raspberry Pi pipeline to gather the data.

Conclusion

We have demonstrated that a low-budget, portable antenna to acquire data from weather satellites is feasible. Such a custom-built antenna would significantly reduce the cost of students getting involved in space science research. Going forward, we will explore means for transmitting information to and from a current and future CubeSat using low-cost transceivers (e.g., LoRa Hamshield).

Evaluation of Melia azedarach and Azadirachta indica as Botanical Pesticide Against Cylas formicarius

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Key Words: Sweetpotato; Cylas formicarius; M. azedarach; Azadirachta indica; Botanical control.

Introduction

Sweetpotato is ranked as the seventh major crop in world crop production; with 103 million tonnes in 2013 (FAOSTAT 2015). Sweetpotato tuberous roots can provide 360KJ of energy, 20.1g of carbohydrates and 1.6g protein. Consumption of root tubers having 3mg/100 g beta-carotene provides the required amount of vitamin A for children less than 5 years (Gebhardt, 2008). Not only can sweetpotato play an important role in human nutrition, it has enormous potential to reduce food insecurity and to ameliorate poverty specially in developing countries (Bovell-Benjamin, 2007). Uganda being the largest producer of sweetpotato in Africa considers Cylas formicarius (sweet potato weevil) as the biggest hindrance in achieving high yield. It can cause losses from 35% upto 100% around the world (Ebregt, E. 2007). Sweetpotato weevil control is achieved almost entirely by multiple applications of synthetic insecticides. Insecticides can cause residual effect in food which causes reproductive and neurotoxic problems. Synthetic pesticides have also developed resistance in pest and removed beneficial insects and predators from nature to significant levels (Stoytcheva, 2011). Major problem lies within organic production where there is no use of chemicals and pests are controlled by biopesticides and other integrated pest management methods. To produce toxic free sweetpotato, organic agriculture requires an effective biopesticide (Ehisianya et al., 2013).

Methodology

For this experiment, sweetpotato weevils to be tested were raised in the lab under 25 ± 1ºC. Two plants were tested, Melia azedarach (Chinaberry) and Azadirachta indica (Neem). Berries of M. azedarach were collected from Texas State University and extracted using methanol, ethanol and water. Readily available natural neem oil was used as second treatment. Choice and no-choice test was performed. Under choice test, sweetpotato weevil had choice among treated and untreated sweetpotato in a petri dish and in no choice test there is only treated sweetpotato.

Research

In no-choice test, tukey's post adhoc analysis indicated that the methanol extract of chinaberry was significantly different than control (p=0.000). Further neem treatment was also significantly different than control (p=0.000). Weevils avoided methanol extracted chinaberry and neem treated sweetpotato and chose to remain hungry. In choice test experiment, tukey's post adhoc analysis for all extracts indicated that methanol extract of chinaberry affected the preference of Cylas formicarius (p=0.000) and weevils chose to sit or feed on control rather than methanol extract of chinaberry. Neem was another effective biopesticide in this experiment (p=0.000). In both choice and no choice test, methanol extract of chinaberry and neem treatment were more effective than ethanol and water extract of chinaberry. This experiment of choice and no choice test concluded that chinaberry has potential to be used as an effective botanical pesticide.

Conclusion

This experiment of choice and no choice test concluded that chinaberry has potential to be used as an effective botanical pesticide. Thus, chinaberry can be used as commercial biopesticide as safer alternate to control pest and diseases and to be a part of integrated pest management for organic production. It can help increase the yield of toxic free sweetpotato production and help alleviate hunger and malnutrition.

Also, this experiment indicated to conduct more studies on effect of melia on sweetpotato based on different concentartions. This can create an effective biopesticide for organic farming and easily available and inepensive pest control to farmers.

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Competence Applied in the Decision Making on Personnel Selection: What Works, What Does Not Work Due to Heuristics Interference

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Key Words: Heuristics, competence, and personnel selection

Introduction

This abstract aims at examining the topic of personnel selection method in organizations, taking into account research that question these methods and their validity. These methods are questioned mostly because these methods are susceptible to the bias of those involved and making decisions related to personnel selection. The arguments that we present in the paper are (1) personnel selection is not an area in which competence, as it is presented in this literature review, can be found in individuals (Kahneman & Klein, 2009;Gilbert, Pinel, Wilson, Blumberg, & Wheatley, 1998); (2) the selection methods employed by organizations show low validity when analyzed from an objective point-of-view (Schmidt & Hunter, 1998); (3) organizations can employ methods to mitigate bias in personnel selection that differ from the usual ones particularly (Kahneman & Klein, 2009; Kahneman, 2011); (4) diverse types of heuristics interfere in the acceptance of objective methods to select personnel for organizations (Krist, Schwarz, & Reiser, 2019; Miles & Sadler-Smith, 2014).

Methodology

This literature reviews the concepts that guide the discussion about competence applied to personnel selection, and the methods that generate comparatively better results. In other words, personnel selection outcomes that, if objectively measured with statistics tools, generate higher validity for the organization and more fairness for the candidates.

Research

This abstract does not aim at presenting consistent results of in-depth literature review. It is a draft of a dissertation project that will be executed on the topic heuristic and personnel selection. Nonetheless, the literature here reviewed points out to the fragility of the selection processes organizations employ, due to the usually unadmitted impossibility of applying individual competence in this area. The methods organizations apply, instead of the mitigating the limitations of decision-makers, they reinforce the bias and consequently the limitations of these decision-makers, for a variety of reasons that include bias and lack of knowledge of alternative methods. Besides questioning usual existing methods, the selected literature also indicates possible methods that can mitigate bias as they employ objective analysis of the candidates.

Conclusion

Personnel selection has a relevant impact in diverse aspects of the organization, amongst them the bottom-line results (Schmidt & Hunter, 1998). Besides examining the potential positive or negative impact of the outcome of selective processes, Schmidt and Hunter also examine the validity and utility of selection methods organization employ to decide about the candidates that best fit the companies' expectations regarding competencies and potential for high performance.

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Chat with WIC: Innovating WIC Services with a Chatbot

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Key Words: Chatbot; Technology; WIC; WIC Services; Smartphone;

Introduction

The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) serves pregnant, postpartum, and breastfeeding women and infants and children under the age of 5 who are at nutritional risk by providing access to healthful foods and nutrition education. Since 2015, Texas WIC participation has decreased by 23%. This decline in participation has led to a $50 million reduction in WIC rebate utilization. Approximately 90% of Texas WIC participants have a smartphone which they use to access the internet. Texas State Nutrition contracted with Texas WIC to inform the development of a chatbot aimed at improving WIC participation. This chatbot will be designed to enable communication 24/7 regarding WIC eligibility and services and to schedule appointments. The objective of this research is to inform the development of a Texas WIC Chatbot by engaging WIC stakeholders and staff.

Methodology

This study utilized a mixed methods approach. Qualitative work involved separate group interviews, conducted via Zoom, with state-level stakeholders, WIC directors, and clinic staff. Participants were invited via email from the Texas WIC state office. The interview guide solicited stakeholder input on how a chatbot could expedite WIC services, what features would be desirable in a chatbot, and how barriers to successful implementation could be overcome. Interview data were recorded, transcribed, and themated using the classic analysis strategy. Quantitative work involved data collected via a pre-interview survey, which gathered demographics, perceived usefulness and ease of use of a chatbot, digital literacy, technology experience, and level of technophilia. Structural equation modelling was used to measure associations between survey variables and constructs.

Research

A total of 11 group interviews with 32 participants were conducted. Prominent themes supported that a chatbot would likely: (1) improve WIC services by providing applicants with information related to eligibility and preparing clients for clinic visits; (2) effectively relay information with a friendly, personable interface; and (3) potentially link clients to WIC services, such as online classes and nutrition education. Compared to clinic staff, state-level stakeholders and directors exhibited a greater technophilia, with higher scores on questions related to experience with technology, digital literacy, perceived usefulness, and perceived ease of use of a chatbot.

Conclusion

Ultimately, the prospect of a Texas WIC Chatbot was well-received. An ideal chatbot could provide a logical interface for potential and future WIC clients, in a manner is aligned with the flow of WIC services. Because most smartphone users have access to their phone the majority of each day, a Texas WIC Chatbot that can provide immediate customer service is a technological innovation that may not

only mediate participation decline but increase enrollment in Texas WIC, leading to more healthful women, children and families in Texas. Furthermore, in a time of technological revolution, this project expands the scientific understanding on how to properly integrate technological innovations with healthcare programs.

An Exploration of Boomtown Growth: Calls for Service, Crime Count, and Ambient Population

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Key Words: Boomtown, violent crime, street level crime, Index crimes, non-index crimes, oil and gas activity, Texas

Introduction

To date, social science has not examined boomtown crime within the state of Texas. Previous research has examined boomtown crime through long term resident and law enforcement perception studies, index crime rates, and explorations of resource availability. Missing from the body of boomtown literature, is whether index and non-index crimes increase in communities experiencing population increases due to oil and gas development. The state of Texas is the central focus of this study since it is in fact, responsible for producing over 36% of oil among all oil and gas producing U.S. states (Blackmon, 2014). To put this into perspective, if Texas was a separate country, Texas would rank as the 8th largest oil-producing nation on earth (Blackmon, 2014). As such, the impact of oil and gas production on communities within the state of Texas, deserves attention.

Methodology

The data for the proposed dissertation were obtained from public data portals as well as county stakeholders, including sheriffs, police deputies, former mayors, and long-term residents. Publicly available oil and gas well-permit and drilling data collected and maintained by the Texas Railroad Commission will be used for the present study. This data includes county level information on the number of oil and gas wells drilled for each county in the state of Texas. In addition, this data includes county level information on the number of oil and gas permits applied for each county in the state of Texas.

Crime data were obtained via the Federal Bureau of Investigation (FBI) UCR from January 2010 to December 2015. The crime types included in the proposed study described below will be index crimes including, arson, aggravated assault, burglary, homicide, motor vehicle theft, robbery, rape, theft from a motor vehicle, and larceny/theft. Non-index crimes are also included for purposes of this study, and consist of forgery, fraud, embezzlement, stolen property, vandalism, weapons, prostitution, sex offenses (not including rape), drug abuse, manufacturing, selling and possession of drugs, gambling, offenses against family and children, alcohol related offenses, including driving under the influence, vagrancy, and all other non-traffic offenses.

Descriptive analyses and correlation analyses will be used to examine whether oil and gas related population increases lead to an increase in criminal activity. Ordinal logistic regression, t-tests, descriptive statistics, and multi-level models will be used to identify county level criminal activity correlates with the presence of oil and gas activity.

Research

Preliminary results show a statistically significant boom-crime relationship using UCR Part I and Part II data. Further analysis is needed.

Conclusion

Oil and gas associated populations booms, are not unique; rather, they can be anticipated and prepared for within natural resource rich geographic areas. This study provides communities, a better understanding of some of the social costs associated with boomtown events, allowing them the ability to proactively prepare

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Overcoming Gender Stereotypes in Children's Television Programs: A Content Analysis of Avatar the Last Airbender

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Key Words: Television, Tweens, Media, Gender

Introduction

According to social cognitive theory (Bandura, 2001) media consumers, especially younger consumers, are influenced by the behaviors they observe in their own lives, including from the media they consume. Past research into television programing for tweens has found that shows belonging to the action-adventure genre regularly demonstrate incorrect gender portrayals: including stereotypical behaviors (Leaper, Lisabreedl, Auriehoffmana, & Annperlman, 2002) and having far more male than female characters (Gerding, 2014). To help tweens who enjoy this genre, this study proposes a content analysis of a popular action-adventure cartoon show, Avatar The Last Airbender, because it contains characters that tend to defy the stereotypical norms that are common with similar programs (Gender in avatar: The last airbender, 2015). To do this the authors asked the following questions:

R1: Are traditional male and female stereotypes prevalent with the principle characters?

R2: How does the portrayal of gender roles differ from male to female characters throughout the duration of the series?

Based on previous research, the following hypothesis was also proposed:

H1: Since this cartoon fits into the nontraditional adventure genre, the representation of male and female characters will be fairly equal.

Methodology

Of the 61 episodes, 20 were randomly selected from the three seasons to be used in the sample. The authors coded the behaviors of the top three male and female characters in the series, using variables from both Leaper et al. (2002), and Sternglanz and Serbins' (1974) studies on children's television programs. Some of the variables coded included: fear, physical aggression, acting romantic, dominance, and use of magic. To ensure intercoder reliability, the two authors coded two of the random episodes separately from each other and then compared each variable. The results produced a coefficient of .93, which is more than the .70 minimum required for reliability according to Holsti (1969).

Research

The preliminary results found that Avatar The Last Airbender has overcome a lot of problems that programs in the same genre have had with gender portrayals. Of the eight variables coded for, only one, being a victim of aggression, was significantly different based on the character's gender. This shows a big change from the programs that Leaper et al. (2002) had coded. The hypothesis that the representation of male to female characters present in the episodes would be fairly equal was also proven.

Conclusion

These findings show that Avatar The Last Airbender is a great resource to help counter the negative influence that the many incorrect gender portrayals found in the action-adventure genre can have on tweens. This study also shows how this particular program could also be used by other content creators as a guide for how to create characters that are more dynamic and not so stereotypical in their gender roles. This study has also shown that there is a need for further research into Avatar the Last Airbender to explore other positive influences that it might present to the tweens that consume it.

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Pre-Teletherapy and Post-Teletherapy Progression of Accuracy and Attendance

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Key Words: Pre-Therapy, Post-Therapy, Progression, Attendance

Introduction

One subject from a larger data set, Roberto from Guatemala was 12 years old and was born with a cleft lip/palate (Resendiz & Gonzales, in preparation). Two years prior to treatment, Roberto underwent orofacial reconstructive surgery by Austin Smiles to repair his cleft lip and palate. The surgery was successful, however, Roberto needed speech therapy to produce sounds correctly. Due to the lack of speech-language pathologists in Guatemala, telepractice with Texas State graduate clinicians was a feasible, beneficial option for Roberto. Roberto presented with severe hypernasality in all sounds except for glottals causing his speech to be unintelligible to unfamiliar listeners. Hypernasality means the majority of the sounds produced by the individual are resonating in the nasal cavity; the person may sound like they have a cold. Glottal sounds include /h/ sounds, such as the first sound in "jamón" (ham). As the therapy sessions progressed, the amount of therapy sessions that Roberto attended decreased. The current study aims to answer the following question: Why did a client who was making progress with his speech during telepractice therapy decrease the number of sessions he was attending?

Methodology

Two Spanish-English Bilingual clinicians in the Communication Disorders program met with Roberto via telepractice twice a week for one hour sessions under the supervision of a certified bilingual speech-language pathologist. The clinicians conducted therapy at Texas State University and video recorded their sessions for later data analysis. To complete the research, the clinicians watched prerecorded video sessions to observe differences in speech. During the observations, the clinicians compared the accuracy of sound productions in the first and last sessions.

Research

Roberto made significant improvements and denasalization in the articulation of the following phonemes: /k, g, t, d, p, b/. For example: "col", "gol", "tía", "día", "panda", and "banda".

Conclusion

Significant improvements were observed in response to telepractice. Improvements in speech may inadvertently lead to lower attendance by the client. The clinicians, the client, and the client's mother agreed to meet twice a week, for one hour at a time, for approximately twelve weeks. At the initiation of therapy, Roberto began sessions on time and his mother greeted us before every session. The duration of the initial sessions lasted the full hour. However, Roberto began arriving later for sessions and leaving earlier than originally planned by the third week while simultaneously making improvements in his pronunciation and benefitting from the strategies given by clinicians. Roberto

utilized and generalized the strategies into his everyday speech, which leaves clinicians to suspect that the client felt competent and confident enough to continue these strategies without further treatment. Therefore, it appears that the client's goal of increasing his intelligibility was met. In the future, clinicians may include a discussion about how clients can inform the clinician that they are satisfied with their progress in speech and no longer wish to participate in therapy. Also, communicating the long-term goals of therapy and advising the client to inform the clinicians when the long-term goals are met is important information to discuss initially.

Student Attitudes Towards Offender Reintegration

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Introduction

This study examines Texas State University students' attitudes regarding the purposes of incarceration, their perceptions of obstacles faced by previously incarcerated individuals, and their personal opinions of previously incarcerated individuals. According to the Bureau of Justice Statistics' 2015 report on correctional populations, approximately 6.7 million people were under some form of correctional supervision (Kaeble & Glaze, 2016). The majority of the approximately two million who are currently incarcerated will, in fact, return to the community. A common perspective of incarcerated individuals is "out of sight, out of mind," but there are more ex-offenders outside of prison walls than there are inside. The aim of this study is to determine how students rationalize supportive and punitive regimes previously incarcerated individuals often face. This study highlights the consequences of the United States' lack of rehabilitative efforts and successful reintegration of previously incarcerated individuals.

Methodology

For this project, a mixed-methods approach was utilized. To gain a clearer insight into student attitudes, a survey of 125 Texas State students was conducted. Additionally, five semi-structured interviews were conducted. This project employed quantitative data analysis and qualitative in-depth interview analyses.

Research

This mixed-methods approach revealed that Texas State students revealed discord between their own views and societal views. Also, students conveyed a "not in my backyard view" on reentry issues in that they often supported rehabilitative efforts of formerly incarcerated individuals yet were weary of such offenders being part of their close network.

Conclusion

This study was exploratory in nature and assessed college students' attitudes regarding offender reintegration. These results reveal that criminal justice issues, especially sensitive ones such as offender reintegration, cannot be talked about in a unidimensional manner; they are complex issues that are not yes or no questions. Participants were able to express multiple sides of the issues, which made it difficult to give a definite answer. Reporting felonies on job application, the purposes of incarceration, and living/working next to an ex-offender were a few of the issues that elicited deep conversation. Opinions regarding these issues are difficult to study, but it is important to gauge opinions regarding offender reintegration to improve our criminal justice system in the future.

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The Victim-Offender Overlap in Intimate Partner Violence: Considering the Role of Self-Control

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Key Words: Intimate partner violence, victim-offender overlap, self-control, situational couple violence

Introduction

While a growing body of literature in the field of criminal justice documents the relationship between victimization and offending, only recently has this knowledge been applied to the study of intimate partner violence (IPV). Accordingly, questions remain with regard to the theoretical origins of mutual violence between intimates. In an effort to fill this void in the literature, the current study examines the etiology of moderate forms of mutual IPV, specifically assessing self-control theory's applicability to the victim-offender overlap in IPV.

Methodology

Data were obtained from Waves I and IV of the National Longitudinal Study of Adolescent to Adult Health (Add Health), and a series of logistic regression models were estimated to assess whether low self-control at Wave I predicts IPV victimization, IPV offending, or both IPV victimization and offending at Wave IV. The present study extends prior literature examining the role of self-control in IPV by (1) investigating the influence of self-control on the victim-offender overlap in IPV, (2) using longitudinal data, and (3) utilizing a sample of U.S. adults ages 24 to 33.

Research

Low self-control emerged as a significant predictor in the second and third models predicting IPV offending and IPV victim-offenders, respectively. However, low self-control, as measured in this study, failed to predict IPV victimization.

Conclusion

Although research in this specific area is sparse, initial findings suggest a link between low self-control and moderate forms of mutual IPV. These results highlight the importance of utilizing programs that aim to increase levels of self-control among children and adolescents in an effort to reduce IPV later in life.

An Investigation of Cognitive Decline in Patients with Hypothyroidism

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Introduction

The thyroid gland releases hormones that regulate metabolic processes such as heart rate and body temperature. Hypothyroidism is a condition characterized by an underactive thyroid that fails to produce enough thyroid hormone. According to the American Thyroid Association, hypothyroidism is the most common of thyroid diseases where 10-15% of Americans have mild hypothyroidism and 2-3% have full hypothyroidism. Individuals with hypothyroidism report an array of symptoms, with common ones including weight gain, fatigue, and brain fog. While a few studies have looked at performance on certain cognitive tasks for individuals with hypothyroidism, there has been limited research into the self-reflective assessment of one's cognition while diagnosed with hypothyroidism. The purpose of the present study was to evaluate differences in psychosocial factors and cognitive impairments between individuals with and without hypothyroidism.

Methodology

Participants were recruited from social media groups for hypothyroidism as well as through Prolific, an online participant recruitment system. Of 589 participants, 21.7% reported no thyroid disorders and 78.3% reported hypothyroidism. Participants were primarily white/non-Hispanic (88.6%), primarily female (96.1%), and near middle age (M_age =42.5, SD=12.6).

Participants were first asked about their demographics including age, gender, race/ethnicity, marital status, number of children, education level and insurance type. Participants then answered a series of questions assessing psychosocial factors, including the Perceived Stress Scale (PSS-14; Cohen, et al., 1983), Patient Health Questionnaire to assess major depression disorder (PHQ-9; Kroenke, et al., 2001) and generalized anxiety disorder (GAD-7; Spitzer, et al., 2006), and the (CIS; Vercoulen et al., 1994). Participants then completed the Cognitive Failures Questionnaire (CFQ; Broadbent, et al.,1982) and the Prospective and Retrospective Memory Questionnaire (PRMQ; Smith, et al., 2000) to assess cognitive and memory impairments.

Research

Those with hypothyroidism varied significantly from those without hypothyroidism on age, number of children, and insurance type, and education, but not on gender, race/ethnicity, or marital status. After controlling for demographic variables, patients with hypothyroidism had higher stress, were more likely to have depression, were more likely to have anxiety disorder, and reported greater fatigue, worse concentration, worse motivation, and lower levels of physical activity. Furthermore, participants with hypothyroidism scored significantly higher on the CFQ and on the forgetfulness, distractibility, and false triggering subscales suggesting a decline in function in these areas. Participants with hypothyroidism also scored significantly lower on the PRMQ and the prospective memory, retrospective memory, short term memory, long term memory, self-cued, and environmental cued subscales suggesting lower functioning in these areas.

Conclusion

Participants with hypothyroidism showed significantly greater indices of brain fog as compared to participants without hypothyroidism. Though there are many symptoms associated with hypothyroidism, there should be special attention placed on those related to impaired cognitive functioning as it is such a crucial aspect to daily functioning. The findings from this study may be used by health providers when assessing, educating, and counseling patients. Further research should continue to look at specific cognitive impacts of hypothyroidism and potential interventions to minimize cognitive decline.

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A Narrative Analysis of Distrust between Student Veterans and Faculty Members

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Introduction

This pilot study examines relationships between faculty members and student veterans inside classroom environments as student veterans persist towards their degree. As of 2011, one million veterans had reported on using their education benefits for a bachelor or associates degree, with that number increasing by 20% over the following three years (Veteran Toolkit, n.d). With less than half of higher education institutions offering any type of faculty and staff training for student veteran support (O'Herrin, 2011), and research showing a gap in faculty understanding of the student-veteran experience (Sargent, 2009;Patillo, 2011), it is vital that faculty development be implemented. This research uncovers a clear gap in faculty and student veterans perceptions of each other and the need for faculty member training when it comes working with student veterans, including helping to create a cohesive classroom environment where student veterans feel welcomed and supported, faculty awareness of support needs and building a foundation of trust between the faculty and student veterans.

Methodology

Narrative inquiry

Creswell (2003) Narrative Analysis

Research

Results indicate faculty are unaware of the support practices that student veterans need as nontraditional students, and an under preparedness to implement support methods to help cultivate a positive relationship between themselves and student veterans. Due to this misinformed perception of student veterans, results indicate student veterans feel a level of distrust in terms of trusting faculty with their education and success therefor hindering their ability to perform inside the classroom.

Conclusion

While previous research uncovered student veterans identifying success as having positive relationships with their faculty (American Council on Education, 2011), it is clear that due to a lack of faculty awareness of student veteran needs and experiences, these relationships are difficult to cultivate. The impact that this research aims to highlight is that while the student veteran population is continuously growing, higher education institutions are failing to take the proper steps to ready their faculty for this community of students.

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Optimal Sizing of a Hybrid Energy Storage System Operated on a Microgrid Using Climate Data Analytics

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Introduction

The optimal sizing of the microgrid system coupled with Li-ion battery and supercapacitor is studied. Due to the intermittent wind and solar generation, uncertain load, and variable utility pricing, hybrid energy storage system comprised of battery and supercapacitor is adopted to mitigate these challenges. The hybrid storage system provides high energy density capacity to store renewable energy and smooths the load fluctuations with high power density. The objective is to minimize the levelized cost of energy of distributed generation (DG) system that is designed in a stochastic optimization framework. The research aims to answer the following question: is it cost-effective to design a renewable microgrid system to power industrial facilities?

Methodology

The mathematical models of wind and solar generation, and battery and supercapacitor are elaborated. The system cost includes the installation, maintenance and operation, and utility bill. Meanwhile energy incentives such as carbon credit and feed-in-tariff as the income for the system. The model is tested and implemented in six cities with diverse climate conditions. The variation of microgrid costs under time-of-use (TOU) rate, loss power supply probability and operating mode of the factory are taken into account as well. To tackle this complex stochastic optimization problem, wind and solar generations are simulated hour-by-hour during the course of a year. The objective function is a mixed-integer linear programming (MILP) model to search for an optimal generation profile and capacity of distributed energy resources including the energy storage devices. Algebraic Mathematical Programming Language is applied to solve this MILP problem and Python is used for data analysis.

Research

This study would set an exemplary analysis when using onsite renewable energy as the primary power supply. The results can provide a reference for the capacity optimization of wind, solar and energy storage systems for the large industrial consumer. The preliminary results show it is cost-effective for adopting onsite microgrid when the average wind speed is larger than 5 m/s or over 19.6% of the clear day are available in a year. As the installation cost of solar PV and battery decreases, the renewable microgrid is becoming an important power supply for both industrial and commercial consumers.

Conclusion

The model provides a preliminary solution to designing and operating a microgrid power system by considering different operating modes and demand response. The experiment results show that the manufacturing industry can attain net-zero carbon emission operations economically and reliably through the integrated hybrid energy storage system. This model can be expanded to cover other types of energy storage device like hydrogen fuel cell to streamline the generation and load uncertainty.

An Agrarian Front: The Impact of Wilson's Underwood Tariff After the Great War

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Introduction

When President Woodrow Wilson ran for reelection in 1916, his legislative agenda proved to be divisive among the American public and within his own political party. One of his key pieces of legislation was the Revenue Act of 1913, dubbed the Underwood Tariff, which was unpopular among business leaders as it lowered tariffs on imported goods and established a federal income tax. However, as the first World War was being waged in Europe, his legislative history was mostly kept out of the public eye as his campaign focused on his insistence that the United States would not enter the conflict. His eventual victory in securing another term highlights the biases that focused more on his larger achievements such as his Fourteen Points, among which is the establishment of the League of Nations, and his policies on entering the war rather than his legislative history as president.

Methodology

This paper will look at the responses that congressmen, businessmen, and government officials have given regarding the Underwood Tariff and its policies. It will also include legislation that was passed as a direct response to the Tariff that sought to fundamentally change it and address concerns that emerged after its passage.

Research

The topic of this paper addresses the responses that President Woodrow Wilson's legislative history received with a focus on his Underwood Tariff and its impacts on agriculture. While many scholars have focused on the larger achievements of Wilson's presidency, there has been a lack of a direct look at the Underwood Tariff and its impact on his presidency and beyond.

Conclusion

I argue in this paper that Wilson's Underwood Tariff did not aid the United States competently with preparing for war and contributed to the plights that those in the agricultural sector shared when providing for the war and dealing in a postwar market. This, in turn, led to a rise in economic nationalism where the United States' market was to be prioritized above all else and protectionist legislation passed by Harding's administration turned this ideology into law through his emergency tariffs. This will be accomplished through the examination of Congressional speeches by representatives, testimonies from business figures, and newspaper articles that highlight the plights that those in the agriculture industry felt during this period. Ultimately, this paper will contribute to the history of the Wilson administration by bringing a larger focus on his legislative history which has been mostly ignored in favor of his more notable actions during and after the war.

College Admissions for L2 Students: Comparing L1 and L2 Readability of Admissions Materials for U.S. Higher Education

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Introduction

This study seeks to expand upon Taylor's (2018a, 2018b) work and delve deeper into the language of U.S. postsecondary admissions. Specifically, this study will use a catch-all term—L2 students or "students whose first language (the language to which they were exposed in the home as young children) is not English" (Ferris, 2009, p. 4)—and apply L1 and L2 readability tests to a large number of U.S. postsecondary admissions materials to learn whether admissions materials are easier to read for L1 than L2 students, possibly helping explain postsecondary access gaps. Employing the L1 Flesch Reading Ease (Flesch, 1979; Kincaid, Fishburne, Rogers, & Chissom, 1975) and the L2 Miyazaki English as a Foreign Language Readability Index (Greenfield, 1999, 2003), this study will answer two questions pertinent to L2 college access in the United States:

How difficult are U.S. higher education admission materials to read for L1 students and L2 students?

Are there statistically significant differences between the readability of admissions materials for L1 and L2 readers?

Methodology

This study examines admissions materials at 341 four-year U.S. institutions of higher education: This limitation will be addressed in the limitations section of this study. Using the Integrated Postsecondary Education Data System (IPEDS) (National Center for Education Statistics, 2018), 2,907 four-year U.S. institutions of higher education were identified. As Internet information can change frequently, the research team decided to employ a random number generator to assign 341 institutions to the study to ensure the study could be completed in a timely manner. Once the team gathered admissions materials, the team uploaded each set of admissions materials into Readability Studio and analyzed the reading difficulty of the admissions materials using one L1 readability measure—the Flesch Reading Ease (Flesch, 1979; Kincaid et al., 1975)—and the Miyazaki English as a Foreign Language Readability Index (Greenfield, 1999, 2003). A paired t-test to analyze means was used to determine if differences L1 and L2 scores were statistically significant across the entire sample (n=341) and across each institutional sector separately (public, private non-profit, and private for-profit).

Research

Data in this study suggest the longest admissions materials were written by private, for-profit institutions (321.6 words), whereas the shortest materials were written by public institutions (301.6 words). Public institutions also composed the simplest L1 admission materials at an FRE of 39.5 and MIYA of 32.4—even though these scores are simplest across all institutions in the entire sample, these scores equate to text written between a 13th and 16th grade reading level, appropriate for L1 and L2 readers already in postsecondary education. Results from paired t-tests suggest differences in means between FRE and MIYA scores across the entire sample are statistically significant (p=0.001).

Conclusion

These results suggest it may be more difficult for L2 students to read admissions instructions than L1 students, possibly rendering it more difficult for L2 students to access U.S. higher education due to being unable to read and comprehend the admissions instructions and successfully completing an admissions application.

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Web Accessibility and Tribal Colleges: Can Tribal College Students with Disabilities Access Tribal College Websites?

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Key Words: tribal colleges, students with disabilities, web accessibility, Internet, Americans with Disabilities Act

Introduction

To date, no study has evaluated the accessibility of tribal college websites, even though American Indian and Alaskan Native (AI/AN) students with disabilities are perhaps the most under-supported, under-researched, and unacknowledged population of U.S. higher education students, as this student population often faces an intersectional discrimination on the basis of ability, race, ethnicity, geography, and socioeconomic status (Boyer, 1997; Dodd & Nelson, 1989; Cunningham & Parker, 1998; Lopez, 2018). As a result, this study sought to examine the web accessibility of all 34 Title IV-participating tribal colleges held to the most recent standards set forth by Section 508 on January 18, 2018, answering two questions pertinent to the technology hurdles faced by AI/AN students with disabilities:

R1: After the January 18, 2018 amendment of Section 508, are Title IV-participating tribal college websites compliant with the Americans with Disabilities Act?

R2: If these websites are not ADA compliant, what are the most problematic elements of these websites and how might they be solved?

Methodology

Using the Integrated Postsecondary Education Data System ([IPEDS], National Center for Education Statistics, 2019), all federally-recognized tribal colleges who participated in Title IV programs in 2018-2019 were identified, as ADA covers all Title IV-participating institutions of higher education. Using IPEDS, the hyperlink to each tribal college's official website was located and uploaded to an online database. Once all hyperlinks were located, Tenon™ accessibility software was employed to analyze each website's compliance with WCAG 2.0 standards, providing a measure of web accessibility (Tenon, LLC, 2019b). Following recommendations from recent literature (Ismail, Kuppusamy, & Nengroo, 2017; Taylor, 2018b: Taylor & Bicak, 2019; Timbi-Sisalima et al., 2018), this study employed Tenon™, a robust freeware program capable of running nearly 100 total tests of web accessibility at the Level-A, Level-AA, and Level-AAA standards (Tenon LLC, 2019a).

Research

Across all 34 tribal colleges, the average tribal college website landing page included 1,564 Level-A and -AA errors, rendering the average landing page noncompliant with ADA and highly inaccessible for AI/AN students with disabilities. Although more web accessible than other sectors of tribal colleges, private, nonprofit, two-year tribal colleges published the most accessible websites for AI/AN students with disabilities, with these two tribal colleges averaging 990 Level-A and -AA errors on their landing pages. However, the single most accessible websites were published by public, two-year institutions including Little Big Horn College (261 Level-A errors, 33 Level-AA errors, 294 total errors), College of the Muscogee Nation (276 Level-A errors, 144 Level-AA errors, 420 total errors), and Saginaw Chippewa Tribal College (474 Level-A errors, 78 Level-AA errors, 552 total errors).

Conclusion

Tribal colleges reinforce pride in Native communities, a pride that has been subjugated, marginalized, and under-supported by U.S. higher education and its government. This study suggests many tribal college websites may not be accessible for AI/AN students with disabilities. As a result, the exploration of a tribal college and the pursuit of experiencing a postsecondary tribal culture becomes nearly impossible if these students cannot access tribal college information online.

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Family Life Histories: The Tapestry of Intergenerational Cultural Identity

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Introduction

This contribution documents perspectives across three generations of an African American family and describes how family histories inform cultural identity using the frameworks of intersectionality and critical race theory (CRT) (Delgado & Stefancic, 2012). In 1995, Allen found that there has been a host of material and books published since 1965 about African American families, however, the knowledge of African American families continues to be limited. Crawford (1996) stated that aspects such as untold stories and the absence of intergenerational pride within a family's culture creates a void and discursive space in the collective knowledge of an African American family's life histories. Without historical awareness, it is challenging to embrace the lessons and celebrate the accomplishments of the family members who came before (Graves, 2011). It is worthy to identify the gaps in cultural identity across generations and add to the body of literature that focuses on preserving the strength of African American history and family culture (Hill, 1999). Therefore, this qualitative ethnographic study aims to discover and analyze six African American participants in relation to how their family histories inform cultural identity across three generations.

Methodology

The research questions guiding this study include: How does family history inform cultural identity in multiple generations of an African American family? What are the life histories of six family members across generations? How can critical race theory (CRT) help understand the participants' life histories? The research included the data collection through Q-sort, which provides information and opinions that the participants rank and sort into three categories, most agree, most disagree, and neutral (Brown, 1996). Additional data collection sources were interviews and surveys. The interviews were conversational, thereafter the data were transcribed and coded for patterns, themes, and categories (Patton, 2002), while the survey data were collected, dismantled, and continually reassembled until a new narrative was assembled (Yin, 2001). Overall, the study's data analysis was inductive and comparative while simultaneously in the process of data collection activities (Merriam, 2009).

Research

The key insights gleamed from this study were as follows: the importance of the African American family and community, the influence of the African American culture in mainstream America, and the deep roots of African American slavery in the culture of the African American family.

Conclusion

Waites (2009) explains that the African American family's strong kinship ties, intergenerational support, faith, and coming together in a family spirit during times of need are part of its ongoing communal legacy. Strom and Griswold (1994) state through the relationships with older and younger family members, the younger generations learn to demonstrate family honor and commitment to close intergenerational ties, which preserve cultural distinctions. Thus, through the findings of this study, it contributes to previous research highlighting the preservation of intergenerational African American family history and culture.

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American Woman: Societal Perceptions of Femininity as Impacted by Gendered Branding, and the Social Responsibility of Designers

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Introduction

In the last 100 years, the expectation for American women has been, more often than not, that she is demure, dressed to perfection, gracious, with hair perfectly coiffed and makeup flawlessly applied no matter the situation. In the advertising age of the 50s and 60s, women were portrayed as subservient and/or a sex-object. While the blatant sexism of that era is not as overtly expressed today and women have expanded this definition for themselves over the last half-century, gender bias and inequality persist. These biased perceptions of femininity, typically, are not taught but rather internalized by individuals—male and female—from the visuals encountered on a daily basis (Kelso, 2019, 4).

Visual input has a subconscious effect on human's innermost being as we are psychologically programmed to find meaning in visual forms. Therefore, the message conveyed through color, form, typography, and illustration on branded packaging have served to deeply engrain in our society the ideology that women are objects and less than men.

Since perceptions of normality are formed during childhood development, these biases—showcased through toy branded packaging—shape our society at an early age. While no one aspect can be faulted for socialization, design does reach all of daily life. In branding, design is about appealing to a target market to sell products. However, can the same outcome be achieved while reinforcing positive thought processes rather than ones which marginalize non-dominant groups?

Methodology

To find this answer design research methods of ethnographic observations and shopper surveys in retail spaces—Target, DiDi's Discounts, The Lego Store, Toy Joy, Walmart and Big Lots—will be used to explore products and visual branding offered to children aged 3–9. These observations will explore how manufacturers depict gender roles and guide childhood cultural development. Surveys, card-sorts, and interviews with parents and professionals will seek to learn more about priorities when marketing and selecting toys for purchase.

Research

Walking through today's nationwide retailers—in differing socioeconomic regions—ethnographic observations revealed visuals in women's and girl's products which were traditionally feminine and often utilized lower case or script typography—versus men's and boy's products which utilized all caps, sans serifs alongside bold highly-saturated color palettes. Imagery of the female form showcased thin bodies, big doe eyes, and plump lips posed in unnatural or sexualized positions with illustrated representations exaggerating these qualities as they are not held to the limitations of physical reality.

While, thankfully, these retailers no longer blatantly separate children's products with pink and blue backdrops on the aisles, the packaging and toy types separate themselves visually, clearly demonstrating

what is socially acceptable for a child's assigned gender and creating inequity from the very foundation of childhood identities.

Conclusion

With professionals stating packaging has more influence at the point of selection than the product itself, this research must examine the role of brand and package design in the United States on cultural perceptions of femininity. This will also determine the social responsibility of designers in creating appealing, yet equitable designs for adolescent products in order to create greater access to equal social and economic opportunities for tomorrow's women.

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Comparison of Special Education Speech Therapy Services for Children with Autism Spectrum Disorder in Spain, Mexico, and the United States.

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Introduction

This study aims to answer the question of how does delivery of special education services for children with autism spectrum disorder in the area of speech therapy differ in Spain, Mexico, and the United States. This study will compare government laws and policies, accessibility, and criteria for assessing intervention concerning speech therapy services in Spain, Mexico, and the United States.

Methodology

Information will be obtained through the Department of Special Education of each country involved. Sample individualized education plans will be compared and contrasted along with statistics on availability, timeline, and effectiveness of services.

Research

Results from this study will reveal strengths and weaknesses of special education services for speech-language therapy available in Spain, Mexico, and the United States.

Conclusion

The implications of this study will give insight to speech language pathologists and allied health professionals that work with individuals with autism spectrum disorder that have received speech therapy services in Spain, Mexico, or the United States. This information will benefit the therapists by bettering their ability to establish a plan of care for these individuals.

Technology Saturation and the Working Memory: Could Wind Band Participation Counteract the Detrimental Effects?

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Introduction

Studies have confirmed that students who participate in band tend to perform better academically than students who do not (George & Coch, Music Training and Working Memory: An ERP Study, 2011). More specific studies on the neurological benefits of music instruction, however, overwhelmingly center on choral groups, with only a few studies focusing on wind band ensembles. As current pedagogy seems to involve greater uses of technology in the classroom, students are given a means of accessing social media applications such as SnapChat, Facebook, Instagram and TicTok. To what extent might the educational benefits of technology be compromised? Indeed, as one recent study has concluded, the overuse of technology, specifically the addictive properties of social media and their neurological effects have been found to negatively impact both short and long term memory functions, which can be detrimental to academic achievement (Verroulx, "Technology Use and Working Memory Performance" PhD diss., John F. Kennedy University, 2018).

Methodology

The purpose of this study is to determine the extent to which social technology saturation affects cognitive function, and if so, to what degree does active participation in wind band counteract the potential deteriorative effects social media could have on the adolescent brain. In addition to highlighting the current state of scholarship related to this topic, this research is working toward the construction of methodology on a larger research project.

Research

As a preliminary study, I have surveyed the literature related to social media and its correlation with academic trends, along with the current research on wind band participation and academic performance, to find where the two areas overlap.

Conclusion

The working memory is impacted negatively by extensive social media use and musical instruction has been shown to help improve the working memory. These two, seemingly unconnected subjects are bridged together highlighting the importance of music education to administrators who advocate for music appreciation courses rather than full instrumental ensembles.

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Effects of Plant Extracts on Adult Haemonchus contortus Mortality

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Introduction

Parasitic infections are a major concern in animal production with global control measures costing over $10 billion annually. In small ruminants, Haemonchus contortus contributes to substantial economic losses in weight gain and mortality. Historical pharmaceutical control of H. contortus resulted in anthelmintic resistance, further exacerbating economic losses. The rise of anthelmintic resistance precipitated the need to investigate alternative treatments. One promising area is using anthelmintically active plant extracts. It is hypothesized that substances extracted from pumpkin seeds, garlic, and wormwood will demonstrate anthelmintic activity against H. contortus. The objective of this study was to evaluate the effects of three plant extracts on adult H. contortus mortality in vitro. Pumpkin seed oil (extracted from Cucurbita maxima), allicin (extracted from Allium sativum), and artemisinin (extracted from Artemisia absinthium) were selected as viable alternatives and evaluated for anthelmintic activity.

Methodology

Live adult H. contortus nematodes were extracted from the abomasum of sheep and goats collected from a local abattoir and placed in triplicate into 6-well plates containing differing concentrations of treatments. Fenbendazole was utilized as a positive control and physiological saline as a negative control. Anthelmintic efficacy was determined via time-to-death observation. Time-to-death was determined hourly by observation of movement for thirty seconds. Absence of movement for thirty seconds indicated death. Time-to-death was evaluated via ANOVA.

Research

Allicin exhibited a time-to-death similar to fenbendazole (2.15 ± 0.58 h vs. 1.00 ± 0.58 h, $p = 0.15$). Pumpkin seed oil exhibited accelerated time-to-death compared to negative control (4.15 ± 0.73 h vs. 10.00 ± 0.73 h, $p < 0.01$). Artemisin did not affect time-to-death at the tested concentrations.

Conclusion

Allicin and pumpkin seed oil demonstrated potential as alternative anthelmintics at the evaluated concentrations, providing a potential treatment for H. contortus. Further investigation will determine synergistic effects between extracts and pharmaceuticals.

Therapist Multicultural Competency and Its Relationship to Client Treatment Outcomes

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Key Words: multicultural counseling competence therapy MCC

Introduction

In 1992, Sue, Arredondo, and McDavis introduced multicultural counseling competence (MCC) and its three components — awareness, knowledge, and skills. Since then, research has shown that certain aspects of a therapist's MCC are factors in therapeutic change. For example, therapists who used more microaggressions had weaker working relationships with their clients and were rated by their clients as having lower MCC (Constantine, 2007). Several self-report measures exist to assess therapist MCC; however, the construct of MCC has been proven difficult to operationalize, especially when it is measured by therapists themselves. Starting in 2011, a few researchers began to operationalize MCC in terms of how therapists can affect treatment outcomes with REM clients and clients from other marginalized groups (Hayes, McAleavey, Castonguay, & Locke, 2016). A handful of studies found that therapist effects were responsible for some of the variance in treatment outcomes for REM clients, and part of that variance was due to the clients' status as a racial or ethnic minority.

While the current research has shown that therapists do affect client outcomes with respect to the clients' race or ethnicity and gender, research has not yet addressed which of Sue & Sue's (2013) three multicultural competencies are tied to client outcomes. In addition, much of the research on this topic has been conducted in university counseling centers, which limits the ability to generalize these findings to a non-student population. Furthermore, the present literature has focused on only one or two aspects of a client's culture (for example, race/ethnicity and gender). In reality, many clients have multiple minority statuses.

The proposed study will add to the small but growing body of research concerned with the relationship between therapist MCC and client outcomes. This study will determine which aspects of MCC are related to client outcomes while addressing some limitations of the previous research. Outcome will be defined as the difference in clients' scores on the Schwartz Outcome Scale-10 (Young, Waehler, Laux, McDaniel, & Hilsenroth, 2003).

There are two primary research questions: (1) What is the relationship between client-reported therapist multicultural awareness and client outcomes?, and (2) What is the relationship between client-reported therapist multicultural knowledge/skills and client outcomes?

Methodology

This study will be a quantitative, single-group cohort correlational design. The study will include a pre- and post-test of client well-being and a post-test only of client-rated therapist MCC. An additional survey of clients' and therapists' cultural factors will be administered for possible future analyses outside of the scope of this study. Multiple regression will determine whether the relationship between client outcome and therapist multicultural awareness and the relationship between client outcome and therapist multicultural knowledge/skills reach significance (Heppner, Wampold, Owen, Thompson, & Wang, 2016).

Research

It is predicted that there will be a positive correlation between client outcomes (dependent variable) and both therapist multicultural awareness (independent variable 1) and therapist multicultural knowledge/skills (independent variable 2).

Conclusion

This research has the potential to provide curricular recommendations for future therapists-in-training to improve their effectiveness with a client population that is ever-increasing in diversity.

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An Analysis of the Possible Impact of DISH on Entheseal Sites

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Key words: Bioarchaeology, Bone pathology, Musculoskeletal markers

Introduction

Musculoskeletal markers, otherwise referred to as entheseal changes (EC), have been used in past studies to analyze different patterns of activity in bioarchaeological populations. The Coimbra Method was introduced in 2013 as a standardized method for analyzing EC (Henderson et al. 2013). Several entheseal site studies have mentioned different pathologies as confounding variables, with the Coimbra methodology specifically exempting all individuals with diffuse idiopathic skeletal hyperostosis (DISH) (Henderson et al. 2016). DISH is a condition of unknown etiology that causes an ossification of the anterior longitudinal ligament that runs along the anterolateral vertebral bodies. However, there has been little research on the extent of the correlation between DISH and entheseal changes or the specific locations DISH commonly affects in the appendicular skeleton.

This project focused on two main objectives: 1) does DISH and the severity of the condition affect ECs in the limbs? and 2) should individuals with DISH be removed from entheseal site studies?

Methodology

Fourteen individuals (age=<75) with clearly defined occupational type were examined from the Texas State Donated Skeletal Collection, seven individuals with DISH and seven individuals without DISH. All individuals were pair-matched for characteristics such as sex, age, and occupational type to focus solely on differences dependent on the presence or absence of DISH. A total of seven entheseal sites were examined, all located on the arms and the legs, using the Coimbra Method to score the EC.

Research

The results suggest that severity of EC do not significantly correlate with the presence of DISH. However, both non-DISH and DISH individuals showed significantly higher numbers of EC in the arms rather than the legs. Logistic regression showed no significant correlation between the severity of DISH by number of vertebrae and EC scores, but it did show a general positive trend, suggesting that the number of vertebrae affects the expression of EC.

Conclusion

Although there is no statistical significance seen in this study, the general trend suggests that as DISH progresses, so do entheseal changes. The overall impact is still unknown, but the results from this study do not definitively support removing all individuals with DISH from entheseal site studies. This can help improve the Coimbra method in better understanding its properties, which in turn improves its application for bioarchaeological samples. A larger sample size and the inclusion of more entheseal sites could result in stronger correlations and more conclusive results.

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Advocacy & Inclusiveness in Brewing – Is Place Making in the Beer Industry Gendered?

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Key Words: beer, gender, feminine, masculine, place making, inclusive space

Introduction

Everyday items, such as food and drink can be valued-laden with gender (Darwin 2017, Vartanian 2015). Wine and beer are no exception to this rule, with wine be associated with women and beer being associated with men (Chapman et al. 2018). However, brewing used to be a woman's duty because it was associated with household chores like cooking (Kalderen & Lindqvist 2018). It wasn't until the Industrial Revolution, when men took over production of beer that it became associated with masculinity in our culture (Kalderen & Lindqvist 2018). In the midst of the craft beer revolution, gender equity has become a popular topic, as many craft breweries our owned and ran by white males (Brewers Association 2019). However, as more women are entering the industry, both as consumers and producers, it begs the question, "How is gender being portrayed in the craft beer market?"

Methodology

We perform a visual content analysis using brewery websites to look at labels and beer styles offered and how they are marketed as well as how the breweries themselves are marketed by looking at the overall website design, including the presence of women on the website, how they are presented, or any other advocacy issues, such as sustainability, environmentalism, or local food and drink movements.

Research

Preliminary findings suggest that male and female owned craft breweries overtly and covertly create environments that are gendered. This is accomplished through brewery physical and virtual design, beer labels and names, and the types of advocacy some brewers participate in. For example, both male and female owned breweries use label colors, designs, and beer names that are feminine for lower alcohol by volume (ABV) beers, lighter styles, and fruity beers. IPA is masculine.

Conclusion

By looking at breweries through this lens, we are adding to the place making and inclusive space literature as to what is really inclusive and how gender presents itself in objects as commonplace as fermented beverages. Our findings support Chapman et al.'s notion that gender is done, undone, and redone in the beer market. Further research is needed to track the perceptions and cultural shift overtime as equal rights advocacy is at the forefront of the political landscape.

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Implications of Telemedicine and Health Policy Through an Examination of Facilitators and Barriers: A Systematic Review

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Key Words: health, policy, telemedicine, access, health policy

Introduction

Telemedicine is utilized for diagnosing and treating patients remotely via telecommunications technology all over the United States and the world. Telemedicine is becoming more prevalent as providers see the benefits, patients receive increased access and payers see the reduction in cost of care. Telemedicine studies have shown success in limiting geographical constraints, time spent, and costs incurred by patients with positive health outcomes across medical specialties. The aim of this review is to evaluate the implications of telemedicine and health policies.

Methodology

Telemedicine is utilized for diagnosing and treating patients remotely via telecommunications technology all over the United States and the world. Telemedicine is becoming more prevalent as providers see the benefits, patients receive increased access and payers see the reduction in cost of care.

Research

Telemedicine is utilized for diagnosing and treating patients remotely via telecommunications technology all over the United States and the world. Telemedicine is becoming more prevalent as providers see the benefits, patients receive increased access and payers see the reduction in cost of care.

Conclusion

Telemedicine has the potential for greater growth and adoption, however, there are several implications and barriers of health policy surrounding telemedicine that make it difficult to adopt. Policies will likely encourage and incentivize its spread and use. Future research should focus on standardization of telemedicine and new policies that encourage its use.

The Relationship Between Brain Fog and Poor Medication Adherence for Individuals with Hypothyroidism

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Introduction

Hypothyroidism is an endocrine disorder which occurs due to underactivity of the thyroid and creates difficulty in the body's metabolic system as well as affecting other biological and neurological functions. Individuals diagnosed with hypothyroidism are precribed a thyroid hormone replacement (T4) that is usually instructed to take in the morning half an hour to an hour before eating or drinking anything. One of the main cognitive impairments associated with hypothyroidism is brain fog, which involves difficulty in concentration and memory problems. The World Health Organization estimated that only around 50% of patients with chronic illnesses in developed countries take their medications as they are prescribed. Patients who forget to take their medications unintentionally don't adhere to their prescribed medication regimen, which can have detrimental effects to their health outcomes, including an increase in problematic symptoms. A large-scale study of patients with hypothyroidism showed a 68.4% adherence rate within the first year of their diagnosis (Briesacher et al., 2008). The purpose of this study was to investigate the relationship between the symptom of brain fog and poor medication adherence in individuals diagnosed with hypothyroidism.

Methodology

The participants in this study included 374 individuals disgnosed with hypothyroidism who were currently prescribed a T4 medication. The participants completed several surveys via an online questionnaire that was sent out to various social media groups. The surveys included a Medication Adherence Scale, which is a visual analog scale (VAS) that participants used to describe the percentage which they took their T4 medication as prescribed in the past month. The Medical Outcomes Study for Patient Adherence (MOSPA; DiMatteo et al., 1993) is a 5 item questionnaire which an individual rates their adherence to their doctor's treatment plan for their illness. There were 2 items which were questions directly related to the individual's adherence to taking their T4 medication. They were rated on 5 point Likert scales. The first question asked how they adhered to taking their medication 30 minutes to 1 hour before eating and the second question asked if they took their medication at the time of day that their doctor instructed them to. The Cognitive Failures Questionnaire (CFQ; Broadbent et al., 1982) is a 25-item questionnaire which asks how often certain cognitive impairments have occurred in the past 6 months. Examples of items on the CFQ include "fail to listen to someone's name when meeting them" and "suddenly wondering if you've used a word correctly". A composite score is computed along with the subscales of Forgetfulness, Distractibility, and False Triggering. Finally, the Prospective and Retrospective Memory Questionnaire (PRMQ; Crawford et al., 2003) is a 16-item questionnaire which asks how often certain situations occur. Examples of items on the PRMQ include

"Do you repeat the same story to the same person of different occasions?" and "Do you fail to recognize a place you have visited before?". Composite scores are calculated along with the subscales of Prospective, Retrospective, Short-term, Long-term, Self-cued, and Environmental-cued memories.

Patients were placed into two groups: Adherent and Non-Adherent, with Adherent patients (n=341) reporting >80% adherence and Non-Adherent patients (n=33) reporting <80% adherence based on the VAS. Univariate and multivariate analyses were used to analyze factors related to poor medication adherence.

Research

Univariate comparisons for Medication Adherence:

Individuals of a younger age, not married, had no children, and had no insurance were less likely to adhere to their medication regimen. Those whose adherence was <80% had significantly lower scores on the MOSPA indicating poorer general treatment adherence, and they were significantly less likely to adhere to general treatment instructions for taking their T4 thyroid medication, specifically taking it on an empty stomach and taking at the recommended time of day. Comparisons of the Cognitive Failures Questionnaire showed that the higher scores on the CFQ and each of the subscales (indicating more cognitive failures) were significantly related to medication nonadherence. Comparisons of the Prospective and Retrospective Memory Questionnaire indicated that lower scores on the PRMQ and each of the subscales (indicating more memory impairment) were significantly related to medication nonadherence.

Multivariate Comparisons for Medication Adherence:

A stepwise binary logistic regression model was developed to determine the key demographic and cognitive factors associated with medication adherence. Two main factors were significantly associated with better medication adherence: PRMQ Self-Cued Memory ($p = .008$) and better overall treatment adherence (MOSPA) ($p < .001$).

Conclusion

In general, patients in this study were very adherent of their medication regimen (approximately 90% of patients had an adherence rate of 80% or better). The significantly higher rates of cognitive failures and memory impairment in nonadherent patients suggests the value of interventions for this group. Provider-patient discussion about nonadherence would be warranted and suggested. Memory aids such as electronic medication reminders are recommended to help with unintentional nonadherence.

Influencing the Future: Communication Design in 19th-Century Magazines, and its Impact on 21st-Centutry Ingenuity

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Key Words: Innovation, Communication, Design, Media, Ladies, Home, Journal, Advertising

Introduction

Communication of some form is natural to all creatures, but innovation is largely a human endeavor (Brandt & Eagleman, 2017). Both within the era of industrialization and in our current technological revolution, communication design is a key component of innovation.

"Innovation" is commonly promoted across industries today, as is the word "design." Broadly defined, innovation is the "introduction of something new; a new idea, method, or device," (Merriam-Webster Dictionary, 2019). We have seen burgeoning new technological developments evolve and gain momentum over the last two decades. Innovation, however, is not limited to technology, but "an idea is not innovation until it reaches people" (Berkun, 2010, p. 46).

"Design" is much more elusive to define. It has been described as being "between high technology and handmade crafts" (Margolin, 1989, p. 25). While design is more than a style or mode of making, it has historically been associated with commerce. Communication design (CD) is not above market forces, but its power goes beyond the use of visual creations of type, image, and brand to compel consumers to buy the newest product or service. CD has consistently made important contributions by using these same elements to engage people with new ideas and inventions. Complete with coordinated messaging, CD helps make innovations understandable and the unfamiliar adoptable.

Methodology

This research explores the relationship between communication design and innovation with an investigation of late nineteenth-century popular magazines and of twenty-first-century media. The Ladies' Home Journal (LHJ) of 1888–1901 serves as a case-study.

Research

LHJ was a publication that embraced communication messaging, strategy, and visual elements to inform its readership of new ideas and ways of living created by the disruption of industrialization. The design, content, and advertising introduced and explained how to utilize new products such as consumer cameras, bicycles, sportswear, prepackaged foods, and refrigerators, stoves, and bathtubs. All were unfamiliar novelties at the time, but have been fully integrated into daily life.

In the 21st century, CD powers the new digital media: websites, apps, and social media platforms. Using these media, CD introduces new iterations such as cameras in doorbells, subscription meal delivery services, internet-connected refrigerators, and home virtual assistants that harness artificial intelligence. These enjoy great popularity, but were unknown only 5 years ago. Beyond helping users embrace the inventions of others, communication designers also play major roles in the creation of new products, services, experiences, as well as solutions of social impact (Maeda, 2019).

Conclusion

Communication design reflects cultural concerns, engages users with new ideas and inventions, and helps them be integrated into the home. This assimilation into daily life creates an ongoing cycle of innovation and integration, which fuels consumer demands and drives business response and design improvements. Over more than 130 years, CD has helped people embrace advances that have contributed to the transformative age in which we now live. As CD continues to influence the creation and adoption of innovations, what might our future hold?

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The Chaucerian Gay Agenda

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Introduction

Geoffrey Chaucer wrote The Canterbury Tales in a Britain that was reacting to the reign of King Edward II. Edward was heavily criticized for his femininity and rumored homosexuality. I intend to examine the way in which Chaucer interacts with homosexuality and gender roles through his pilgrims in The Canterbury Tales.

Methodology

I am more specifically looking at the way in which male femininity and sodomy are associated with greed and promiscuity. I will be approaching the characters and tales of the Pardoner, the Summoner, and the Friar. This paper will be a reaction to the portrayal of both Chaucer and his scholarship of these topics.

Research

The queerness of the Pardoner is approached with the medieval tools available to Chaucer. He does demonstrate some sense of awareness regarding the hypocrisy of this treatment by presenting it in relation to some of the other Canterbury pilgrims. Chaucer uses the medieval Edwardian method of feminization and fear surrounding the anus to discredit the Pardoner while celebrating more masculine presenting characters with similar vices through more pleasant portrayals.

Conclusion

The Canterbury Tales demonstrates the mocking and repulsive way in which male femininity and the anus are spoken about and portrayed within the work and within scholarship. This paper more specifically focuses on the way in which the villainaziton of the anus is perpetuated in in tales like "The Pardoner's Tale", "The Friar's Tale", and "The Summoner's Tale". These attitudes towards anal 'mis-users' remain within modern Britain and throughout scholarship regarding non gender-conforming characters such as the Pardoner.

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Trial by Tabloid: Can Debiasing Training Remedy Pretrial Publicity Effects?

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Key Words: pre-trial publicity, courts, media, jury decision-making, unconscious bias

Introduction

Negative-defendant pretrial publicity (PTP) media coverage can threaten a defendant's right to a fair trial. Jurors exposed to this type of PTP are more likely to find the defendant guilty and view the defendant as less credible compared to those not exposed to PTP (Kerr et al., 1999; Ruva et al., 2007; Steblay et al.,1999). The courts have proposed that voir dire is able to combat the biasing effects of prejudicial PTP by assessing potential jurors' knowledge of PTP surrounding the case and potential bias against the defendant. Research suggests that it is unlikely that potential jurors can adequately assess their own bias (Ruva, 2018). The State of Washington recently introduced a debiasing video to be presented to jurors prior to voir dire, to help jurors recognize and reduce their unconscious biases (United States District Court, 2019).

Methodology

A total of 88 students have participated thus far in the 2 (PTP: negative PTP vs. unrelated) x 2 (Remedy: debiasing video vs. control) between-subjects factorial design. During Phase I, participants were exposed to either neutral or negative-defendant PTP via online news articles and completed a survey regarding the content of the materials and a State-Trait Personality Inventory (STPI). The subjects participated in Phase II 7-14 days after Phase I. Participants were randomly assigned to view the unconscious bias remedy video or the control group, followed by a voir dire questionnaire and viewing of a filmed second-degree murder trial. The mock-jurors were asked to render a verdict, sentencing recommendation, evaluation of the credibility of the defendant, and a STPI assessment.

Research

Preliminary evidence suggests the video does not reduce bias among jurors, and may instead exacerbate the negative effects of PTP. Data collection is ongoing, and the results for a larger sample size and implications will be discussed.

Conclusion

Jury decision-making and verdicts are drawn from a complex system of social, cognitive, and personal factors. A remedy for unconscious bias may help to correct for one challenge to ensuring that defendants receive their right to a fair trial by an impartial jury. A short debiasing video that is successful in remedying this problem would be cost-effective to implement, and have a profound impact on the integrity of the criminal justice system.

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Exploring Association Between Subjective Well-Being and Ecological Footprint: Panel Data Analysis

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Key Words: Association, Subjective Well-being, Ecological Footprint, Sustainability.

Introduction

With anthropogenic factors on ecological system, by panel data analysis about environmental degradation indicator of Ecological Footprint (EF) and Subjective well-being (SWB) during 2006-2016 in international scale, this paper takes advantage of statistic techniques of EViews to explore Spatial-temporal association between SWB and EF.

Methodology

The statistical methods involve partial correlation, simple OLS, stepwise regression, unit root test and fixed effects panel regression. Those not only make up for the limitation of traditional method of taking questionnaires in one special country, but it also fills out a blank of research of SWB on environmental factors.

Research

Partial correlation analysis is used to describe association between SWB and environmental factors, which include bio-capacity, EF, buildup land footprints, carbon footprints, cropland footprints, fish-land footprints, forestland footprints, grazing-land footprints in the context of eliminating the effect of traditional control variables. Control variables consist of Health, Stability, jobs, voice, GDP, education and Urbanization. The result of partial correlation revealed two points. One is links between SWB and EF changes with different development level. Another is that disparity economic-level countries caused different degree environmental policy, which drives human's health from simple, tangible material needs to complicate, intangible spiritual pursuits.

Simple Ordinary Least Squares (OLS) method is to compare the linear impact of a set of dependent variables for happiness by the principle of least squares. The finding is that the relationship between SWB and related EF factors doesn't change with the control variables. Independent variables of TBC, ECROP, EGRAZING, EFOREST, EFISH, EBUILT and ECARBON are positively related to SWB except for TEF (negative impacts).

   In order to eliminate impacts of collinearity we conduct stepwise regression. The finding shows that the factors of BC, EBUILT and EGRAZING are significant to explain SWB and have positive effects on SWB; conversely, EFOREST, ECROP, EFISH, and TEF are not significant to explain SWB.

   To eliminate non-stability based time-series data and unreal regression models, we engaged in unit root tests to examine association between variables. We conducted a time- series fixed effects panel regression model and a cross-section fixed effects panel regression model. The finding is that the effect of the time-series fixed effects panel regression model is unremarkable, but the effect of the cross-section fixed effects panel regression model is remarkable.

Conclusion

This study not only contributes to environmental policy making and country's planning of enhancing gross national happiness, but it also creates new way of measuring Subjective Well-being.

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Design and Development of An Integrated Water System combining Rainwater Harvesting System (RWHS) and Atmospheric Water Generation (AWG)

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Introduction

With the growing population in the world, the need for fresh water for drinking and farming is crucial. As modern hydroponics consume 90% less water than conventional farming, it is preferred to use pure water for this purpose to have control over the pH level and to maximize nutrition absorption by the plants. The easiest way to obtain pure water within latest technology are rainwater harvesting and atmospheric water generation. Although rain is free of cost, but it is inconsistent, unpredictable and sometimes in-sufficient for many parts of the world. On the other hand, collecting water from the humid atmosphere comes with a generation cost which is not always technically and economically feasible even though the generated water is as pure as distilled water. In case of farming, apart from a great deal of energy consumption due to land preparation, irrigation, fertilizing and harvesting, 75% of the entire effort consists of expensive labor. Hence, this research intends to propose an innovative method to combine both systems (RWHS and AWG) together as one which can make the water system more consistent, economical, independent and automated.

Methodology

The approach of the work follows the systematic product development process where the system is divided into sub-systems such as collection and generation, storage and replenishment, filtration and preservation, delivery and recycle and smart automation. Possible improvements may consist of automatic refill tank, continuous flow with feedback system, sensor dependent operation, algae control strategy and complete automation. Then necessary design modification and improvement will be performed in order to combine and automate the system with the aid of design of experiments and simulation. After fabrication, Evergreen project site of Texas State University will be considered as a test bed as a practical implementation.

Research

Rainwater harvesting strategies and options are studied and installation system is under construction at Evergreen site.

Atmospheric water generation processes are studied, and commercial AWG is chosen for this work. Modification for an automated refill tank is under development.

Conclusion

Food and water are the basic need to our growing population which is being very difficult to fulfill day by day due to our change of lifestyle, scarcity of land and limited source of fresh water. This integrated system can play an active role to meet this demand in form of a source for hydroponic system. However, its application is not only limited to hydroponic farming, rather this system can work as independent

water source for household and industrial use being an effective alternative to big city-water-supply facility.