

IN THIS ISSUE

Influence of Political
Ideology

Political Ideology on
Perceptions

Motivational Factors of
Sports

Demonstrative and Exploratory
Classrooms



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IMAGE: ACROPOLIS OF ATHENS,
UNESCO WORLD HERITAGE

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Journal Content

In this Issue



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- i. Journal introduction and copyrights
- ii. Featured blogs and online content
- iii. Journal content
- iv. Curated Editorial Board Members

-
- 1. Influence of Political Ideology on Perceptions of Mask Wearing and Microaggressions. **1-11**
 - 2. Simulation Assisted Lessons and Students' Conceptual Understanding of Electricity Concepts in Both Demonstrative and Exploratory Classrooms. **13-22**
 - 3. A Clan of the Cholas. **23-37**
 - 4. History of Women in the Lohara Dynasty. **39-41**
 - 5. Motivational Factors of Sports Betting and the Preponderance of Problem Gambling Severity among University Students: A Pragmatic Evidence. **43-58**

-
- V. Great Britain Journals Press Membership

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Influence of Political Ideology on Perceptions of Mask Wearing and Microaggressions

Gracie Wilson, Jenny Mischel & Pooja Addala

Emory University

ABSTRACT

This exploratory study aimed to examine college students ($N = 237$) perceptions of mask-wearing related to political ideology and the potential for microaggressions to arise due to these perceptions. Data were collected using an online survey through Qualtrics. Analyses revealed that conservative-leaning participants reported significantly higher instances of aggression toward people not wearing masks ($M = 3.52$, $SD = 1.28$) than those leaning liberal ($M = 2.53$, $SD = 1.39$), $t(151) = 3.19$, $p < .001$. Interestingly, no significant mean difference was found between conservatives and liberals regarding micro-aggressions toward mask and mask-less behavior. Finally, those leaning liberal are statistically more likely to believe that the reason that people do not wear face masks is that they do not care about others ($M = 2.30$, $SD = 1.30$, $t(149) = 3.90$, $p < .001$). Conclusions for why political ideologies affect perceptions of maskwearing and potential microaggressions are provided.

Keywords: political ideology, polarization, identity development, microaggressions, mask-wearing.

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Influence of Political Ideology on Perceptions of Mask Wearing and Microaggressions

Gracie Wilson^α, Jenny Mischel^σ & Pooja Addala^ρ

ABSTRACT

This exploratory study aimed to examine college students ($N = 237$) perceptions of mask-wearing related to political ideology and the potential for microaggressions to arise due to these perceptions. Data were collected using an online survey through Qualtrics. Analyses revealed that conservative-leaning participants reported significantly higher instances of aggression toward people not wearing masks ($M = 3.52$, $SD = 1.28$) than those leaning liberal ($M = 2.53$, $SD = 1.39$), $t(151) = 3.19$, $p < .001$. Interestingly, no significant mean difference was found between conservatives and liberals regarding microaggressions toward mask and mask-less behavior. Finally, those leaning liberal are statistically more likely to believe that the reason that people do not wear face masks is that they do not care about others ($M = 2.30$, $SD = 1.30$, $t(149) = 3.90$, $p < .001$). Conclusions for why political ideologies affect perceptions of mask-wearing and potential microaggressions are provided.

Keywords: political ideology, polarization, identity development, microaggressions, mask-wearing.

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I. INTRODUCTION

In 2019, COVID-19 was first identified in Wuhan, China, and the first case of asymptomatic transmission was reported in Germany. The pandemic created a heightened sense of worry and safety behaviors. Following this, the Centers for Disease Control issued a recommendation that cloth masks be worn to combat spreading the disease and allow states to individually create mandates (Wang et al., 2020). Despite this, then President Trump called it the “Chinese virus,”

associating the coronavirus and China, fueling racist beliefs across social media, and influencing political and social perceptions (Xu & Liu, 2020). Additionally, the face mask and mandates became focal points of political polarization (Wang et al., 2020). We seek to investigate how and what perceptions people make about the usage of face masks during the COVID-19 pandemic and how this relates to the perception of political parties.

Political parties are among the most central elements of American politics, often taking up more space in mainstream media and dialogue than political figures themselves. The two-party system serves as the basis for political identification. Over the years, they have changed in composition, name, dynamic, demographic, purpose, and, most central to our research, in the degree of polarization. The liberal-conservative spectrum of conflict as well as the ideological divergence of parties has further polarized the binary of political parties in the United States and has led to increasing assumptions, microaggressions, and negative partisanship.

A political ideology is a collection of ideas, beliefs, values, and opinions that guides policy-making efforts to explain what transpires within a political community (Freedman, 2001). Dating back to the beginnings of American democracy, political influence and are influenced by groups of people arranged around common values. These groups, while made up of individuals, have become increasingly generalized as party opposition has grown. Political parties have centralized ideas of economic ideology and, more recently, cultural issues. The latter has seen even deeper division along party lines (Carmines et. al, 2016). Issues that center around the role of government in enforcing and maintaining behavior—moral, social, and economic—lie at the core of the party divide, and divisions within the parties

themselves. Though a two-party system generalizes the camps as having rigid ideological frameworks, parties are made of diverse individuals who are never in complete agreement, leading to the surge of subdivisions, coalitions, and third-party groups. Cultural issues surrounding race, religion, and gender, among others, have been integral factors in the rise of third-party coalitions and efforts of bipartisanship (Carmines et al, 2016).

1.1 Political Polarization

Polarization between political parties reached an antithesis in 2014 with those more politically engaged leaning farther left, or right, than center (Pew Research Center, 2014). This divide increased following the 2016 election and the presidency of Donald Trump (Pew Research Center, 2017). While not confined to contemporary politics, the Trump era propelled the rise of negative partisanship: voting primarily based on hostility toward the other party and its constituents (Abramowitz & McCoy, 2019). This suggests a binary not only rooted in ideological difference but in contention toward the other, as well as the people representing the other.

Disagreements of ideology have extended into contempt for the people comprising that party. Parts of the Republican party have driven right of center, leading many political scientists as well as the media to deem this a sort of ‘party of Trump’ within a fractured party. Rather than diversifying the GOP, Trump created a base within the Republican party, moving further in line with his political ideology (Galvin, 2020). Among the conservative voter base, Trump’s ideology was particularly attractive to more conservative constituents (Abramowitz & McCoy, 2019).

Further, Trump’s association with the coronavirus and China (calling it the “Chinese virus”) furthered racist beliefs across social media and influenced political and social perceptions (Xu and Liu, 2020). The platform of social and news media spread associations of the coronavirus and the country of China, generalized to much of Asia and the Pacific islands. These correlations and accusations spread across social media, further

delineating party lines on issues of racism and culture. This has proved increasingly harmful, as seen in the rise of hate crimes against Asian American and Pacific Islanders (Tessler et. al, 2020).

Recent literature in biological psychology suggests neural bases behind ingroup/outgroup tendencies, including unconscious responses toward political ideology, political language, and faces of political candidates; the ability to take another’s perspective lies among the greatest obstacles (Falk et al, 2012). This points to ideological and biological bases for the polarization that manifest into potential micro-aggressive behaviors toward the opposing party.

1.2 Micro-Oggressions

Broadly, there has been a shift from more apparent and obvious discrimination to hidden or more subtle forms such as microaggressions. Microaggressions are often categorized as both intentional and unintentional slight insults which potentially create hostility (Sue et al., 2010). Often, microaggressions are targeted toward marginalized communities such as the LGBTQ+ community, people of color, and women, which have the potential to create disparities in healthcare, employment, and education (Sue et al., 2007).

Microaggressions take place in a variety of forms including microassault, microinsults, and microinvalidation. Microassaults refer to both explicit verbal and nonverbal attacks towards another individual (Sue et al., 2007). Examples of microassaults include name-calling or using slurs privately and behavioral discrimination. Microinsults refer to smaller and insensitive insults, and the perpetrator may not understand its harm directly (Sue et al., 2007). Often, microinsults target one’s heritage or culture and may appear as questioning one’s successes based on a community, they are a part of. Microinvalidations refer to negating one’s thoughts or experiences because someone from a different group did not face the same experience (Sue et al., 2007). For instance, questioning whether someone received a job offer solely

because of their race would be considered microinvalidation.

As microaggressions are less direct forms of discrimination, perpetrators often do not recognize them as harmful. For instance, the White Americans Complex suggests that good, moral human beings cannot be racist, and thus their microaggressions are not hurtful (Sue et al., 2010). This complex thus causes other dilemmas when defining and preventing microaggressions including intentionality and bias. One such dilemma includes the perception of a microaggression as harmful may differ from different social groups. For instance, a comment which may seem unharmed to someone of one identity may be offensive to another group. Due to the discrepancy in how harmful a microaggression may seem, many are told to look past it despite its potentially detrimental effects.

As stated earlier, during the emergence of the COVID-19 pandemic, former President Trump heavily associated the coronavirus with its place of discovery in Wuhan, China, and used Racist rhetoric when describing the virus (Shang et al., 2021). For instance, he referred to COVID-19 as “The Chinese Virus,” and many others have commonly referred to it as “The Kung Flu.” As a result, Asian Americans have faced an increase in overt and subtle forms of discrimination. Thus far in the pandemic, Asian American healthcare workers reported facing an increase in microaggressions including patients asking for different doctors, patients questioning their health, or patients asking questions based on common stereotypes (Shang et al., 2021). A self-reflective essay presented by Choi (2020), provided further insight into the potential for microaggressions to arise when a particular ethnicity is threatened (Burson & Godfrey, 2018). This type of escalation was evidenced in the United States and throughout the world.

Mask Wearing, Polarization, and Microaggressions As the pandemic continues to affect daily living, the reasons for wearing a mask have increasingly become politicized both for and against, increasing polarization and the potential for micro-aggressive behavior to occur. Unlike

Asian countries in which mask-wearing is typical social etiquette when ill (Burgess & Horii, 2021), before COVID-19, wearing a mask was not a regular practice in the United States. In fact, at the onset, wearing a mask frightened people and contradictory messages from the CDC and the White House confused the issue further (Kemmelmair & Jami, 2021). Some felt guilty wearing a mask due to sparse supplies while others worried wearing a mask might further fuel negative stereotypes (Choi, 2018). As death tolls continued to climb and hospitalizations increased, Americans were encouraged to wear a mask to protect themselves, their loved ones, and those within their greater communities.

Liberals tend to view the pandemic as a public threat to health with wearing a mask indicative of social responsibility to oneself, others, and those who are tirelessly working in the healthcare fields. For example, a study by Bruine de Bruin, Shaw, and Goldman (2020), indicated that Democrats were almost twice as likely to wear a mask. When making a health-related decision, those who perceive a situation as riskier are more willing to implement protective factors and follow governmental protocols (Fischhoff, 2013).

Conversely, conservatives are questioning the experts in the medical field viewing mask-wearing as an overreach by the government (Kemmelmair & Jami, 2021). Although both parties tend to engage in conspiratorial thinking, concerning political ideology conservatives may take a more psychological perspective (van der Linden et al., 2021). For example, the study by Nowlan and Zane (2021) found that although conservatives tend to be more sensitive when faced with risk, it depends on the agency of that threat. If the potential threat is seen as minimal, then less action is necessitated. For example, after the initial onset of COVID, conservative commentators started to refer to COVID as a conspiracy leading constituents to devalue vaccines and mask-wearing (Romer & Jamieson, 2021).

Mask-wearing has evolved into a symbolic representation of political ideology and researchers have sought to understand the

underlying factors. Milad and Bogg (2021) suggest that the politicization of the pandemic was a contributing factor. Hart et al. (2020), indicate that the newspapers and news media outlets influenced perspectives on COVID regarding the need to wear masks with certain news channels discrediting this messaging. The dilemma arises when these conflicting viewpoints surface daily such as wearing a mask when in public places such as college campuses.

1.3 College-aged Students and Mask-Wearing

On many U.S. campuses, students were compelled and eventually mandated, to wear masks and receive the COVID vaccination. Therefore, many college-aged students who returned to in-person learning wore a mask and had been vaccinated especially at those universities leaning more liberal. Most willingly complied and even if slightly or vehemently opposed to such mandates, students complied as their education was their primary goal. Another interesting component is also adherence to group expectations (citation).

As college-aged student transition from adolescence into emerging adulthood, they are less influenced by parental political ideologies and more so by socialization and policy preferences (Niemi & Jennings, 1991).

Within the phase of life where they are more likely to change their views, politically. May be more inclined to be swayed by the political beliefs of those around them. Might not have a solid understanding of where they stand, or what they believe, politically. Can be a huge influence! A recent study investigated political ideologies on college campuses and found that although most leaned more toward liberal ideology but even those leaning more conservative, tended to express more liberal-leaning social ideologies (Bailey & Williams, 2016).

1.4 Purpose

We seek to investigate how and what perceptions people make about the usage of face masks during the COVID-19 pandemic and how this relates to the perception of political parties and the potential for micro-aggressive behavior among

college-aged students. This includes but is not limited to: making assumptive political identifications based on mask-wearing behavior, making ideological assumptions, generalizing behavior along political lines, and the relationship between moral and political values. We do so through a self-identified political affiliation, compared with perceptions individuals may have of others. We also seek to discover the moral and political values underlying the perception of a party, and how this relates to value judgments about mask-wearing. By gathering data about political perceptions, we seek to uncover any experienced or observed microaggressions in person or via social media. This allows for more investigation into the ways political polarization manifests itself in everyday life among college students and their respective social and familial circles, based in the southeastern United States.

This contributes to the growing literature on polarization, ingroup outgroup behavior, and particularly how the narratives of parties and their figures shape the actions of constituents.

III. METHODS

3.1 Participants

The present study included college-aged students (N = 237) from three universities within the southeastern United States. Participants included women (n = 192), men (n = 72), non-binary (n = 6), and those who preferred not to say (n = 2). The year in school included freshmen (n = 104), Sophomores (n = 100), Juniors (n = 36), and Seniors (n = 32). Ethnicity was also requested including White (43.01%), Black or African American (11.03%), American Indian or Alaska Native (.37%), Asian (34.56%), Native Hawaiian or Pacific Islander (.37%), and Other (10.66%).

Participants were also asked what their party affiliation was with those registered as Democrat (70.33%), Republican (9.89%), and Independent (19.78%). Finally, participants were also which political party they tended to lean more towards (Democrat: n = 251; Republican: n = 193).

Participants either participated voluntarily or were awarded extra credit in their psychology classes.

Table 1

Demographic Measures

Measures	Proportion
Gender	
<i>Woman</i>	.700
<i>Man</i>	.266
<i>Non-binary</i>	.025
Grade	
<i>Freshmen</i>	.363
<i>Sophomore</i>	.388
<i>Junior</i>	.127
<i>Senior</i>	.122
Ethnicity	
<i>White</i>	.435
<i>Asian</i>	.354
<i>Black or African American</i>	.093
<i>American Indigenous</i>	.004
<i>Native Hawaiian or Pacific Islander</i>	.004
<i>Other not listed</i>	.110

3.2 Instruments

Face Mask Perceptions Scale (Howard, 2020). A modified version of this original scale was used but did not include all original questions. This scale sought to understand personal perceptions of why people wear face masks. For example, one of the questions asked included, “Facemasks infringe upon freedom and independence.” A 5-pt. Likert-type scale was used with the first response being, “strongly agree,” and the last, “strongly disagree.”

Beliefs of US Consumers (Knotek et al., 2020). This scale consisted of a series of questions about perceptions of mask-wearing. The first three questions relied on binary responses of “yes,” and “no.” For example, participants were asked, “Where you live, is it required for most adults to wear a mask or face covering in public spaces, such as grocery stores?” The subsequent questions focused on feelings regarding wearing masks rated on a 5-pt. Likert-type scale with varying degrees of feeling comfortable. For example, participants were asked, “When at a store, do you feel more comfortable, less comfortable, or indifferent if other shoppers are wearing masks?” The final questions were related to perceptions of mask-wearing, also on a 5-pt. Likert-type scale rated on agreeability. For example, participants were asked, “Individuals who wear a face mask do

so because they are following governmental protocol?”

Using the definition of microaggressions from Sue et al. (2007), we asked questions regarding potential microaggressions and mask-wearing and perceptions of potential microaggressions due to mask-wearing on a 5-pt. Likert-type scale. An example question included, “Have you witnessed microaggressions towards people NOT wearing a mask?” Participants rated answers as, “Definitely yes,” to, “Definitely not.”

3.3 Procedure and Design

Before implementing the survey through Qualtrics, researchers sought and received approval from the Institutional Review Board (IRB). The survey was advertised through word of mouth, convenience sampling, and email announcements. Participants were asked to give consent before beginning the survey. The study sought to better understand college students’ perspectives of mask-wearing so the criteria was to currently be enrolled and attending a university.

Participants were recruited by word of mouth, convenience sampling, and email announcements. using a survey implemented on Qualtrics. The survey first asked demographic questions, followed by a series of self-report questions

relating to political ideology. Participants then rated a series of statements relating to their mask-wearing behaviors and beliefs and their experiences witnessing microaggressions toward mask-wearing behaviors. Following the survey, participants were given a debriefing to ensure they understood the confidentiality of the study and to ensure the contents of the study were not shared with other potential participants. The survey took approximately 10-15 minutes to complete.

IV. RESULTS

This causal-comparative exploratory study used simple t-test analyses in addition to studying correlations between variables. All questions were worded in such a way as to avoid bias, with certain items reverse-coded.

4.1 Political Party Registration and Political Ideology

Data analyses revealed there is a significant correlation between political party registration

and political ideology ($r(237) = .748, p < .001, r^2 = .560$).

4.2 Political Ideology and Face Mask Wearing

There was a significant mean difference between political ideology leaning on face mask wearing. Wearing face masks in public spaces was significantly greater in those leaning liberal ($M = .87, SD = .34$) than those leaning conservative ($M = .57, SD = .51, t(151) = -3.65, p < .001, 95\% CI [-.47, -.14]$). Those leaning liberal ($M = 4.85, SD = .52$) had higher beliefs in the effectiveness of masks in reducing the spread of coronavirus than those leaning conservative ($M = 3.87, SD = 1.36, t(151) = -6.10, p < .001, 95\% CI [-1.29, -.66]$). yet no significant mean difference in beliefs about social attention to wearing mask was found between the two.

Table 2

Political Party and Ideology	
Measure	Proportion
Political Party Registration	
Democrat	.494
Independent	.118
Republican	.068
Did not report	.321
Political Ideology Leaning	
Leaning Liberal	.549
Leaning Conservative	.097
Did not report	.354

4.3 Microaggressions and Mask Wearing

There was a significant mean difference in beliefs about microaggressions and attitudes against those not wearing masks and attitudes towards others among conservative and liberal-leaning individuals: those leaning conservative ($M = 3.52, SD = 1.28$) reported higher beliefs about microaggressions toward not wearing a mask than those leaning liberal ($M = 2.53, SD = 1.39, t(151) = 3.19, p < .001, 95\% CI [.38, 1.60]$).

Those leaning liberal ($M = 3.41, SD = 1.24$) are statistically more likely to believe that people do not wear face masks because they do not care about others than those leaning conservative ($M = 2.30, SD = 1.30, t(149) = -3.90, p < .001, 95\% CI [-1.66, -.54]$). Finally, those leaning more conservative ($M = 3.09, SD = 1.411$) are statistically more likely to believe that wearing a mask infringes on freedom and independence than those leaning liberal ($M = 1.55, SD = .916, t(151) = 6.789, p < .001, 95\% CI [1.09, 1.99]$).

Table 3

Political Party and Perceptions of Mask Wearing

Variables	<i>Leaning Democrat</i>		<i>Leaning Republican</i>		<i>t</i>	<i>p</i>	<i>Confidence Intervals</i>	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			<i>LL</i>	<i>UL</i>
Wearing a Mask	.87	.34	.57	.51	-3.65	<i>p</i> < .001	-.47	-.14
Effectiveness of Masks	4.85	.52	3.87	1.36	-6.10	<i>p</i> < .001	-1.29	-.66
Aggressive Behavior: No Mask	2.53	1.39	3.52	1.28	3.19	<i>p</i> < .001	.38	1.60
Caring with Mask Wearing	3.41	1.24	2.30	1.30	-3.90	<i>p</i> < .001	-1.66	-.54
Freedom and Independence	1.55	.92	3.09	1.41	6.79	<i>p</i> < .001	1.09	1.99

V. DISCUSSION

This study sought to better understand how political ideology influences perceptions of mask-wearing. Analysis indicated that those individuals who lean more liberal are more prone to wearing a mask, believe in the effectiveness of mask-wearing to reduce the spread of the virus, and that mask-wearing shows you care. There was also a significant difference in how each political ideology viewed microaggressions. Given the current divisive political climate, findings help us better understand the differences in mask-wearing perceptions which could lead to potential difficulties or micro-aggressive behavior specific to college-aged students.

The research indicated that those leaning more liberal tended to have a more proactive view with regard to mask-wearing. Liu (2021) and Timpka et al. (2021) state this may be due to the liberal ideology that individuals have a social responsibility to adhere to government guidelines (e.g., mask-wearing) to protect the greater community. This is more in alignment with a collectivist type of perception. Although Kim et al. (2016) studied the increase in perceived vulnerability due to higher collectivism with Ebola and xenophobia, results may also be indicative of behaviors with regard to the latest pandemic.

The notion of competence may also factor into the desire to wear a face mask. For example, Bellezza et al. (2014) found that those who tended to wear face masks were perceived as having greater competence than those who chose not to. This relates to the idea that those who wear face masks, specifically during the time of COVID-19, are seen as being responsible and caring of others (Vazquez et al., 2020). This is further validated when those in authority, or those deemed as

influencers, display such behaviors as mask wearing. This is potentially one reason for the declining poll numbers of former President Trump after he refuses to wear a mask. He was potentially seen as less competent. Those that adhere to these higher moral standards to protect the greater community are therefore perceived as being more competent citizens.

Conversely, individuals who tend to have a lower level of trust or need to follow those in authority or are influencers, tend to perceive that the government is not trustworthy and therefore less likely to practice social distancing rules (Xiao, 2021). This may be due to a more individualistic perception which tends to limit adherence to social-distancing practices (Biddlestone et al., 2020) even if better for the greater community.

This perception could also stem from the flip-flopping information provided by the CDC. At first, they minimized mask-wearing due to the effectiveness being inconclusive. In addition, due to the hoarding of masks and price gouging, the CDC stressed the need to save masks for healthcare workers and promoted the voluntary use of cloth masks or face coverings (Batova, 2021). Additionally, disagreements among doctors, scientists, and political authority figures caused those individuals leaning more conservative to question the gravity of COVID-19 and view it as similar to the flu virus, reducing the adherence to mask-wearing (Rothwell & Desai, 2020). Furthermore, more conservative-leaning news and social media outlets depicted the act of mask-wearing to suggest the government now owns you (Young et al., 2022).

Batova (2021) suggests that this may have led to psychological reactance meaning, a threat to behavioral freedom (Brehm, 1989), or one's

freedom of choice. In addition to political figures touting such threats, this might also explain why those leaning more conservative reported mask-wearing to be an infringement on their freedom and civil liberties. Research indicates those with higher psychological reactance, will resist restrictions more so than those with lower psychological reactance (i.e., those leaning more liberal) (Taylor & Asmundson, 2022). This can also, potentially, lead to microaggressions when feeling threatened. This may explain why those leaning more conservative reported higher levels of potential microaggressions concerning mask-wearing.

While there is no direct evidence to support the underlying cause of these findings, it is useful to think about college students' understanding of the political influence on public health concerns through the lens of groupthink in the context of a college environment. Precursors for such an occurrence on a college campus can include groups working cohesively, group isolation, directive leadership, high stress, and poor decision-making procedures (Esser, 1998; Park, 1990). Some of the symptoms include the illusion of invulnerability, unquestioned belief in the group's morality, rationalization, stereotyping view of the opponent, conformity to pressure, self-censorship, the illusion of unanimity, and mind guards (Richardson, 1994). This potential is especially likely to occur when students establish highly cohesive groups in which members all align with the group's perspective foregoing any independent critical thinking to maintain solidarity (Janis, 1973).

In looking at the beliefs and perceptions about the COVID-19 pandemic amongst college students, it is critical to consider the context in which the study takes place and the pressures of a college environment that these participants may face. Most college students are between the ages of 18-24, a developmental stage where they are most likely to begin to construct their own social, political, and personal values striving for shared meaning (Lewis et al., 2005). Coupled with the diversity of ideas, people, and perspectives one is exposed to in a college system, college students are exposed to ideas that differ from parental

influences (Meyers et al., 2019). This poses challenges and insights to any student but is especially complicated with the public health crisis of the COVID-19 pandemic. Groupthink essentially refers to the tendency to agree with the majority opinion or ideology of the group one finds themselves in. Questions to consider with the mode of groupthink on college campuses include how students' face mask behaviors are affected by the majority actions of those around them. Future research into public safety behaviors including but not limited to the context of the COVID-19 pandemic should consider the effects of groupthink and related social conforming on how the American student population navigates the intersections of personal, political, and public health.

As we've demonstrated, the pandemic has punctured political, social, educational, economic, and personal spaces and has challenged, or perhaps made clearer, many people's perspectives. Safety behaviors, social distancing, and face mask usage have transcended from merely a public health issue to an issue of political rights and personal freedom.

VI. LIMITATIONS AND FUTURE DIRECTIONS

The purpose of this study was to gain a better understanding of a college student's perceptions of mask-wearing, the relationship between mask-wearing and political ideology, and the prevalence of microaggressions related to mask-wearing. While this present study begins to address these issues, there were several limitations of this study which should be further evaluated in future studies. The first limitation would be the insufficient sample size. The majority of students who took this survey were psychology undergraduates, likely at the request of their psychology professor. This sample size does not accurately describe the whole college population with varying degree programs and majors which may influence political ideology, so future studies should aim to have a more comprehensive sample. Additionally, due to the novelty of the pandemic, and the changing CDC recommendations, the subject's opinions may

likely have changed based on those recommendations. A longitudinal study looking at the changing perceptions of mask-wearing could be a potential future step to deflect biases and changing opinions. Additionally, a new instrument reflecting the changes in the COVID-19 pandemic should be developed to reign more accurate results. If, as the present study suggests, there is political influence on mask-wearing, a public health initiative, then there is a need for future research on other public health crises including vaccinations, gun violence, and the politicization of science. Influence of Political Ideology on Perceptions of Mask Wearing .

REFERENCES

1. Bailey, M., & Williams, L.R. (2016). Are college students really liberal? An exploration of student political ideology and attitudes toward policies impacting minorities, *The Social Science Journal*, 53 (3), 309-317. doi: 10.1016/j.soscij.2016.04.002
2. Batova, T. (2021). To wear or not to wear: A commentary on mistrust in public comments to CDC tweets about mask-wearing during COVID 19. *International Journal of Business Communication*, 59 (2), 287-308.
3. Bellezza, S., Gino, F., & Keinan, A. (2014). The red sneakers effect: Inferring status and competence from signals of nonconformity. *Journal of Consumer Research*, 41 (1), 35-54. <https://doi.org/10.1086/674870>.
4. Biddlestone, M., Green, R., & Douglas, K. M. (2020). Cultural orientation, power, belief in conspiracy theories, and intentions to reduce the spread of COVID-19. *British Journal of Social Psychology*, 59, 663-673. doi: 10.1111/bjso.12397.
5. Brehm, S. S., & Brehm, J. W. (1989). *Psychological reactance: A theory of freedom and control*. Academic Press, 16, 72-75.
6. Bruine de Bruin, W., Saw, HW. & Goldman, D.P. (2020). Political polarization in US residents' COVID-19 risk perceptions, policy preferences, and protective behaviors. *Journal of Risk and Uncertainty*, 61, 177-194. <https://doi.org/10.1007/s11166-020-09336-3>.
7. Burson E and Godfrey EB (2018). The state of the union: Contemporary interminority attitudes in the United States. *Basic and Applied Social Psychology* 40(6): 396-413. <https://doi.org/10.1080/01973533.2018.1520106> doi: 10.1093/abm/kaab039.
8. Esser, J. K. (1998). Alive and well after 25 years: A review of groupthink research. *Organizational Behavior and Human Decision Processes*, 73 (2-3), 116-141.
9. Fischhoff, B. (2013). Risk perception and communication. In B. Fischhoff (Ed.), *Risk analysis and human behavior* (pp. 17-46). Routledge.
10. Freedman, M. (Ed.). (2001). *Reassessing political ideologies*. Taylor & Francis.
11. Hart, P. S., Chinn, S., & Soroka, S. (2020). Politicization and polarization in COVID-19 news coverage. *Science Communication*, 42 (5), 679-697. doi:10.1177/1075547020950735.
12. Howard, M. C. (2020). Understanding face mask use to prevent coronavirus and other illnesses: Development of a multidimensional face mask perceptions scale. *British Journal of Health Psychology*, 25 (4), 912-924. doi:10.1111/bjhp.12453.
13. Janis, I. L. (1973). Groupthink and group dynamics: A social psychological analysis of defective policy decisions. *Policy Studies Journal*, 2 (1), 19-25.
14. Kemmelmeier, M., & Jami, W. A. (2021). Mask wearing as cultural behavior: An investigation across 45 U.S. states during the COVID-19 pandemic. *Frontiers in Psychology*, 12, 648692. <https://doi.org/10.3389/fpsyg.2021.648692>.
15. Kim, H. S., Sherman, D. K., & Updegraff, J. A. (2016). Fear of Ebola: The influence of collectivism on xenophobic threat responses. *Psychological Science*, 27, 935- 944. doi: 10.1177/0956797616642596.
16. Knotek II, E., Schoenle, R., Dietrich, A., Müller, G., Myrseth, K. O. R., & Weber, M. (2020). Consumers and COVID-19: Survey results on mask-wearing behaviors and beliefs. *Economic Commentary*, 1-7. doi: 10.26509/frbc-ec-202020 .
17. Lewis, P., Forsythe, G. B., Sweeney, P., Bartone, P. T., & Bullis, C. (2005). Identity development during the college years: Findings from the West Point longitudinal

- study. *Journal of College Student Development*, 46 (4), 357-373. doi:10.1353/csd. 2005. 0037.
18. Liu, P. L. (2021). COVID-19 information on social media and preventive behaviors: managing the pandemic through personal responsibility. *Social Science & Medicine*, 113928. doi: 10.1016/j.socscimed.2021.113928
19. Meyer, M. C., Chesser, S., Swanson, S. B., & Forbes, S. (2019). Political attitudes of the young electorate in the 2016 presidential election and parental influences on political identity formation. *Modern Psychological Studies*, 25(1), 1-21.
20. Milad, E., & Bogg, T. (2021). Spring 2020 COVID-19 surge: Prospective relations between demographic factors, personality traits, social cognitions and guideline adherence, mask wearing, and symptoms in a US sample. *Annals of Behavioral Medicine*, 55 (7), 665-676.
21. Niemi, R. G., & Jennings, M. K. (1991). Issues and inheritance in the formation of party identification. *American Journal of Political Science*, 970-988. <https://www.jstor.org/stable/2111502>.
22. Nowlan, L., & Zane, D. M. (2022). Getting conservatives and liberals to agree on the COVID-19 threat. *Journal of the Association for Consumer Research*, 7(1), 72-80. <https://doi.org/10.1086/711838>.
23. Park, W. W. (1990). A review of research on groupthink. *Journal of Behavioral Decision Making*, 3 (4), 229-245. <https://doi.org/10.1002/bdm.3960030402>.
24. Pew Research Center (2014, June 12). Political polarization in the American public: How increasing ideological uniformity and partisan antipathy affect politics, compromise and everyday life. Retrieved from: <https://www.pewresearch.org/politics/2014/06/12/political-polarization-in-the-american-public/>.
25. Pew Research Center (2017, October 5). The partisan divide on political values grows even wider: Sharp shifts among Democrats on aid to needy, race, immigration. Retrieved from: <https://www.pewresearch.org/politics/2017/10/05/the-partisan-divide-on-political-values-grows-even-wider/>
26. Richardson, N. (1994). The effects of conformity predisposition and leader behavior on the production of groupthink and the quality of a group's decision (Doctoral dissertation, Lamar University-Beaumont).
27. Romer, D., & Jamieson, K. H. (2021). Conspiratorial thinking, selective exposure to conservative media, and response to COVID-19 in the US. *Social Science & Medicine*, 291, 1-11. <https://doi.org/10.1016/j.socscimed.2021.114480>.
28. Rothwell, J., Desai, S. (2020). How Misinformation Is distorting Covid policies and behaviors. Brookings Institution Report.
29. Shang, Z., Kim, J. Y., & Cheng, S. O. (2021). Discrimination experienced by Asian Canadian and Asian American health care workers during the COVID-19 pandemic: a qualitative study. *Canadian Medical Association Open Access Journal*, 9 (4), E998-E1004. doi:10.9778/cmajo.20210090.
30. Sue, D. W., Capodilupo, C. M., Torino, G. C., Bucceri, J. M., Holder, A., Nadal, K. L., & Esquilin, M. (2007). Racial microaggressions in everyday life: Implications for clinical practice. *American Psychologist*, 62 (4), 271-284. doi: 10.1037/0003-066X.62.4.27
31. Taylor, S., Asmundson, G.J.G. (2021). Negative attitudes about facemasks during the COVID-19 pandemic: The dual importance of perceived ineffectiveness and psychological reactance. *PLOS ONE* 16(2): e0246317. <https://doi.org/10.1371/journal.pone.0246317>
32. Timpka, T., & Nyce, J. M. (2021). Face mask use during the COVID-19 pandemic—the significance of culture and the symbolic meaning of behavior. *Annals of Epidemiology*, 59, 1-4.
33. Van der Linden, S., Panagopoulos, C., Azevedo, F., & Jost, J. T. (2021). The paranoid style in American politics revisited: An ideological asymmetry in conspiratorial thinking. *Political Psychology*, 42 (1), 23-51. doi: 10.1111/pops.12681.
34. Vazquez, M., Bash, D., & Collins, K. (2020, July 20). Trump tweets image of himself wearing a mask and calls it 'patriotic'. CNN. <https://edition.cnn.com/2020/07/20/politics/donald-trump-mask-tweet/index.htm> .

35. Wang, J., Pan, L., Tang, S., Ji, J. S., & Shi, X. (2020). Mask use during COVID-19: A risk adjusted strategy. *Environmental Pollution*, 115099. <https://doi.org/10.1016/j.envpol.2020.115099>.
36. Xiao, W. S. (2021). The role of collectivism–individualism in attitudes toward compliance and psychological responses during the covid-19 pandemic. *Frontiers in Psychology*, 1-11. <https://doi.org/10.3389/fpsyg.2021.600826>.
37. Xu, C., & Liu, M. Y. (2020). Social cost with no political gain: The" Chinese Virus" effect. (under review), 1-26.
38. Young, D.G., Rasheed, H., Bleakley, A., Langbaum, J.B. (2022). The politics of mask-wearing: Political preferences, reactance, and conflict aversion during COVID. *Social Science & Medicine*, 298, 114836. doi: 10.1016/j.socscimed.2022.114836.

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ABSTRACT

The study explored the effects of the interactive Physics Education Technology (PhET) simulation on conceptual understanding of Senior High School students on electricity concepts. The study employed the pre-test post-test non-equivalent control group design. A sample size of sixty-three (63) students from two schools participated in this study. The experimental group (School A) consisted of 32 students, and the control group (School B) consisted of 31 students. Intact classes were used. The electricity concept achievement test (ECAT) was the instrument used for data collection. It was revealed from the study that there was an improvement in conceptual understanding of students on “knowledge and understanding” and “application of knowledge” on electricity concepts taught with the PhET simulation in both a demonstrative classroom and an exploratory classroom (computer laboratory).

Keywords: demonstrative classroom, exploratory classroom, simulation assisted lessons, electricity, conceptual understanding.

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Simulation Assisted Lessons and Students' Conceptual Understanding of Electricity Concepts in both Demonstrative and Exploratory Classrooms

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ABSTRACT

The study explored the effects of the interactive Physics Education Technology (PhET) simulation on conceptual understanding of Senior High School students on electricity concepts. The study employed the pre-test post-test non-equivalent control group design. A sample size of sixty-three (63) students from two schools participated in this study. The experimental group (School A) consisted of 32 students, and the control group (School B) consisted of 31 students. Intact classes were used. The electricity concept achievement test (ECAT) was the instrument used for data collection. It was revealed from the study that there was an improvement in conceptual understanding of students on “knowledge and understanding” and “application of knowledge” on electricity concepts taught with the PhET simulation in both a demonstrative classroom and an exploratory classroom (computer laboratory). However, no significant difference was observed in students’ conceptual understanding for students who were taught electricity concepts in a demonstrative classroom and those who were taught in an exploratory computer laboratory. It is therefore recommended that the PhET simulation should be used in teaching electricity concepts in physics either in a demonstrative classroom or in an exploratory classroom.

Keywords: demonstrative classroom, exploratory classroom, simulation assisted lessons, electricity, conceptual understanding.

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I. INTRODUCTION

Physics deals with the fundamental mechanisms underlying every phenomenon of the interactions of energy, matter, space and time (Urone & Henrichs, 2020, p. 7) and these phenomena forms the vital components of modern technology whose contributions have led to the development of products geared towards transforming modern day society (Cudjoe & Afram, 2018). Physics is therefore of great importance to development and hence, a keen interest must be taken in its teaching to enhance maximum understanding of concepts by learners which in turn will enable the “Ghanaian society function effectively in a scientific and technological era where many utilities require basic physics knowledge, skills and appropriate attitudes for operation” (MoE, 2010; p. ii).

However, these technological advancements have also influenced the teaching strategies as well as instructional resources employed by teachers in this computer age era (Voogt, 2003). Therefore, current teaching strategies and instructional resources must ensure active learner participation placing the teacher as a facilitator, making physics learning more practical and action-oriented as well as providing learner- friendly environment in order to enhance students' learning of concepts (Antwi & Sakyi-Hagan, 2015; Wieman, et. al., 2010; Mc Farlane, 2013). One of the instructional resources used in this computer age to maximise students' learning of physics concepts is the application of computer-based media (Gunawan, et. al., 2018) such as computer simulations (Agyei, Jita & Jita, 2019; Zacharia, 2007).

In the simulation environment, students visualise, study, replicate, and obtain rapid prompts regarding what is being studied, events, and complex phenomenon that requires a lot of time and is hazardous to take place in the classroom (Bell & Smetana, 2008). Simulation assisted lessons emphasise the constructivist ideology of teaching and learning since learners have the opportunity to come out with their own knowledge and are able to attach meaning to information provided (Strayer, 2016; Rehman et. al., 2021) and improves learners' physics understanding (Rehman et al., 2021; Zacharia, 2007).

Notwithstanding, the West African Examination Council (WAEC) examiners have expressed dissatisfaction towards students' performance in physics in external examinations in Ghana. A careful analysis of the WAEC chief examiners report on physics from 2015 to 2021 has indicated incorrect explanation of scientific phenomena, lack of understanding or comprehension and application of knowledge in some theories in physics (WAEC, 2015; 2016; 2017; 2018; 2019; 2020; 2021) as the probable reasons that account for the low achievement of learners in the subject.

In addition to causes of students' poor performance highlighted by the chief examiner, research has also shown that factors that also account for students' poor performance in the

subject include but not limited to perceived difficulty of the subject (Agyei & Agyei, 2021; Patel, 2018), teaching methods employed by teachers (Buabeng, Ampiah & Quarcoo-Nelson, 2012; Azure, 2015; Mekonnen, 2014), availability and adequacy of instructional materials (Fatoki, Iornyagh, & Ocheikwu, 2021), lack of understanding and application of mathematical skills in solving physics problem (Tuminaro & Redish, 2004; Semela, 2010); lack of reference materials, laboratory equipment, and interest in the subject (Mekonnen, 2014). It can therefore be inferred that the low achievement rate observed in physics as indicated by the chief examiner could also be from the outcome of previous literature.

The concepts in the physics curriculum where students' weaknesses were highlighted by the chief examiner include but not limited to projectile motion (WAEC, 2015), electronics (WAEC, 2015; 2016; 2017), sound (WAEC, 2020), optics (WAEC, 2017), heat (WAEC, 2018; 2020) as well as electricity (WAEC, 2015; 2017; 2018; 2019; 2020; 2021). From the analysis of the chief examiners' report, students' weaknesses in the area of electricity are almost highlighted every year.

The positive effects of PhET simulation make it a useful instructional resource that could be applicable for physics teaching and also offer support for students' learning. The problems identified by the chief examiner as the causes of students' poor performance in physics (electricity concepts) could be prevalent in almost every Senior High School that takes part in the examination in Ghana of which Senior High Schools in the South District of the Volta region are not excluded. For this reason, the study focused on exploring the influence of the interactive PhET simulation on students' conceptual understanding using Senior High Schools in the South Dayi district in the Volta region of Ghana. Specifically, the study was guided by the research question: What is the influence of simulation assisted lessons on students' conceptual understanding of electricity concepts taught in a demonstrative classroom and in an exploratory classroom (computer laboratory)?

II. LITERATURE REVIEW

Conceptual understanding according to McDermott as cited by Banda and Nzabahimana (2021) can be defined as a “functional understanding or the logical capacity to apply knowledge in contexts or situations other than those in which it was generated or acquired”. Conceptual understanding can be thought of as the capacity of a learner to apply ideas, explanations, connections, or representations in situations or settings that call for critical consideration (Banda & Nzabahimana, 2021). Banda and Nzabahimana (2021) further opined that conceptual understanding necessitates learners to combine information and knowledge acquired from established schemas and apply them in novel contexts. This implies that to develop a learner’s conceptual understanding, then the learner must be able to link classroom experiences to real life situations. With improvement in a learner’s conceptual understanding, the learner can see the application of physics concepts in daily life (Harrison & Gibbons, 2013).

In addition, physics instructors are expected to apply a variety of teaching methodologies to guarantee that students acquire conceptual knowledge and competence in science learning (Mbonyiriyivu et al., 2019). Teachers should incorporate active learning strategies into the classroom in order to prepare students for the demands and expectations of the 21st century needs by way of establishing platforms which enhances the development of conceptual knowledge (Banda & Nzabahimana, 2021). This requires the 21st century teachers to be innovative and creative in their teaching methods with various technological tools that will enhance students’ learning. Technological tools such as interactive simulations (Bo et al., 2018) among others could facilitate students’ learning of abstract physics concepts (Osborne & Hennessy, 2003).

Numerous physics simulations are available for purchase or free online. Among the available interactive simulations, PhET happens to be the one that is widely used (Zhang, 2014) since this

simulation can be used in online and offline mode (Salame & Makki, 2021). According to Perkins, Moore and Chasteen as cited by Banda and Nzabahimana (2021), the PhET interactive simulations offers flexibility to usage, easily accessible and designed to meet a variety of learning goals due to the engaging and authentic platform it creates. This makes the PhET interactive simulation an instructional resource capable of enhancing students’ learning of physics concepts and thus improve their conceptual understanding.

The enormous impact of the PhET interactive simulation on students’ conceptual understanding and performance has been explored by several studies. Agyei and Agyei (2021) examined how using the PhET simulation improved pre-service university students’ understanding of physics concepts. Since students enjoyed using the interactive simulation, evidence from the study showed improvement in students’ understanding. The researchers recommended that the improved and enhanced learning could be brought about when learning activities with the interactive PhET simulation for content specific areas are done in an exploratory or in a demonstrative manner. In another study, the PhET was used as an instructional resource to teach “ohm’s law” to ascertain how it will impact the performance of students on “ohm’s law” (Ouahi et al., 2021). The study’s findings demonstrated that individuals who were taught “ohm’s law” concepts with the PhET simulation had a better performance on the post-test items. The study by Rehman et al. (2021) looked into how students’ conceptual comprehension of physics concepts changed when high school physics was taught through interactive simulation. It was evident from their findings that significant gains in students’ conceptual understanding with a very high effect size was observed. Interview data from students also showed that the lesson taught with the PhET interactive simulation was interesting. The researchers recommended the application of PhET to facilitate physics instruction as it has the potential to reduce rote memorization of concepts by students.

Again, Prima et. al., (2018) explored how the use of the PhET simulation will enhance learner's understanding and motivate the learners to learn solar system concepts. The results of the study showed that students taught solar system concepts with simulation as a teaching media had better gains in conceptual understanding and motivation than their counterparts who were taught same concepts without the simulation. It was also revealed by the study that the use of the PhET simulation in teaching solar system concepts influenced students' conceptual understanding on "application of knowledge" more than "knowledge and understanding". All these literatures have highlighted the PhET interactive simulation as an instructional resource that can be used to enhance students' conceptual understanding of physics concepts.

III. RESEARCH METHODOLOGY

3.1 Research Design

The study employed the pre-test post-test non-equivalent quasi-experimental design. The quasi-experimental design is used when randomization of participants cannot be done by the researcher (Cohen, Manion & Morrison, 2018). In the present study, the categorisation of participants into control group and experimental group were not done by random assignment. Instead, intact classes were used.

3.2 Participants for the Study

The participants were sixty-three (63) first year students from two intact Physics classes from Senior High Schools in the South Dayi District in the Volta region of Ghana. The two schools were coded School A and School B respectively. Thirty-two (32) students were from School A and thirty-one (31) from School B. Students in School A were taught electricity concepts with the PhET simulation in a demonstrative classroom while students in School B were taught the same electricity concepts using the PhET simulation in an exploratory classroom. In the demonstrative classroom, the teacher projected the PhET simulation lesson to guide students' learning of the concepts taught, through demonstration and explanation of the concepts. This was because

School A lacked computer laboratory facilities. In the exploratory classroom, students explored the PhET simulation themselves during and after regular class lessons to guide their learning of the concepts that were taught, with the assistance of the teacher.

3.3 Data Collection Instrument and Procedure

Electricity Concept Achievement Test (ECAT) was the instrument used for collecting data. Research shows that conceptual understanding test is widely used in physics (Gunawan et al., 2018) to measure students' learning outcomes (Rehman et al., 2021). The researcher developed the Electricity Concept Achievement Test (ECAT) based on the objectives stipulated for electricity in the 2010 physics syllabus for Senior High Schools in Ghana. The Electricity Concept Achievement Test (ECAT) consisted of twenty questions in all, including both objective and subjective questions measuring "Knowledge and Understanding (KU) and Application of Knowledge (AK)" of the profile dimension in the 2010 physics syllabus for Senior High Schools in Ghana. Eight questions measured knowledge and understanding dimension, while twelve questions measured application of knowledge dimension. Part I of the test was made up of fifteen multiple choice test items where participants were asked to choose a response from a list of plausible answers and Part II was made up of five open-ended test items where participants were to provide their own answers.

Both the multiple choice and open-ended test items were essentially intended to test participants' knowledge, understanding and application of knowledge in electricity concepts.

The test was given to students as pre-test before the intervention and as post-test after the intervention. According to Creswell and Creswell (2018), same test items could be used as pre-test and post-test since changing test items could influence the outcome of the scores. For this reason, same test items were used for both the pre-test and post-test. However, Creswell and Creswell emphasised that to avoid participants from becoming familiar with the test items, the researcher must ensure that there is a longer time

interval between the administration of the test items. To avoid participants from becoming familiar with the test items, the post-test was administered four weeks after administering the pre-test.

The reliability of the test instruments was determined using the test-retest reliability procedure. Using this approach, the researchers administered the Electricity Concept Achievement test (ECAT) to a whole class with thirty students in a school in the district which did not participate in the study and after two weeks re-administered the Electricity Concept Achievement test (ECAT) to the class again. Pearson correlation coefficient (r) was used to score and correlate participants' responses for both Electricity Concept Achievement Tests (ECAT) and the value was found to be 0.82 which shows the test items were reliable (Cohen, 1988).

IV. DATA ANALYSIS

Data was analysed using both descriptive and inferential statistics. Descriptive statistics such as means and standard deviations were employed. Also, inferential statistics, such as independent samples t-test and paired samples t-test were performed to ascertain any significant difference in the scores of the School A and School B at 5% significance level. The effect size (eta squared) was also calculated to ascertain the extent to which the use of the interactive PhET simulation influenced students' conceptual understanding on electricity concepts. According to Cohen (1988), eta squared value of 0.01 shows a small effect, 0.06 shows a moderate effect and 0.14 shows a large effect.

V. RESULTS

An independent sample t-test at a confidence level of 95% was used to test the level of significant difference between the pre-test scores of Schools A and B. The results were presented in Table 1.

Table 1: Independent Sample t-test for Pre-Test Scores of Schools A and B

School	<i>N</i>	<i>M</i>	<i>SD</i>	<i>df</i>	<i>t</i>	<i>p</i>
School A	32	5.75	2.57	61	0.424	0.673
School B	31	6.00	2.06			

There was no significant difference between the mean scores of School B ($M = 6.00$, $S.D. = 2.06$) and School A ($M = 5.75$, $S.D. = 2.57$); $t(61) = 0.424$, $p = 0.673$. This implies that both schools were characteristically similar in their conceptual understanding on electricity concepts before the intervention.

To find out the impact of the PhET interactive simulation in a demonstrative classroom and in

an exploratory classroom on students conceptual understanding of electricity concepts, means, standard deviations, paired sample t-test, as well as independent sample t-test were performed. Descriptive statistics of the pre-test and post-test analysis of the scores of Schools A and B are presented in Table 2, while the results of the analysis of the scores of the t-test are presented in Table 3.

Table 2: Mean scores difference between Schools A and B on the ECAT Pre-Test and Post-Test

School	<i>N</i>	ECAT	<i>M</i>	<i>SD</i>
School A	32	Pre-Test	5.75	2.57
		Post-Test	24.37	5.06
School B	31	Pre-Test	6.00	2.06
		Post-Test	25.54	5.01

Generally, it was evident that, there was a huge improvement in students' conceptual under-

standing on electricity concepts after they were taught the concepts with the PhET interactive

simulation in the demonstrative classroom and in an exploratory classroom, as shown in Table 2. It was also observed that School B performed better than School A as evidenced by the difference in mean scores on the post-test in Table 2.

A paired sample t-test at a 95% confidence level of the pre-test and the post-test scores of students in Schools A and B showed that there was a significant difference between pre-test and the post-test scores of students in Schools A and B as shown in Table 3. Statistically, there was a significant difference between the mean scores on the pre-test and post-test scores. The p-value of 0.000 which was less than 0.05 showed there was a significant difference in students' conceptual understanding on electricity concepts. The effect size of 0.958 for School A showed that there was a

large variation between the pre-test and the post-test scores. The eta squared value obtained, meant that about 95.8% of the difference in the post-test scores could be accounted for by the use of the PhET simulation in a demonstrative classroom.

Again, it was observed that statistically there was also a significant difference between the mean scores on the pre-test and the post-test for students in School B who had the lesson in an exploratory classroom. The effect size of 0.973 showed a large variation between the two scores and this suggested that the significant difference observed in students' conceptual understanding could be attributed to the use of the PhET interactive simulation used in the exploratory classroom lesson delivery.

Table 3: Paired sample t-test of students in School A and B on the ECAT Pre-test and Post-test

School	N		M	SD	p	η2
School A	32	Pre-test	5.75	2.57	0.000	0.958
		Post-test	24.37	5.06		
School B	31	Pre-test	6.00	2.06	0.000	0.973
		Post-test	25.54	5.01		

An independent sample t-test at a 95% confidence, as shown in Table 4, a p-value = 0.359 > 0.05, meant that there was no statistically

significant difference between the mean scores on the post-test scores for students in Schools A and School B.

Table 4: Independent Sample t-test for Post-Test Scores of Schools A and B

School	N	M	SD	P
School A	32	24.37	5.06	0.359
School B	31	25.54	5.01	

This implied that the PhET exploratory and demonstrative classroom simulations both similarly influenced students' conceptual understanding on electricity concepts.

For the individual profile dimensions of "knowledge and understanding (KU)" and "application of knowledge (AK)", a paired sample t-test at a confidence level of 95%, as shown in Table 5, revealed that statistically, there was significant difference in students conceptual understanding on KU and AK, at Schools A and B.

The eta square values of 0.931 and 0.957 respectively for Schools A and B, showed that the use of the PhET simulation in an exploratory classroom influenced concepts of KU more than in a demonstrative classroom. Again, the eta square values of 0.876 and 0.929 respectively for Schools A and B, showed that the use of the PhET simulation in an exploratory classroom influenced concepts of AK more than in a demonstrative classroom.

Table 5: Paired Sample t-test on the Profile Dimensions “Knowledge and Understanding (KU)” and “Application of Knowledge (AK)” for Schools A and B After the Intervention

Profile dimension	N		M	Mean Diff.	SD	p	η ²
KU of School A	32	Pretest	3.06	8.218	2.268	0.000	0.931
		Posttest	11.28				
KU of School B	31	Pretest	3.12	8.419	1.803	0.000	0.957
		Posttest	11.54				
AK of School A	32	Pretest	2.68	10.093	3.855	0.000	0.876
		Posttest	12.78				
AK of School B	31	Pretest	2.90	11.096	3.399	0.000	0.929
		Posttest	14.00				

It was however evident from the independent sample t-test (Table 6) that the differences in the mean scores observed on KU and AK for the two schools were not significant.

Table 6: Independent Sample t-test on the Profile Dimensions “Knowledge and Understanding (KU)” and “Application of Knowledge (AK)” for Schools A and B After the Intervention

Profile Dimension	School	N	M	SD	df	t	P
Knowledge and understanding	A	32	11.28	1.59	61	0.646	0.521
	B	31	11.54	1.68			
Application of Knowledge	A	32	12.78	4.01	61	1.212	0.230
	B	31	14.00	3.97			

VI. DISCUSSION OF RESULTS

The study sought to examine the influence of simulation assisted lessons on Senior High School students’ learning outcomes in electricity concepts when they are taught these concepts in a demonstrative classroom (in a non-computer laboratory) and in an exploratory classroom (in a computer laboratory) using the interactive PhET simulation as a teaching and learning resource.

In examining the impact of the use of the interactive simulation on students’ conceptual understanding, a paired sample t-test (Table 3) showed there was a significant difference between students’ pre-test scores and post-test scores on the conceptual understanding of all students in the two schools that participated in the study.

This suggested that generally, the use of the interactive PhET simulation in teaching electricity concepts in a computer laboratory or in a non-computer laboratory influenced students’ conceptual understanding and this finding was in line with previous studies (Agyei & Agyei, 2021; Ouahi et. al., 2021; Rehman et. al., 2021, Agyei et.

al., 2019; Wang et. al., 2010 Zecharia, 2007), who found that the use of the PhET interactive simulation has the potential to improve students’ learning outcomes and conceptual gains since it offers students an interactive platform to learn (Fan, 2015; Zulfiqar et al., 2018).

For the profile dimensions of “knowledge and understanding” (KU) and “application of knowledge” (AK), there was a significant difference in students’ conceptual understanding, (Table 5). The study revealed that the exploratory classroom influenced students’ “knowledge and understanding” more than “application of knowledge”, even though independent sample t-test (Table 6) showed that the differences in the mean scores observed on KU and AK for the two schools were not significant. This finding however contradicted with the findings of Prima et. al. (2018) who found that the use of the PhET interactive simulation influenced students’ “application of knowledge” more than “knowledge and understanding”. This could be due to the differences in physics concepts that was used in the study by Prima et. al. (2018).

Again, an independent sample t-test (Table 4) indicated that statistically there was no significant difference between the mean scores of students taught with the simulation in the demonstrative classroom and those taught in an exploratory classroom. This finding corroborated with the findings of Agyei and Agyei (2021) who opined that the use of the interactive PhET simulation in teaching physics concepts was effective in a demonstrative and an exploratory classroom on concepts in electricity. This could be due to the fact that students in the demonstrative classroom were not given the opportunity to explore the PhET simulation themselves (Agyei & Agyei, 2021). This finding suggested that the PhET simulation use in teaching should preferably be done in the computer laboratory but using it in a demonstrative manner in the classroom could also lead to a significant gain in students conceptual understanding on “knowledge and understanding” and “application of knowledge”.

VII. RECOMMENDATION

Teaching electricity concepts with the PhET interactive simulation influenced students’ conceptual understanding on “knowledge and understanding” and “application of knowledge” for students in all three schools. However, no significant changes were observed between the mean scores of students taught the concepts in the demonstrative classroom and those taught in an exploratory classroom (computer laboratory). It is therefore recommended that physics educators should utilise the PhET as an instructional resource for teaching electricity concepts in physics either in a demonstrative classroom or in an exploratory classroom.

REFERENCES

1. Agyei, E. D., & Agyei, D. D. (2021). Enhancing Students’ Learning of Physics Concepts with Simulation as an Instructional ICT Tool. *European Journal of Interactive Multimedia and Education*, 2 (2), e02111. <https://doi.org/10.30935/ejimed/11259>.
2. Agyei, E. D., Jita, T., & Jita, L. C. (2019). Examining the effectiveness of simulation-based lessons in improving the teaching of

- high school physics: Ghanaian pre-service teachers’ experiences. *Journal of Baltic Science Education*, 18 (6), 816–832. <https://doi.org/10.33225/jbse/19.18.816>.
3. Antwi, V., & Sakyi-Hagan, N. (2015). Effect of Computer Assisted Instruction on Students Interests and Attitudes in Learning Electricity and Magnetism in a Ghanaian Senior High School. *International Journal of Innovative Research & Development*, 4 (4), 302–315.
4. Azure, J. A. (2015). Senior high school students’ views on the teaching of integrated science in Ghana. *Journal of Science Education and Research*, 1 (2), 49–61.
5. Banda, H. J., & Nzabahimana, J. (2021). Effect of integrating physics education technology simulations on students’ conceptual understanding in physics: A review of literature. *Physical Review Physics Education Research*, 17 (2), 023108.
6. Bell, R. L., & Smetana, L. K. (2008). Using Computer Simulations to Enhance Science Teaching and Learning. In L. R. Bell, J. Gess-Newsome, & J. Luft (Eds.), *Technology in the secondary science classroom* (pp. 23–32). National Science Teachers Association Press.
7. Bo, W. V., Fulmer, G. W., Lee, C. K. E., & Chen, V. D. T. (2018). How do secondary science teachers perceive the use of interactive simulations? The affordance in Singapore context. *Journal of Science Education and Technology*, 27 (6), 550–565.
8. Buabeng, I., Ampiah, J. G., & Quarcoo-Nelson, R. (2012). Senior high school female students’ interest in physics as a course of study at the university level in Ghana. *IFE Psychologia*, 20(1), 369–379.
9. Cohen, J. (1988). *Statistical power analysis for the behavioural sciences* (2nd Ed.). Lawrence Erlbaum Associates.
10. Cohen, L., Manion, L. & Morrison, K. (2018). *Research Methods in Education*. (8th ed.). New York: Routledge.
11. Creswell, J. W. & Creswell, J. D. (2018). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (5th ed.). California: SAGE Publications, Inc.

12. Creswell, J. W. (2012). *Educational research: Planning, conducting and evaluating quantitative and qualitative research* (4 ed.). Boston, MA: Pearson Education, Inc.
13. Cudjoe, D. J. & Afram, D. (2018). *Understanding senior high school physics*. Accra: Sedco Publishing Limited.
14. Fan, X., Geelan, D., & Gillies, R., (2018). Evaluating a novel instructional sequence for conceptual change in physics using interactive simulations. *Education Sciences*, 8(1), 29. <https://doi.org/10.3390/educsci8010029>
15. Fatoki, J. O., Iornyagh, P. & Ochedikwu, J. O. (2021). Assessment of Availability and Adequacy of Information and Communication Technology (ICT) Facilities in Teaching and Learning of Physics among Technical Schools in Benue State, Nigeria. *VillageMath Educational Review (VER)*, 2(1), 14 - 22. <https://ngsme.villagemath.net/journals/ver/v2i1/fatoki-oiornyagh-ochedikwu>
16. Gunawan, G., Nisrinia, N., Suranti, N. M. Y., Heranyanti, L. & Rahmatiah, R. (2018). Virtual Laboratory to Improve Students' Conceptual Understanding in Physics Learning. *Journal of Physics: Conference Series*. 1108 012049.
17. Harrison, S., & Gibbons, C. (2013). Nursing student perceptions of concept maps: From theory to practice. *Nursing Education Perspectives*, 34 (6), 395-399.
18. Mboniyirivuze, A., Yadav, L. L., & Amadalo, M. M. (2019). Students' conceptual understanding of electricity and magnetism and its implications: A review. *African Journal of Educational Studies in Mathematics and Sciences*, 15 (2), 55-67.
19. McFarlane, D. A. (2013). Understanding the Challenges of Science Education in the 21st Century: New Opportunities for Scientific Literacy. *International Letters of Social and Humanistic Sciences*, 4, 35 - 44.
20. Mekonnen, S. (2014). Problems Challenging the Academic Performance of Physics Students in Higher Governmental Institutions in the Case of Arbaminch, Wolayita Sodo, Hawassa and Dilla Universities. *Natural Science*, 6, 362-375. <http://dx.doi.org/10.4236/ns.2014.65037>
21. Ministry of Education, (2010). *Teaching syllabus for physics*. Curriculum Research and Development Division. Accra.
22. Osborne, J., & Hennessy, S. (2003). *Literature review in science education and the role of ICT: Promise, problems and future directions* (Vol. 6). London: Futurelab.
23. Ouahi, M. B., Hou, M. A., Bliya, A., Hassouni, T., & Al Ibrahim, E. M. (2021). The effect of using computer simulation on students' performance in teaching and learning physics: Are there any gender and area gaps? *Educational Research International*, 2021, 1-10. <https://doi.org/10.1155/2021/6646017>.
24. Patel, K. B. (2018). Effectiveness of Computer Assisted Instruction in the Teaching of Physics. *International Journal of Research in all Subjects in Multi Languages*. 6 (4): 33 – 37.
25. Prima, E. C., Putri, A. R., & Rustaman, N. (2018). Learning Solar System using PhET Simulation to Improve Students' Understanding and Motivation. *Journal of Science Learning*. 1(2), 60-70.
26. Rehman, N., Mahmood, A., Zhang, W., & Alam, F. (2021). Teaching physics with interactive computer simulation at secondary level. *Brazilian Journal of Technology and Society*, 14 (1), 127–141. <https://doi.org/10.14571/brajets.v14.n1.127-141>.
27. Salame, I. I., & Makki, J. (2021). Examining the use of PhET simulations on students' attitudes and learning in general chemistry II. *Interdisciplinary Journal of Environmental and Science Education*, 17(4), 1 – 9. <https://doi.org/10.21601/ijese/10966>.
28. Semela, T. (2010). Who is joining physics and why? Factors influencing the choice of physics among Ethiopian university students. *International Journal of Environmental & Science Education*, 5 (3), 319 – 340.
29. Strayer, J. F. (2016). Designing Instruction for Flipped Classrooms. *Instructional-design theories and models: The Learner-centered paradigm of education*, 4, 321-349.
30. Tuminaro, J. & Redish, E. F. (2004). Understanding students' poor performance on mathematical problem solving in physics. *AIP*

Conference Proceedings, 720, 113 – 116.
<https://doi.org/10.1063/1.1807267>.

31. Urone, P. P. & Henrichs, R. (2020). *College Physics*. Houston, Texas.
32. Voogt, J. (2003). Consequences of ICT for aims, contents, processes, and environments of learning. In J., van den Akker, W. Kuiper & U. Hameyer (Eds.), *Curriculum landscapes and trends*. 217 - 236. Dordrecht: Kluwer Academic Publishers.
33. WAEC (2015). *Résumé of Science Subjects*. WAEC Press.
34. WAEC (2016). *Résumé of Science Subjects*. WAEC Press.
35. WAEC (2017). *Résumé of Science Subjects*. WAEC Press.
36. WAEC (2018). *Résumé of Science Subjects*. WAEC Press.
37. WAEC (2019). *Résumé of Science Subjects*. WAEC Press.
38. WAEC (2020). *Résumé of Science Subjects*. WAEC Press.
39. WAEC (2021). *Résumé of Science Subjects*. WAEC Press.
40. Wieman, C. E., Adams, W. K., Loeblein, P., & Perkins, K. K. (2010). Teaching physics using PhET simulations. *The Physics Teacher*, 48(4), 225-227.
41. Zacharia, Z. C. (2007). Comparing and combining real and virtual experimentation: an effort to enhance students' conceptual understanding of electric circuits. *Journal of Computer Assisted Learning*, 23 (2), 120 – 132. <https://doi.org/10.1111/j.1365-2729.2006.00215.x>
42. Zhang, M. (2014). Who are interested in online science simulations? Tracking a trend of digital divide in internet use. *Computers and Education*. 76, 205 – 214.
43. Zulfiqar, S., Zhou, R., Asmi, F., & Yasin, A. (2018). Using simulation system for collaborative learning to enhance learner's performance. *Cogent Education*, 5 (1), 1424 678.



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A Clan of the Cholas

Venkateshkumar G.

INTRODUCTION

Rao Sahib K Kothandapani Pillai was born on 29-10-1896 at a small village named Semmangudi near Kumbakonam in the Tanjore district of Tamilnadu. His parents Kuppusamy Pillai and Valliammai were native inhabitants practicing agriculture.

K. Kothandapani Pillai grew in a humble background; he did his primary education at a government school in a village named 'Vidyal Karuppur'. He learned Tamil from the iconic Tamil Pandit. Pinnathur Narayanasamy Iyer.

At his early stages of life K Kothandapani Pillai was fed with the knowledge of Sangam literature Pillai was a man with deep principles and ideologies. He did his intermediate studies at Kumbakonam Arts College.

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At the brink of World War 1 K Kothandapani Pillai joined the Saint Joseph College, Trichy to pursue his B. A honors. He passed out in 1918. His first literary attempt was an English article titled 'Pattinappalai' (பட்டினப்பாலை) 1918 which appeared in the Saint Joseph College magazine in 1918¹ K Kothandapani Pillai weaved his first article with the guidance and support of famous Tamil historian P. T. Srinivasa Iyengar.

Pattinappalai is one of the poems of the 'Pathuppattu' or the 'Ten Tamil Idylls' a Tamil anthology of the sangam age. Its historic value is great. It describes the famous poet of 'Pukar' now called (caveripumpattinam) the capital of the Cholas at the mouth of the Cauvery. It gives an accurate account of the life of people and the vast commerce that was then carried on, and narrates in unmistakable terms some of the achievements of the King Karikala Cholan the great. The age of Karikala was the Augustan age. It witnessed a great development in all the branches of knowledge and especially in literature there was a vast production known as Sangam works. The poem is noted for its literary qualities, it's highly polished style, condensed expression and the artistic description of nature

Pillai's translation goes as follows

Lines 1-7: The spotless shining Venus may change her course and from the north to the south. The clouds may change their nature and the lark which always sings their praise gasp for the little drop (which the clouds withhold). But the Cauvery which rises on the western hills and falls into the eastern sea, spreading her water and sifting golden sand, will never cease to flow.²

Line 295: The brown (sandal) paste on his breasts, bright with shining ornaments, is rubbed off by the embrace of his wife and by the playing and fondling of his children who wear golden ornaments. Karikala's strength and valor are those of a lion that could cause terror and inflict injury (on his foes) ³

In 1928 Pillai started his career as a Tahsildar at Madurai. While serving as a Tahsildar, Pillai penned a Tamil book titled '*Kadhaimanikkovai*' (கதையமணிக்கோவை) *Stories from Tolstoy* 1932. This book is a collection of three stories of Leo Tolstoy translated in Tamil.

¹ Pattinappalai -(பட்டினப்பாலை) 1918. "Magazine" St Joseph College Trichy September 1918

² Pattinappalai (பட்டினப்பாலை) 1918. "Magazine" St Joseph College Trichy September 1918.

³ Pattinappalai (பட்டினப்பாலை) 1918. "Magazine" St Joseph College Trichy September 1918.

Pillai took up three meaningful short stories of greatest writer Leo Tolstoy namely *Two Old Men* (Два старика) 1885, *How Much Land Does A Man Need* (Много ли человеку земли нужно?) 1886 and *A Lost Opportunity* ('Упустишь огонь не потушишь') 1889,. Published by E.M. Gopalakrishna kon of Madurai this book was a part of academic syllabus in schools for nearly 20 years. It is to be noted that Pillai was the first Tamil writer to translate the work of Russian thinker & writer Leo Tolstoy⁴

After serving around 5 years as a Tahsildar, Pillai was appointed as the Deputy Collector of Madurai on the 27th of November 1934.⁵

In 1934 from the beautiful historical temple City Madurai, Pillai penned a magnificent Tamil play titled '*Mangayarkkarasiyar*' (மங்கையர்க்கரசியார்) 1934 woven on the lines of a King from the Pandiyan Dynasty that ruled Madura during the 7th century AD. This book has a foreword from T.C. Srinivasa Iyengar who was a deputy director of Tamil Sangam, Madurai.

This book was also a part of the university curriculum and was a text book for Inter Exam in Prose (detailed study) at the University of Madras ⁶.

On the 6th of December 1934 he was posted on deputation as the Deputy Collector of Coimbatore and he returned back to his duty as the Deputy Collector of Madurai on 16th of July 1935. ⁷

On the 25th of April 1936 he was deputed to undergo training in treasury work for a period of 3 to 3 1/2 months in the Anantapur treasury and was posted as Additional Treasury Deputy Collector in the districts of Anantapur, Bellary and chittoor. He took up charge as the Deputy Collector of treasury and continued his services till 1939.⁸

During this tenure he penned a Tamil play titled '*Pangayacchelvi*' (பங்கயச்ச்செல்வி) 1936 written on the backdrop of a Pandiyan King who ruled Madura around the 16th century AD. This book has an introduction from T.M. Uma Maheswaran Pillai the founder of Tanjore Tamil Sangam.

This Tamil play was also a part of the Madras University syllabus for inter exam in the category of Prose (detailed study)⁹

While being the Deputy Collector after completing a tenure of 5 years Kothandapani Pillai was appointed as a member of the Madras Civil Service (Executive branch) on 2nd May 1939.¹⁰

He served as a personal assistant to the commissioner of Labor for a brief period from July 1939 to December 1940.

As a result of his honesty, hard work and dedication his career took a giant leap ahead. On the 3rd of December 1940 K Kothandapani Pillai was appointed as the "Protector of Emigrants" Madras and Special Officer for South African Repatriates which indeed was the onset of World War 2.¹¹

⁴ Kadhaimanikkovai (கதையமணிக்கோவை) stories from Tolstoy. Fort Saint George Gazette Dated 12th April 1932, (Education-p243), 20th December 1932, (Education-P122) 13th March 1934 (Education-P167) & 4th September 1934 .p63.

⁵ Fort Saint George Gazette Dated: December 4th 1934 (Revenue Department p2121.

⁶ University of Madras The calendar for 1936-1937 Volume 1- Part 2. Tamil-p342.

⁷ Fort Saint George Gazette Dated 23rd July 1935, Part1 –p1028.

⁸ Fort Saint George Gazette Dated 1st February 1938, p175.

⁹ University of Madras-The calendar for 1937-1938 Volume 1- Part 2 p366.

¹⁰ Fort Saint George Gazette Dated 11th July 1939.Part1 p834.

¹¹ Fort Saint George Gazette Dated 10th December 1940.Part1, No: 627, p1544.



While being the Protector of Emigrants Madras Pillai was a part of the refugee evacuation from Singapore.

An article by R. Joomabhai - President of Indian Chamber of Commerce, Singapore which appeared in 'The Bombay Chronicle' under the title "Plight of Indian Evacuees from Malaya" dated 6th March 1942 narrates a story of a ship S.S Hosang which sailed from Singapore on the 6th February 1942 at 6 p m. The ship carried 991 passengers of which 865: were Indians. As smoke was noticed the ship had to join the convoy. The ship S.S Hosang wrecked and S.S Whangpoo sailed out of Palembang on the 9th February with 851 Indians of which 740 were males, 39 women, 56 boys and 16 girls. The ship was heading towards Batavia. S.S Whangpoo reached Batavia on the 11th of February.

S.S Clan Alpine sailed from Batavia on the 12th February at 6 p m. The ship was purely a cargo boat with no crockery, no cooking place, no cooking utensils, insufficient life boats, no life belts, no doctor, insufficient fresh water, one lavatory for around 800 males, no canvas to protect from rain and sun. The only rations available were a little bread and biscuits lasting 2 days. Rice, potatoes, dhal, dry fish and third class ghee were sufficient but the travelers owing to insufficient cooking utensils had to be satisfied with one meal and tea per day. The ship reached Colombo on the 21st February after a horrible and dreadful journey. A total of 977 passengers were in the ship of which 851 were Indians. The witty Srilankan government accepted only 31 passengers who were Sinhalese. Later after a short period according to the order of Namsoji, 24 Chinese, one European, and about 40 Indians and a few Jews were allowed to go. A total of 100 non Indians and 56 Indians landed at Colombo port.

The ship with 822 souls of which 796 dying Indians travelled to Tuticorin port and from there they were redirected to Madras. The ship S.S Clan Alpine reached the Madras port on the 22nd February 1942 under worst conditions. At Madras they were received the "Protector of Emigrants. K Kothandapani Pillai and Rao Sahib J.C. Ryan assistant director of publicity, viceroy house. The travelers who were almost at the verge of death were fed, clothed and later dispatched to their respective places in good mood after a miserable journey.

It is to be noted that after the negligence of Srilankan government, the officers from Madras actively involved in bringing back all the Indians souls back to their soil.¹²

As a mark of this heroic deed K Kothandapani Pillai was knighted by the Viceroy of India as "Rao Sahib" on the 26th January 1943¹³

Rao Sahib K Kothandapani Pillai then shared his experiences aired via "All India Radio" on the 25th June 1943 around 7.45 PM. He spoke on the topic "Restrictions"¹⁴

¹² The Bombay Chronicle 6th March 1942 Friday p4

¹³ Fort Saint George Gazette Dated 26th January 1943, Part 1,p62

¹⁴ The Indian Listener: Volume 8, June 7, 1943. Number 12, p64

In the same year 1943 he penned a fascinating Tamil book titled '*Nedunalvaadai*' Long bracing north wind' (நெடுநல்வாடை திறன் ஆய்ந்து தெளிதல் பொருள் நலன்) 1943 which is a critical analysis of the poem from '*Pathuppattu*' written by Poet Nakkirar from Madurai. This poem was written in praise of the Pandiyan King Nedunchezhiyan who ruled Madurai during 270 BCE. The poem comprises of 188 lines.

K Kothandapani Pillai has done a deep analytical and literary research on this poem and penned this book '*Nedunalvaadai-Porul Nalan*' which means an analysis of words. This book was released on the 24th of August 1943 marking the 60th birth anniversary of veteran Tamil writer Thiru. Ve. Kalyanasundaram shortly called Thiru.Ve.Ka. The book was widely appreciated by scholars and literary giants. The book has introduction from .S.Somasundara Bharathi and foreword by veteran music professor and pandit. T. P. Meenakshi Sundaranar.

Thiru. Ve.Ka rejoices his friendship with Kothandapani Pillai in his autobiography. He narrates an incident that happened in 1937 when he got to meet Pillai for the first time; Pillai visited the house of Thiru. Ve. Ka to arrange a meeting between him and the Deputy Labor Minister of India. Kothandapani Pillai was the deputy labor commissioner and Thiru Ve Ka was the head of Labor union. Their friendship lasted for decades in his autobiography Thiru ve ka recalls the lectures delivered by Pillai at the Chindadaripet High school during the mid 40's.

Thiru ve ka quotes

கோதண்டபாணி பிள்ளை தமிழர்!! தூய தமிழர்!!

அவரது தூய தமிழ் உணர்ச்சி பழந்தமிழ் நூல்களுடன் அவரை உறவுகொள்ள செய்தது

He means Kothandapani Pillai is a pure Tamil man and his love for Tamil made him attached to ancient Tamil books and literature.

கோதண்டபாணி பிள்ளை நெஞ்சம் பல புலவர் உலகை கண்டு கண்டு அவைகளை கடந்து நக்கீரர் உலகில் நிலைத்தது.. அவர் நெஞ்சம் நக்கீரர் ஆகியது. அவர் நக்கீரர் ஆனார்...அவரை பார்க்கும் பொழுது எல்லாம் நக்கீரர் வடிவம் இப்படித்தான் இருக்குமோ என யான் நினைப்பதுண்டு

Kothandapani Pillai crossed many poets and finally embraced the world of poet Nakkirar. His soul reflected Nakkirar. He turned Nakkirar. I could see Nakkirar through the eyes of Pillai.¹⁵

Rao Sahib K Kothandapani Pillai spoke about this book and gave an introductory speech on the 27th December 1944 at 8 p.m and was aired in All India Radio. ¹⁶

On the 29th of August 1944 Pillai was one among the judges for a literary speech competition which was held at the Pachaiyappa college marking their 100th anniversary. The topic assigned to the participants was 'Does wars induce world peace?' Pillai honored the winner S P. Janarthanan with an award ¹⁷

Consequently in 1945 on November 29th ¹⁸and on June 25th 1946 ¹⁹his speeches on Tamil books were aired in All India Radio.

On the 2nd of September 1946 India relieved itself from the clutches of the British monarch and formed its first independent interim government.

¹⁵ திரு வி க வாழ்க்கை குறிப்புக்கள் - 2013. p213,214&215.

¹⁶ The Indian Listener. Volume 9, December 7, 1944. p72.

¹⁷ குடி அரசு August 29th 1944. Volume 17, No; 48 p11.

¹⁸ The Indian Listener Volume 11, November 7, 1946. p81.

¹⁹ The Indian Listener. Volume 11, June 7, 1946, Number 12, p70.

The interim government was headed by Pandit Jawaharlal Nehru. Rao Sahib K Kothandapani Pillai was a part of the interim government in the 'Department of Commonwealth Relations' as the Protector of Emigrants Madras ^{20 21}

This department of common wealth relations was renamed to "Ministry of External affairs" after Indian independence in 1947.

It was in October 1946 on the 31st K Kothandapani Pillai's daughter Rajalakshmi (my grandmother) gave birth to my father (Govindasaminathan)



In 1947 K Kothandapani Pillai penned a sequence to the 1943 book *Nedunalvaadai* titled as 'Nedunalvaadai Pa Nalan' (நெடுநல்வாடை பா நலன்) a content analysis 1947. The book was released in 1947 in which the front cover carries a quote in Tamil.

இதன் வருவாய் அனைத்தும் சங்கத்தமிழ் பரிசுக்கு நன்கொடை

'All revenue generated out of this book shall be used for the prize schemes of Tamil Sangam'.

This book has a foreword by Thiru ve ka which is of 30 pages. And this book was a text book at the University of Madras which I confirmed during my telephone call with Padmasri Sirpi Balasubramaniam. He recited lines from the book and also was grateful enough to draft a letter to me praising the works of K Kothandapani Pillai. In his letter he recalls his memories of reading the book as a text book during his college days and it indeed sharpened his Tamil skills.

(Attach) letter from Padmasri Sirpi Balasubramaniam.

On the 6th of December 1947 Rao Sahib K Kothandapani Pillai was appointed as the first 'Controller of Emigration' Madras of free India. ²²

As the Controller of Emigration Madras K Kothandapani Pillai delivered a speech on "Political Ideologies" and it was aired at the All India Radio on the 26th November 1947. ²³

²⁰ The Combined Civil List for India and Burma No: 156 April to December 1946. Appendix 23b.

²¹ History of services of officers holding gazetted appointments under the government of india. corrected up to 1st july 1947.

²² Gazette of India dated 12th November 1949 .Part1, Section2, p1569.

²³ The Indian Listener Volume 12. November 7, 1947. Number 21. p46.

In 1948 Pillai published a sequel to his Tolstoy stories with a modified version titled "Stories from Tolstoy" which was a compulsory text book for English schools during 1949 to 1950 ²⁴

In 1950 K Kothandapani Pillai was placed as the permanent member of Madras Civil Service Executive branch and was serving at the disposal of the government ²⁵

After serving his tenure K Kothandapani Pillai retired from his services on the 29th October 1951 as "Controller of Emigration Madras." ²⁶

As a token for his goodwill and honesty, Pillai was placed back at the services of government. During the tenure of Lal Bahadur Shastri as the Minister of Railways, Rao Sahib K Kothandapani Pillai was appointed as a member of Railway Service Commission, Madras on the 10th October 1953 ^{27 28}.

While serving at the Railway Service Commission Madras, Pillai involved himself in the formation of an independent body that focused on Tamil Language development "The Academy of Tamil Culture" was formed at a meeting of scholars and lovers of Tamil held at Madras on the 18th September 1954. This ambitious new venture which focused on the development and advancement of Tamil language, literature, art and sciences was formed with Justice N. Somasundaram elected as the president.

Along with K Kothandapani Pillai others who were present during the meeting were Manavala Ramanujam, V. Sundaramoorthy, Father Ceyrac and T. P. Meenakshi Sundaram.²⁹

Pillai was Member of the Governing Council and Honorary Secretary of the Academy of Tamil Culture during the period of 1954 to 1961. ^{30 31 32 33 34 35 36 37 38 39 40}

The Academy of Tamil Culture under the leadership of Thaninayagam Adigal organized the 1st World Tamil Conference at Kuala Lumpur in 1966 and also met morphed into "International Institute of Tamil Studies" functioning at Taramani Campus even today.

It was during this period the government of Tamilnadu formed the 'Official Tamil Language Committee', as per the government order No Ms. 2207 dated 22nd June 1956 approved the committee constituted by the Madras Presidency Tamil Sangham consisting of persons of finalizing the glossary of Tamil equivalents for the English administrative terms prepared by it for constitutional purposes.

²⁴ Travancore Gazette Dated 19th April 1949.p1078.

²⁵ The Madras Half yearly civil list. Corrected up to First July 1950. p34. No: 14.

²⁶ Gazette of India dated 24th November 1951, Part1, Section2, No:47.

²⁷ The Bombay Chronicle 11th October 1953. p7.

²⁸ SouthRail news Volume 1- Number 12. March 1955. p31.

²⁹ Tamil Culture- Journal of the Academy of Tamil Culture Volume 4-1955 p99.

³⁰ Tamil Culture- Journal of the Academy of Tamil Culture Volume 4-1955 p315.

³¹ Tamil Culture- Journal of the Academy of Tamil Culture Volume 4-1955 p129.

³² Tamil Culture- Journal of the Academy of Tamil Culture Volume 4-1955 p415.

³³ Tamil Culture- Journal of the Academy of Tamil Culture Volume 6-1957 p98.

³⁴ Tamil Culture- Journal of the Academy of Tamil Culture Volume 6-1957 p299.

³⁵ Tamil Culture- Journal of the Academy of Tamil Culture Volume 7-1958 p8.

³⁶ Tamil Culture- Journal of the Academy of Tamil Culture Volume 7-1958 p416,421.

³⁷ Tamil Culture- Journal of the Academy of Tamil Culture Volume 8-1959 p9.

³⁸ Tamil Culture- Journal of the Academy of Tamil Culture Volume 8-1959 p186.

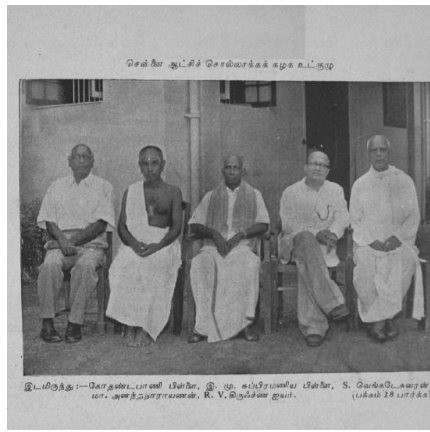
³⁹ Tamil Culture- Journal of the Academy of Tamil Culture Volume 9-1961 p9.

⁴⁰ Tamil Culture- Journal of the Academy of Tamil Culture Volume 9-1961 p349.

Members of the committee were

Sri S. Venkateswaran I.C.S Chairman board of revenue. Madras.
 Sri M. Anantha Narayanan I.C.S Director of Legal Studies Madras.
 Sri T.K. Sankaravadivelu I.A.S Secretary to government, Revenue Department, Madras.
 Sri M.R. Perumal Principal teachers college, Madras.
 Sri N. Vinayakam, Senior translator to the government.
 Sri P Kothandaraman, Swadesamitran.
 Sri K Kothandapani Pillai.
 Sri R.P. Sethu Pillai.
 Sri M.A. Kuttalingam Pillai.⁴¹

On the 16th and 17th of may 1956 a meeting was held where the committee decided to start their work to derive equivalent English words. The committee completed the work on the 27th July 1956 and submitted the report to the government. After several examinations the committee submitted their final report to the chief minister of Tamilnadu. Kamaraj on 21st December 1956.⁴²



Pillai in 1955 retired from his services as a member of Railway Service Commission Madras. In 1956 he penned a magnificent Tamil book titled '*Mutharkural uvamai*' (முதற்குறள் உவமை) which is an elaboration of the first kural written by thiruvalluvar.

'அகர முதல எழுத்தெல்லாம் ஆதி. பகவன் முதற்றே உலகு'

Pillai penned a book of 200 pages explaining the nuances and giving deep insight to the first two lines of the epic thirukkural. The book was released in 1956 with foreword from Dr. M. Varadarasan, Critical review by Saint Dhandapani Desigar, and Wishes from Rao Bahadur V.S. Sengalvaraya Pillai. This book was widely appreciated for its critical examination and still is considered a literary master piece.

On the 28th of October 1957. C. Rajagopalachari and 34 other prominent citizens of Madras appealed to the prime minister Pandit Jawaharlal Nehru 'To step in and bring about a reconsideration' of the entire issue of Hindi as official language 'so that the spirit of true freedom is maintained and not sacrificed at the altar of the overzealous love on the part of some, for their own language'

Kothandapani Pillai was one among the 34 citizens who wrote a letter to the prime minister.^{43 44}

⁴¹ Tamil Culture Volume 5-1956 p292.

⁴² சென்னை மாகாண தமிழ் சங்கம் வெள்ளிவிழா மலர் 1934-1959. p17,18,33

⁴³ The Indian Express dated 29th October 1957. 'Present Policy of Hindi Must Go'.

⁴⁴ Tamil Culture- Journal of the Academy of Tamil Culture Volume 6-1957 p352.

In 1959 Pillai penned a Tamil book titled '*PazhanthamizhIsai*' (பழந்தமிழ் இசை) 1959 a book that runs deep into the origin, use and forms of ancient Tamil music and its existence in today's world. The book has foreword from T.M. Narayanaswamy Pillai Chancellor Annamalai University and M.M Dhandapani Desigar and reviews from Vidhwan Ramanatha Chettiar, and Vidhwan Devaneya Pavanaar. This book is still a study material For Bachelor's degree for Music course B A Music University of Madras ⁴⁵

K Kothandapani Pillai's love for music enabled him to write numerous articles related to music, it's nuances and growth. He was a part of "Chennai Tamil Isai Sangam" formed by Rajah Sir Annamalai Chettiar and later managed by his son Rajah Sir Muthiah Chettiar. Pillai attended regular meetings, conferences and events related to 'Tamil Isai Sangam' and delivered numerous interesting lectures, participated in many debates and it earned him a lasting friendship with Rajah Sir Muthiah Chettiar ⁴⁶

⁴⁷ ⁴⁸

Kothandapani Pillai's 50th marriage anniversary was held at a Sivan Temple in Semmangudi on the 3rd November 1973 which was graced by the presence of Rajah Sir Muthiah Chettiar.

Rajah Sir Muthiah Chettiar offered his tributes to the couples K Kothandapani Pillai and Nagarathiammal by bringing holy water from Ganges and honored the couples with 1001 silver coins. The function was also graced by Padmasri Subbiah Pillai founder of Saiva Siddhanatha publishing house and Tamil Saint Thiru Kirubananda Variyar ⁴⁹



⁴⁵ Syllabus for Core Subjects, Bachelor's of Music University of Madras p31, 388.

⁴⁶ தமிழிசை விழா மலர் 1949-1950.

⁴⁷ தமிழிசை சங்கம் வெள்ளிவிழா சிறப்பு மலர் 1943-1968 p153.

⁴⁸ 20 ஆண்டு பண் ஆராய்ச்சியும் அதன் முடிவுகளின் தொகுப்பும் 1949-1969 - பண்ணாராய்ச்சி வெள்ளி விழா வெளியீடு 1974.

⁴⁹ செந்தமிழ் செல்வி November 1973.

இராவ்சாகேப் கு. கோதண்டபாணி பிள்ளையவர்கட்கு
ஆயிரம் பிறைக்குமேல் ஆயுள்வளம் வீழா



Pillai has written articles in music titled 'Mullaipan araychi' (முல்லைப்பண் ஆராய்ச்சி) 1958 and 'Ancient Tamil Music' 1961 which received wide appreciation. They are used as a source and reference material by research scholars who pursue their doctorate in music. ^{50 51 52}

Through his grandchildren we come to know that Pillai can fluently recite Vedas and also can sing 'Thevaram' (which denotes the first seven volumes of the twelve-volume collection Tirumurai, a Saiva narrative of epic and puranic heroes set in devotional poetry) whenever he visited god's premises in temples.

In 1960 Pillai was honored by the Writers Association of Madras. The Madras association held its 8th annual conference on the 15th and 16th 1960 at the Rajaji Hall. Two scholars from Chennai Rao Sahib K Kothandapani Pillai and T.P. Meenakshi Sundaram were awarded with shields for their contribution to Tamil literature. Pillai received his shield from Rajah Sir Muthiah Chettiar and was felicitated by Ma. Po. Sivagnanam. ⁵³



⁵⁰ முல்லைப்பண் ஆராய்ச்சி - செந்தமிழ் செல்வி April 1958.

⁵¹ Ancient Tamil music - Tamil Culture Volume 7 (1958) January p33.

⁵² Ancient Tamil music- Tamil Culture Volume 8 (1959) July- September p193.

⁵³ தமிழ் எழுத்தாளர் பதினைந்தாவது மாநாடு. 1967 December 16&17. p56.

Pillai has penned down two articles marking the commemoration of Rajah Sir Muthiah Chettiar and Rani Lady Meyyammai Achi. If one could read these articles the love and respect Pillai had for Muthiah Chettiar's family can be well understood.^{54 55}

Pillai was appointed as the 'Director of Publications' Annamalai University for the period of 1965 to 1970.

In 1964 Journal of the Annamalai University published an article titled "*Ancient Philosophy of Life*" 1964 penned by Rao Sahib K Kothandapani Pillai and the same was also published in the official souvenir of the 2nd World Tamil Conference held at Madras in 1968^{56 57}

During his tenure at Annamalai University, Pillai was involved in an important historical project. A committee was set up to take up the task of translating Former President Dr. Sarvapalli Radhakrishnan's book '*Eastern Religions and Western thoughts*' 1939 into Tamil. Rajah Sir Muthiah Chettiar was the head of the committee. Three people were called on to do this herculean but a prestigious task Rao Sahib K Kothandapani Pillai, C. Ramalingam and J.M.Somasundaram Pillai.

The product was a Tamil book titled '*Kezhai Melai Nadugalin Mei porul iyal varalaru*' (கீழை மேலை நாடுகளின் மெய்பொருள் இயல் வரலாறு) published in two volumes Volume 1 of 1001 and Volume 2 of 790 pages released in 1970 and 1979 respectively. This book is a massive literary work and is still a part of study material at Annamalai University.

Pillai was a great orator. The lectures he delivered at the famous "Sornammal Endowment Trust" gained great interest among literary lovers. He spoke on the topic '*Thirukkural Kamathuppal*' (திருக்குறள் காமத்துப்பால்) 1962 an often ignored chapter in thirukkural.

His speech was published as a separate book by the University of Madras in 1962⁵⁸.

In 1963 he delivered a series of lectures on "*Saiva Siddhantha and Modern Science*" *Saiva Siddhantha and Evolutionism, Saiva Siddhantha and philosophy of Evolution in the west and Theory of Mala in Saiva Siddhantha and Modern Science*". These lectures were delivered at Thiruppanandal Endowment Trust and was published as a book by the Annamalai University in 1978.⁵⁹

In 1971 he delivered a lecture at the Sornammal Endowment Trust on '*Kambarum Meipatiyalum*' (கம்பரும் மேய்ப்பட்டியலும்) and was also published as a book by the Annamalai University in 1971.⁶⁰

The human side of Rao Sahib K Kothandapani Pillai is astonishing. He penned and donated a Tamil book to a Gurukulam- a primary aided school functioning at a village named Mambakkam near Chengalpat district of Tamilnadu.

⁵⁴ டாக்டர் ராஜா சர் முத்தையா செட்டியார் ராணி லேடி மெய்யம்மை ஆச்சி அவர்கள் ஆம் ஆண்டு நிறைவு விழா மலர். 1965 p325.

⁵⁵ Rani Lady Meyyammai Achi Souvenir 1971 p267.

⁵⁶ Journal of the Annamalai University. Part A Humanities. Article 10. p121.

⁵⁷ உலக தமிழ் மாநாடு விழா மலர் 1968 (English) p17

⁵⁸ Thirumathi Sornammal Endowment Lectures on Thirukkural 1959-1960. to 1968-1969 Part 1- English University of Madras 1971 (p107).

⁵⁹ Collected lectures on Saiva Siddhantha 1963-1973 Annamalai University 1978 P 1-130.

⁶⁰ Sornammal Sorpozhiyugal - Kambarum Meipatiyalum (கம்பரும் மேய்ப்பட்டியலும்) 1971.

The book titled 'Eradi Eranooru' (எரடி இருநூறு) 1961 is a collection of 20 titles namely *Motherhood, Earth, Music, Writer ship, Literature, Critical analysis, Beauty, Heart, Peace, Solitude, Doubt, Worship, Deed, grieving, Patriotism, Birth right, War, Labor, Loan, Youth*. Each title has ten sub titles of 2 lines each.

Hence the title "Eradi Eranooru" meaning 2 lines of 200. This book carries moral values and law of living. Pillai donated this book to the Gurukulam at Mambakkam near Chengalpat. His friend Azhagar Adigal (Elavazhaganar) was the founder of the school.

Pillai in his foreword writes "I have donated this book to the Gurukulam and revenue generated out of this book shall be used to award a student who tops in Tamil under the prize scheme "Kothandapani Pillai Tamil prize."⁶¹ This has been practiced since 1961 and continuing till date.

My recent conversation with the founder's son elaborated this humanly deed by Pillai and they still preserve this book as an asset.

In his article 'Pattinappalai' 1st published in 1918 and later published as a sequence in 1947, 1958 and 2021 he quotes.

'As the cub of the tiger with sharp claws and curved stripes grows in strength though encaged, King Karikala grew in his greatness and strength though imprisoned by his enemies. Like the elephant caught in a pit, pulling down its steep side effects escape and joins its mate. The great Karikala shut up within the prison, cleverly planned his escape. He jumped over the prison walls, drove away mighty guards, made good his escape and regained his ancestral throne.'^{62 63 64}

K Kothandapani Pillai Belongs to the clan of early Tamils which we can say 1000 years old. I would like to narrate a small incident here.

An archeological excavation team visited his village semmangudi in 1974. Semmangudi village is located in the banks of river Kudamuruti a tributary of river Cauvery which flows through the interior parts of Tanjore. It is proved that chola emperors like Sembiyan Maa Devi (sem-man- kudi) Raja Raja cholan and the prominent existence of King Kullothunga Chola is traced in this village. The only temple to lord Sun also called Surya bhagavan in south India built by Kullothunga Chola exist 2 km away from this village. It is clear that a civilization existed along the banks of river cauvery and their tributaries and traces of their descendants are still found.

The excavation team spotted an idol under a tree near the banks of Kudamuruti. The idol was 2 feet tall wearing a half dhoti, long elongated ears, well grown moustache with hands clasped together and praying God. The evacuation team cleaned up the idol and was all set to take it for examination.

Pillai stepped down and requested the evacuation officers not to remove the idol from its place as he said it has been worshipped and preserved by his ancestors who have been living in this same village for over 600 years. As Pillai was a government diplomat and a gazetted officer his words were taken into account and hence the archeological excavation team left the place leaving the idol untouched. Pillai placed his subordinate named Laxmanan to take care of the idol and worship it regularly.

⁶¹ Eradi Eranooru (எரடி இருநூறு) 1961. Gurukulam, Maduranthagam. p4,5.

⁶² Pattinappalai - The Magazine Saint Joseph College Trichy September 1918.

⁶³ Five Tamil Idylls of Pathuppattu being studies and translations - J M. Somasundaram - Solden and Company 1947 p47.

⁶⁴ A history of Tamil literature J M Somasundaram Annamalai University 1968 p279.

In 1978 an archeological team headed by Nagaswamy and Kudavayil Balasubramanian visited Semmangudi again and examined the idol. The duo confirmed the idol to be of *Karunakara Thondaiman* the army chief commander of Kullothunga Chola who reigned during 1070-1118 AD. An archeological report was submitted to the government and the entire excavation report was also published as a book titled '*Karunakara Thondaiman*' (கருணாகர தொண்டைமான்) 1979 by the Society for Archeological Historical Epigraphical Research, Madras.

This book gives in depth details about the existence of Karunakara Thondaiman in Semmangudi and nearby village Vanduvanjeri the birth place of Karunakara Thondaiman. Kudavayil Balasubramanian traces the existence of a thondaiman land, thondaiman river, and also quotes in the book as-

கருணாகர தொண்டைமான் தலைநகர் இதுதான் என்பதற்கு இவ்வூர் மக்கள் இன்றளவும் இவனது பெயரை மறக்கா மல் தலைமுறை தலைமுறை யாக போற்றியே வருவது மிக வியப்பான ஒன்று.

The faith and devotion the villagers of Semmangudi have for Karunakara Thondaiman is surprisingly pleasant, they have been worshipping him for generations.⁶⁵

Another interesting fact is that the Poet. Jayamkondar who penned the historic epic '*Kalingathuparani*' in praise of the heroic deed of Karunakara Thondaiman in his battle against the Kalinga King 'Anantha Varman' around 1112 AD is also a inhabitant of chola mandalam. The native and birth place of poet Jayamkondar is "Deepangudi" an adjacent village to semmangudi almost on the other bank of river Kudamuruti.

Today almost after 43 years when I communicated with Laxmanan who still serves as a local priest (Gurukkal) in the temple shrine at Semmangudi with Karunakara Thondaiman being the chief deity., He recalls those memories when Rao Sahib K Kothandapani Pillai protected this idol from being removed by the excavation team way back in mid 70's which in turn paved way for another set of team to examine the age of the idol and confirm it to be the idol of *Karunakara Thondaiman*. He owes gratitude to Rao Sahib K Kothandapani who defended his ancestral deity and this small shrine at Semmangudi attracts few worshippers today.

Pillai had a very deep knowledge on Sangam literature and its origins.

His article titled "*Vada Venkatam*" published in 1961 in the journal 'Tamil Culture' carries information on the first Thondaiman King Ilanthirayan who was a contemporary of King Karikala Cholan both belonging to age of Augustus.

He quotes

'வென்வேல் திரையன் வேங்கட நெடுவரை' அகம்.85.

'தொண்டையர் அடுக்கம்' குறுந்தொகை.260

'வினை நவில் யானை விறற்போர் தொண்டையர் ஓங்குவேள் ளருவி வேங்கட தும்பர்' அகம்.213⁶⁶

In his article titled '*Thamizhisai thandha peruvalam*' (தமிழிசை தந்த பெருவளம்) published by the academy in 1978 Pillai quotes about the period of Kullothunga Chola and narrates a real incident that took place around 1000 years ago.

King Kullothunga Chola sent 500 families of Tamil speaking priests to Vengi land who were well versed in both music and Vedas. An inscription found in Sanskrit confirms the same.

⁶⁵ Karunakara Thondaiman(கருணாகர தொண்டைமான்) SAHER 1979 p56,57

⁶⁶ Tamil Culture Journal of the Academy of Tamil Culture Jan- March 1961. Volume 9. No:1 p80,81 & 65.

Nirnaya Sagar press released a sequence of publications under the title 'Kavya Mala'. A sub chapter in Kavya mala titled 'Prasina lekha Mala' carries this information.

It states 500 priests namely *Ambalathu-aaduvan pattan* and *Thiruvavanga-mudayan pattan* and others were sent to the Vengi land by Kullothunga Chola. ^{67 68}

This information can also be traced in the book titled 'Sri Jagathguruvin upadesangal'(ஸ்ரீ ஜகத்குருவின் உபதேசங்கள்) which includes orations and speeches delivered by Sri Kanchi Sangarachariyar. The second was published by Kamakoti Kosasthanam and in the title 'namadhu vedangalum sastirangalum'(நமது வேதங்களும் சாஸ்திரங்களும்)⁶⁹

Pillai further states that the priests sent by King Kullothunga cholan were not Aryans. Those priests are called "Sivachariyar", they are non Brahmins who are well versed with Vedas and music and worship lord Shiva in Tamil temples. These people were fluent in Sanskrit and Tamil and were called "Gurukkal". He says these set of people who were ardent devotees of Shiva are the Dravidians in Tamilnadu.

I would like to list out the articles by Rao Sahib K Kothandapani Pillai on music.

கும்பகோணம் சோலையப்ப முதலியார் அக்கிரஹாரத்தில் நடந்த பிரம்மகுல மோசடி
திருட்டு கல்யாண சிந்து (1925)
Ancient Tamil Music (1958 & 1959)
முல்லைப்பண்ண ஆராய்ச்சி (1958)
பழந்தமிழ் இசை (1970)
இசைக்கு வழிகாட்டி (1967)
முல்லைப்பண்ணின் தொன்மையும் சிறப்பும் (1974)
தமிழிசை தந்த பெருவளம் (1978)

His articles on Sangam literature.

அறத்தாறு எது (1961)
ஆய்தப்புள்ளி ஓர் ஆய்வுரை (1969)
பெரியபுராணம் சைவ பெருங்காவியம் (1970)



In his article 'Ancient Tamil Music' Pillai states

⁶⁷ தமிழக நுண் கலைகள் - Fine arts of tamizhagam - The academy of Tamil Culture, Madras 1978. p34, 35.

⁶⁸ Prasina Lekha Mala - Nirnaya Sagar press 1896, 1903. Volume 3.

⁶⁹ நமது வேதங்களும் சாஸ்திரங்களும் - ஸ்ரீ காமகோடி கொசஸ்தனம் - 1949.

"Of the four Idylls dealing with the meeting of the bards *Porunaratrupadai*, the meeting of the musicians of the martial males deals with the reception given by the great monarch Karikalan of the chola country. The following is the description of the court of Karikala Cholan

"The bards enter the palace undetained by the guards. The monarch received them in audience and asks them to take their seats quiet close to him. His loveable speech and endearing looks made even the bones of these bards melt with emotion. Beautiful, sweet smiling, well adorned ladies of the palace serve them with drinks (wine) in cups of gold, full to the brim, as often as they are emptied. The bards drink full and forget the fatigue of their long journey. They are asked to stay in a part of the palace itself

70 71

Pillai possessed a sword all his life that he has been carrying since his youth passed on by his ancestors. Weighing 5 kgs the sword was worshipped by Pillai on a daily basis as confirmed by his grandson (my father) and his granddaughter. During his last days the sword was handed over to the Tanjore palace museum by Pillai himself.

The sword carries hints on his lineage dating 1000 years back. The temple Gurukkal at Semmangudi Laxmanan who at present is taking care of the idol of Karunakara Thondaiman also confirms the existence of a sword that Kothandapani Pillai owned.

Pillai friendship with couple of saints should be mentioned here.

His friendship with a saint from Cuddalore 'Gnaniyar Adigal' is to be noted. . Pillai has penned an article about his experiences of meeting Gnaniyar Adigal' at his mutt in Cuddalore which appeared in a Tamil book in 1993. ⁷²

Tamil writer A.M sathyamoorthy in his book "*Thamizhagam Nikaikka Marandha Thamizh Aringargal*" (தமிழகம் நிகைக்க மறந்த தமிழ் அறிஞர்கள்) 1994 mentions that "Rao Sahib K Kothandapani Pillai belongs to the lineage of Karunakara Thondaiman as mentioned by Govindarasanar from Sarguneswarapuram."⁷³

Pillai developed a strong bonding with Sri Kirubananda Variyar. Sri Kirubananda Variyar felicitated Pillai and his wife marking their 50th marriage anniversary which was held at a Sivan Temple in Semmangudi in 1973.

In the book '*Thirumurugatru padai thiran*' (திருமுருகாற்று படை திறன்) 1972 Sri Kirubananda Variyar writes a sonnet for Kothandapani Pillai. It goes as follows

மாற்று பொருளுரைத்த மாமதியோர் நாணமுறு
காற்றுப் படைக்கரிய ஆன்றவுரை தோற்றுவித்த
கோதண்ட பாணிக் குணக்கோமான் வாழியவே
புதலத்தோர் போற்றுப் புகழ்ந்து

அம்மவென விம்மலுற ஆற்றுப் படைக்குறையைச்
செம்மங்குடி வாழும் சீராளன் செம்மையுறச்
செய்ய தமிழாலே செம்பாக மாயளித்தான்

⁷⁰ Ancient Tamil Music, Tamil Culture Volume 7, 1958 p43.

⁷¹ பொருநராற்றுப்படை Lines 67-108.

⁷² தவத்திரு ஞானியர் அடிகள் - சுந்தர சண்முகனார் 1993 p 77-80.

⁷³ தமிழகம் நிகைக்க மறந்த தமிழ் அறிஞர்கள் சத்யமூர்த்தி 1994 p33.

வையம் மகிழும் மதித்து
ஆழியென ஆழிந்துணர்ந்தே ஆற்று படைக்குறையை
ஊழிவரை போற்ற உதவினனால் ஏழிசைசேர்
கோழியுயர் கோனருளால் கோதண்ட பாணிமிக
வாழியபல் லாண்டு மகிழ்ந்து ⁷⁴

A man at the highest prism of character
Kothandapani's analysis of Thirumuragatrupadai
Has put all the literary giants to awe
Let the world rejoice his legacy
An inhabitant of Semmangudi who
Has contributed half to the glory
of Tamil and its legacy may his work
be rejoiced by the world
Through his ocean of thoughts
his work on lord muruga
will exist as long as sun and moon exists
and may he live forever

Pillai was a man of great moral values and ideologies. It is to be noted that Pillai lost both his children while he was alive. His daughter Rajalakshmi my grandmother expired at the age of 28 in 1958 and his son Meenakshi Sundaram expired in 1974.

Apart from his personal losses Pillai never lost his love for the language Tamil and its legacy. Being his great grandson I have taken the initiative to derive his roots. I would like to mention some of the themes on which Pillai penned his works.

1918: *Pattinappalai*: King Karikala Cholan
1932: *Stories from Tolstoy* - Count Leo Tolstoy
1934: *Mangayark karasiyar* - King Koon pandiyan
1936: *Pangayacchelvi* - Azhagan perumal parakrima pandiyan
1943: *Nedunalvaadai* - King Nedunchezhiyan pandiyan

Pillai breathed his last on the 9th January 1979 and an obituary was published in Senthamizh Selvi magazine narrating his contributions to the country and Tamil. ⁷⁵

⁷⁴ திருமுருகாற்று படை திறன் 1973.

⁷⁵ செந்தமிழ் செல்வி February 1979.

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History of Women in the Lohara Dynasty

Nikita Mishra

ABSTRACT

This paper explores the condition of upper class and lower class women in the Lohara Dynasty. In contrast to the condition of the women in other North Indian dynasties, women of the Lohara Dynasty participated with women in the state Rajatarangini by Kalhana portrays active participation of women in the state administration.

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History of Women in the Lohara Dynasty

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This paper explores the condition of upper class and lower class women in the Lohara Dynasty. In contrast to the condition of the women in other North Indian dynasties, women of the Lohara Dynasty participated with women in the state Rajatarangini by Kalhana portrays active participation of women in the state administration.

I. INTRODUCTION

Women in the Lohara dynasty belonging to the upper class received education in statecraft and diplomacy whereas less is known about the lower class women. Rajatarangini by Kalhana mentions about Queen Srilekha licentious mother of King Hariraja the first ruler of Lohara dynasty, who endeavored to seek the crown for herself after her son's death. This portrays the thirst for power in the upper class women. Later, her son King Ananta married Queen Suryamati the daughter of King Indracandra. Queen Suryamati was a pious lady who founded the shrines of Sadasiva and the temple of Gaureswara. In the time to come Queen Suryamati proved an able administrator overpowering King Ananta rescuing the state from the financial crisis caused by the indebtedness of King Ananta. She roused a servant named Haladhara to the position of the prime minister.

He proved to be an able administrator. Queen Suryamati can be seen as a lady who made an ardent decision in state administration. While the queen looked after state administration, King Ananta used the congenial conditions to establish his authority in the neighboring hilly tracts.

The charismatic personality of Suryamati made her influential resulting in the abdication of King Ananta in 1603 in favor of his son Kalasa. Queen Suryamati was blinded in her love for her son neglected Kalasa's inefficiency as a ruler.

Therefore, King Ananta took upon to took up regal functions shifting his capital to Vijayesvara. After violent altercations with his family King Ananta died.

The king's death was followed by practice of sati by Queen Suryamati.

Practice of sati prevalent showed that after the death of once husband women led a miserable life with austerity. Women of King Harsa's household were compelled to commit sati under the turbulent circumstances between King Harsa and his counterpart Uccala. Queen Vasantlekha the chief queen of King Harsa a Sahi princess did the practice of sati.

II. SECOND LOHARA DYNASTY

During King Sussala's reign, the royal ladies led a turbulent life, the rivalry between King Sussala and his counterparts led to the death of his queen Meghamanjeri. In some cases, women entered the state politics, Rajatarangini mentions about the chief queen of Queen Kalhanika who undertook the task of mediating King Jayasimha and his rival Bhoja. The queen walked down to receive Bhoja on his surrender. Although, the rulers ascended the throne but the power of decision making lay with the queen consort. Matrimonial alliances were seen as a major step in forming political alliances, were women of the royal household as a means to secure political alliances. Rajatarangini mentions King Jayasimha's daughter Menila being married to Bhupala, chief of Rajapuri.

Kota rani was the last ruler of the Lohara dynasty. She was the daughter of Ramachandra, the commander of King Sahadeva's army. She married Prince Rinchan the murderer of her father in her quest for power. She gained the control of state administration gaining ascendancy over the king. After Rinchan's death

the threat to the throne of Kashmir lingered in the form of rebellions. Rani remarried and proclaimed Udyanadeva as the new ruler to curb the rebellions. Therefore, Kota Rani secured her power over the throne of Kashmir, made King Udyanadeva as the de facto head. Still the rebellions against the Rani continued to grow especially after the arrival of an invader named Achala. King Udyanadeva fled Kashmir, but the Rani with her undaunting courage decided to devise a plan to curb the rebellion. Subsequently, Achala was defeated by Rani. In the time of political crisis when the king fled to safeguard his interests, Kota Rani with her exemplary courage curbed the insurgency.

Kota Rani ascended the throne in 1338 as a reigning monarch, soon her authority was challenged by Shah Mir who was once a loyal courtier. After offering five months of resistance finally the queen subdued, killing herself at the sight of her defeat. Kota Rani's frivolous nature matched with her intelligence and charm countered the insurgencies. However, her quest for power doomed to her end.

III. PRACTICE OF SATI

The practice of sati was a noble act that a woman could do to reunite with her husband eternally. During the second, Lohara Dynasty the practice became confined to royal families, whereby it was performed after King Jayasimha's death by his queens Jayamati and Bijjila. Remarking this event Kalhana writes, "these women of inscrutable minds, who though given unfaithfulness and killing their husbands, step with ease into the fire." There are incidents of royal women bribing the royal officials to dissuade them from voluntary resolutions to accompany their departed husbands. The practice of sati saw roots in the households of the officials reaching to the lower classes. Rajatarangini portrays the practice of sati as a noble act unifying the husband and wife eternally.

IV. EDUCATION

Education was an opportunity only provided to upper class women.

Damodargupta's Kuiuannimata Kavya shows that women studied sexual sciences of Vatsyayna, Dattaka, Viuapatra and Rajaputra. They meticulously learned needlework, painting, botany and practical training in instrumental music. However, the women of lower class were oblivious to the education took upon the occupation of dancing girls or prostitution.

V. CLASS OF PROSTITUTES

The class of prostitutes finds mention in Rajatarangini and Samayamatrka by Ksmendra. These works claim the prostitutes lured men to extract money following imbecile means. Queen Jayamati took upon a woman named Karnasravati who became the concubine of King Uccala. But, she later on became the chief queen of governor Ananda. Here, Karnasravati can be seen as a lady with a charismatic personality who whimsically won over the King Uccala and governor Ananda living an affluent lifestyle in the royal household.

Dancing girls (martaki) were attached to the temples living lives within the inner spheres of the temples. Rajatarangini mentions a dancing girl named Sahaja who was taken up by King Utkarsa in his royal seraglio. Sahaja went on to commit sati after the death of King Utkarsa. Kalhana praises her for her noble conduct. Therefore, the class of prostitutes were prevalent to merely satisfy the desires of kings and royal officials. The lower class women living in poverty choose the occupation to enter the royal seraglio.

VI. CONCLUSION

The women in Lohara Dynasty enjoyed a good amount of freedom in every sphere of life. Rajatarangini by Kalhana mentions that women enjoyed freedom in every sphere of life. The royal women played the role of regent for their minors, councilors of their husbands and most importantly as rulers. They also emerged as the donors of wealth, temple makers and even built towns. The women enjoyed proprietary rights and independent legal status. In contrast to the position of women in other North Indian dynasties, the women in Lohara Dynasty enjoyed considerable independence in domestic and

public sphere. Thus, the women in Lohara Dynasty carved out a space for themselves in the Indian History.

REFERENCES

1. Kalhana's Rajatarangini: A Chronicle of the Kings of Kashmir: 3 Volumes.
2. PNK Bamzai - Cultural and Political History of Kashmir.
3. Position of women in ancient Kashmir By:- Dr. Pooja Prashar.
4. Journal of South Asian Studies Status of Women in Ancient India: A Comparative Study of North Indian Society and Kashmir.

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Motivational Factors of Sports Betting and the Preponderance of Problem Gambling Severity among University Students: A Pragmatic Evidence

Pious Jojo Adu-Akoh & Eugene Kwarteng-Nantwi

University of Cape Coast

ABSTRACT

Gambling over the past centuries has evolved in terms of its expansion and form. Sports betting as one of the forms or components of gambling has grown globally over the years in the Americas, Europe, Asia and Africa. As a result, there is a reason to expect that gambling among university student may be more preponderant today than in previous years. Thus, the study explores the motivational factors towards sport betting and its widespread of problem gambling severity among university students. Descriptive survey design was adopted for the study. A fair representative sample size of 351 was determined through the Krejcie and Morgan minimum sample size determinant. Means, standard deviations, frequency counts, percentages were used in the analysis of the data. The study found that money was the leading motivational factor for university students' sports gamblers. Thus, the study recommends the setting up of a 'Gaming Research Unit' in partnership with the Students' Support Office (StuFSO) under the auspices of the university, to generate levies from gambling centres sited on and around the university's campuses to help finance bursaries for average but needy students of the university who may be engaging in sport betting.

Keywords: problem gambling severity, sport betting, motivational factors, preponderance, university students.

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I. INTRODUCTION

Sports betting as an industrial sector has grown globally over the years, and is a component of the package sold for game days in the Americas, particularly in the developed world. Mwadime (2017), reports that illegal gambling alone can reach \$500 million. Global Gambling Revenue in 2018 has been measured at 435 billion dollars and is an increasing part of the global economy (Global Betting and Gaming Consultants - GBGC Report, 2018). The countries with retracting economies often frequently use gambling as a source of revenues (Cassidy, Pisac & loussouarn, 2013). The GBGC announced in 2018 that Asia is the largest gambling market with a percentage of 31.3, while the USA is the largest game industry jurisdiction. Sixty million Nigerians aged 18-40 are active sports bettors in Africa, as stated by *gamblingafrica.com*. Data from South African governments indicate that more than 50% of adults in South Africa sports bet (Nzimande, Louw, Mannya, Bodasing & Ludin, 2010). This was also recorded for south, east, central and western Africa. According to a 2014 report published by Price Water House Coopers, Nigeria, Kenya and South Africa betting markets in 2018 worth \$37 billion and that the popularity of sportsbooks online such as Bet365, 888Sport, Safari Bet and Betway has been increasing.

According to *bettingcompaniesghana.com*, the games industry in Ghana only took off in the last decade. Inferring from the site, in just over a decade, the industry has seen a booming effect, and over 20 regional casinos and betting firms are currently operating in Ghana. There are also hundreds of foreign casinos and betting brands in the country. Ghana has an even more recent

growth of online gambling and betting industry. A burst of online casinos and betting companies began operating in the country in order to cater for the preponderant audience (*bettingcompanies inghana.com*). Also, offline betting companies have been made available online. Through new channels such as the internet and social media, there have been increasing advertising of sports activities (Derevensky, Sklar, Gupta, Messerlian, 2010; Binde, 2014). The trend has been recently identified in the introduction of television gambling advertising in countries such as, Ghana, South Africa, Kenya, Nigeria, USA, Canada, etc. (Koross, 2016; Milner, Hing, Vitartas & Lamont, 2013; Ssewanyana & Bitanihirwe, 2018).

Today, the widespread of legitimate gambling, promotions of gambling activities coupled with easy accessibility via the internet has exposed many university students to the act (Conrad, 2008). As a result, there is a reason to expect that university students gambling may be more preponderant today than in previous years (Winters, Stinchfield, Botzet, & Anderson, 2002).

Pathological gambling prevalence among university students is projected to be 5.6%, almost three times the preponderant of 1.9% in the general adult population (Shaffer & Bethune, 2000). Usually, sports betting, poker, bingo, non-casino slot machines, cockfights, racing on horses or grass-hounds, throwing parts, internet gaming, rattles, tickets for scratching and winning ticketing, state-run lotteries and pull tabs are posited by Verbeke and Dittrick-Nathan (2007) as youth or student gambling events. On the motivational level, Verbeke and Dittrick-Nathan also found that students gamble for fun, for socialization, for money and for risk-winning scenario thrills. They further stated that, students often gamble to avoid issues at home or at school, to keep them from feeling isolated, and to relieve feelings of depression, isolation and other negative moods. In addition, to the factors that motivate students to gamble, McBride and Derevensky (2012), found that students are more likely to gamble because of easy access to internet and internet cafés, game centres, betting venues, need for immediate satisfaction and an interest in increasing social standing.

Researchers have examined the pathways and processes that lead individuals to gamble (e.g., Wu, Tao, Tong, & Cheung, 2012; Chen, Wu, & Tong, 2015; Francis, Dowling, Jackson, Christensen, & Wardle, 2015 etc.). According to the New York Council on Problem gambling (www.nyproblemgambling.org), many individuals use gambling to avoid handling personal feelings or problems, they 'escape' into activities such as internet gambling and playing at slot machines to avoid interaction with others and to avoid having to confront existing problems. Research has shown that youth with gambling problems are more likely to report using gambling as a form of escape or to relieve daily hassles or stress (Derevensky & Gupta, 2004).

These youth have positive attitudes toward gambling and subsequently seek out gambling for its perceived benefits: excitement, relief of boredom, power or control, and socialization (Derevensky & Gupta, 2004). Neighbors, Lostutter, Cronce, and Larimer (2002), from their "comprehensive set of 16 gambling motives" based on open-ended responses revealed that most college students gamble to win money, for fun, for social reasons (such as making of friends etc.), for excitement, or just to have something to do. McGrath et al. (2010), also found that gambling for money and for charitable events were frequently endorsed motivational factors for gambling. From the study of Rodriguez, Neighbors, Rinker, and Tackett (2015), intrinsically motivated motives were operationalized with items such as, 'for the pleasure I feel when my knowledge of the game improves', and 'because it is the best way I know of for meeting friends', whereas extrinsically motivated motives were represented by items such as 'to buy something I have been dreaming of' (i.e., gambling to become rich). Individuals who were more intrinsically motivated gambled because the gambling brought them excitement, an opportunity to obtain knowledge, and a sense of accomplishment. However, extrinsically motivated gamblers gambled because of external rewards such as money and social approval. Further, they found that gamblers who were motivated for intrinsic reasons were more likely to continue

investing resources into gambling activities, though it was noted that gambling is less likely to be intrinsically motivated when it crosses the threshold into becoming problematic. Mwadime (2017), ironically found that majority of the respondents perceived self-controlled when betting. Prior to this, Wardle et al. (2007), found that respondents with higher levels of education were less likely to gamble; 61% of those with a degree compared with 73% who were educated to GCSE/O level equivalent. The British Gambling Prevalence Survey (Wardle et al., 2007) also found that people in higher income households were more likely to gamble". Affirming the above findings, Ahaibwe, Lakuma, Katunze and Mawejje (2016), mentioned that the propensity to gamble is strongly influenced by personal income level. In Ghana, Ofosu and Kotey (2020), revealed that sports betting participants viewed betting as a means to an end, a chance to improve their financial circumstances. Thus, the above show that the socioeconomic background of the individual could be a motivational factor for gambling. Could this also be the case of university students?

However, a study by Koross (2016), among university student cited Custer and Milt (1985) who argued that gambling motives were different among gamblers. They classified gamblers into six categories based on their purpose for gambling: (a) social gamblers, who play for fun and are not emotionally affected by their wins or loses; (b) professional players, who gamble as a career and play for money but can tolerate losses as part of their business; (c) antisocial gamblers, whose only purpose is winning and thus might cheat during gambling to ensure they win; (d) serious social gamblers, who gamble as a leisure and social activity; (e) relief and escape gamblers, who play to seek emotional relief; and (f) addictive and compulsive gamblers, whose gambling behaviours are not self-controlled and affect their lives negatively. To investigate these determinants as stated by Custer and Milt, Koross (2016), established that money was the main and biggest motivator causing university students to gamble.

Similarly, Kam, Wong, So, Un, and Chan (2017), found that university students gamble for three

main reasons, that is seeking entertainment, killing time, and as a result of peer influence. This was evident in Kenya as the mass media broadcasts show how the winners celebrate and motivate others to continue betting since they have chances of winning millions of money.

Students also seem to rely on the money from the bets for their daily up keep and entertainment.

The other motivational factors were betting for enjoyment and to be together with peers in that students stated them as their main motivational factors. Others indicated that boredom was their motivational factor, instead of being idle they utilize their 'leisure time' by betting – this was subtly realised in the work of Kwarteng-Nantwi, Adu-Akoh & Edjah (2022). The above motivating factors were some of the reason students gave when the Ghana News Agency, GNA spoke with students in the Sunyani Technical University.

Hence the researchers seek to find out whether this will be the case of the university of Cape Coast or will there be other concealing factors stimulating students to bet especially in sport bets on campus? Also, the study sought to determine the various gambling severity levels/groups using the Canadian Problem Gambling Severity Index (CPGSI).

II. CONCEPTS, EMPIRICS AND THEORY

Problem gambling often depends on whether the gambler or the 'relatives of the gambler' suffers harm. Severe problem gambling may be diagnosed as pathological gambling if the gambler meets certain criteria on the DSM-V (APA, 2013).

Problem gambling as stated in the works of these gambling researchers (Calado, & Griffiths, 2016; Jazaeri, & Habil, 2012; Griffiths, Wardle, Orford, Sproston, & Erens, 2011) refers to all the harmful behaviours resulting from constant gambling. Ferris and Wynne (2001) in their development of the Canadian Problem Gambling Index defined Problem gambling as the adverse effects on the gambler, on other individuals, his/her social life or even on the community as a result of the individual's excessive gambling behaviour.

Problem Gambling Severity groupings or sub-types are “non-problem gambler”, “low risk gambler”, “moderate risk gambler”, and “problem gambler”. These groups have different intensity of severity level. Shen, Kairouz, Nadeau and Robillard (2015), established that problem gamblers massively engage in varied locations and more diversely in gambling activities, than moderate-risk or even non-problem gamblers. A long time study by Petry and Weinstock (2007), revealed that out of 1356 university student participants, 23% reported ever gambling on the internet. Almost two-thirds (61.6%) of regular Internet gamblers were problem gamblers. The preponderance of internet gambling of Petry and Weinstock (2007) may be demographically influenced as students in these universities may have readily accessible Wi-Fi. University students have been identified as “an at risk group in relation to online gambling” (Wood, Griffiths, & Parke, 2007). The problem of gambling peaks due to the fact that many students (18-24years) use the internet regularly (Productivity Commission; PC, 2010). Similarly, Griffiths and Parke (2010) and King, Delfabbro, and Griffiths (2010) found that the use of smartphones and other mobile devices has facilitated the preponderance and rise of gambling among the youth. Given the global expansion of the gambling industry, Williams, Volberg and Stevens (2012), found a significant increase in the preponderance of problem gambling to be inevitable. Griffiths (2009) also reported that availability of opportunities to gamble and the preponderance of problem gambling within a community are known to be linked. Giralt et al. (2018), indicated that participation in gambling activities is common among under-aged adolescents and that preponderance of problematic gambling exceeds rates of adults.

From the work of van der Maas et al (2018) in Ontario, Canada, preponderance of problem gambling was quite low in their adult sample. The large majority, 90.3% of those who participated in gambling in the 12 months prior to the survey were classified as non-problem gamblers based on the Problem Gambling Severity Index, PGSI (score of 0). 7.1% participants were classified with

low-level gambling problems (PGSI: 1–2). The number of problem gamblers as identified by the PGSI (8+) was 0.1% of the population. It was found that prevalence rates of risk and problem were very low but similar to those reported in previous Australian study that used the PGSI in samples of adolescents and young adults (Delfabbro, King & Griffiths, 2014).

In Africa, the preponderance of gambling among students was observed by Koross, 2016. Though the sample size of Koross, was small (100 university students), it was conducted in an African university setting so it provides the researchers with a compelling case and what to anticipate as the study was conducted. According to Koross (2016), there is a high preponderance of gambling among university students in Kenyan university. Majority of the students, 50% indicated that they bet at least once a week, while 28% indicated that they bet at least once a fortnight and 12% at least once a month and 7% at least once in the past three months. The findings showed that almost all the students do bet at varying frequency counts. This agrees with the findings of Ly (2010) who established in his study that almost 60% of university students are regular gamblers. The findings also indicated that university gambling students can be grouped into six types of gamblers; compulsive gamblers, serious social gamblers, casual social gamblers, antisocial or personality gamblers, escape gamblers and professional gamblers. With the issues of gamble severity, Mwadime (2017), found that more than once a week bets were the most common frequency of betting followed by weekly bets. In support of this, Caldeira et al (2017), stated that frequent or daily gambling was rare and that gambling weekly or gambling more than once within a week was relatively high. Ahaibwe, Lakuma, Katunze and Mawejje (2016), also stated that the youth are likely to bet on sports on a daily basis compared to the older bettors but in all the weekly sports bet was very high. Mwadime (2017), further found that more than half of the respondents who gambled sometimes win their bets. Their wins instigated a personal believe and a high level of confidence among gamblers as this resulted in sports betting addiction.

With regard to motivation the researchers explored Self-determination Theory (SDT). The theory of Self-determination explicates how one relates with his/her social environment. It is a broader perspective of man's personality and motivation. According to Neighbors and Larimer (2004), motivational orientations are important determinants of problem gambling. SDT deals with how both intrinsic and extrinsic motivation influence one's responses within a situation.

According to Deci and Ryan (1985), extrinsic motivation is where external sources influences the behaviour of an individual. Extrinsically motivated gamblers are more likely to continually engage in sport betting because of external rewards such as money and social approval (Rodriguez, Neighbors, Rinker & Tackett, 2015).

On the other hand, intrinsic motivation comes from the individual's own inner drivers. Individuals who are more intrinsically motivated in their reasons for gambling were more likely to gamble because it offered excitement, an opportunity to obtain knowledge, and a sense of accomplishment (Rodriguez, et al, 2015).

However, SDT differentiates between autonomous motivation and controlled motivation (Ryan & Deci, 2008). When people are autonomously motivated, they act with a full sense of willingness and volition, wholly endorsing that which they are doing because they find it either interesting and enjoyable, or consistent with their deeply held, integrated values. Autonomous motivation would be associated with less problematic gambling. This is because the individual is conscious of the potential risks posed by his/her gambling behaviour. In contrast, when people's motivation is controlled, they act out of coercion, seduction, or obligation. They tend to experience pressure and compulsion, rather than concurrence and choice. Controlled motivation would be associated with more problematic gambling (Neighbors & Larimer, 2004). As a motivational theory, SDT examines why people behave the way they do. "Research suggests that people are motivated to gamble because of the emotions, social connections, monetary gain, self-worth, and intellectual challenge that are commonly related

to gambling" (e.g., Chen, Wu, & Tong, 2015; Francis, Dowling, Jackson, Christensen, & Wardle, 2015; Wu, Tao, Tong, & Cheung, 2012).

According to Deci and Ryan (2000), there are three psychological needs that motivate the self to initiate behaviour. These needs are said to be universal, innate and psychological and include the need for competence, autonomy, and social relations (relatedness). Self-determination theory, propose that people need to feel the following in order to achieve psychological growth:

- 1) *Competence*: People need to gain mastery of tasks and learn different skills. It is found that people continually gamble because they want to gain full knowledge of the system; that is to "learn the game", "to feel competent", hence make more wins out of their bets (Shinaprayoon, Carter & Goodie, 2017).
- 2) *Autonomy*: People need to feel in control of their own behaviours and goals. For example, gamblers are sometimes attracted to sports betting because they can research information about teams and the odds of winning. They can also increase their self-esteem by appearing to be knowledgeable about games and that they have control over the tendencies to win or lose a bet.
- 3) *Connection or Relatedness*: People need to experience a sense of belonging and attachment to other people. According to Shinaprayoon, Carter and Goodie, there is a reason to believe that people gamble because they want to be socially recognised among their peers.

According to Ryan and Deci (2015) people tend to be amotivated for a behaviour when they do not feel competent to do it or when they do not value the outcomes that are likely to follow the behaviours. They opine that the concept of amotivation refers to people having no intentionality or motivation. Many gamblers are faced with amotivation when they are challenged by the fact that they play for money, but sometimes feel they do not get a lot out of their gambling activities. Thus, many motivation theories use the primary distinction of individuals being motivated versus unmotivated. But, SDT, however, has a tripartite differentiation of

autonomous motivation, controlled motivation, and amotivation (Ryan, & Deci, 2015). One being intrinsically or extrinsically motivated may have some level of challenges on himself or on the elements within his environment. Basically, the critics of this theory highlights that individuals who lack self-determination will attempt to put the blame on someone or something else in an attempt to take of the pressure from themselves.

III. THEORETICAL MODEL [BLASZCZYNSKI AND NOWER PROBLEM AND PATHOLOGICAL GAMBLING MODEL]

The Pathways Model (Blaszczynski & Nower, 2002), is a theoretical framework that proposes three pathways for identifying subtypes of problem gamblers. The model asserts that all individuals with gambling disorder share common ecological factors of availability, accessibility, and acceptability of gambling, combined with cognitive distortions and habituation, resulting from operant conditioning that occurs in the gambling environment. The model shows the different characteristics that could be exhibited by a problem gambler as a result of nature and nurture experiences by the individual.

Pathway 1: Behaviourally Conditioned (BC)

Pathway 1 gamblers are characterized by an absence of specific pre-morbid features of psychopathology, and their gambling results largely from the effects of conditioning, distorted cognitions surrounding probability of winning and disregard for the notion of independence of events, and/or a series of bad judgments/poor decision-making rather than because of impaired control. Gamblers fitting of this typology are differentiated by the absence of any pre-existing clinically significant psychopathology (Blaszczynski & Nower, 2002). However, it is suggested that BC gamblers can develop co-morbid correlate behaviours such as depression and anxiety, but such disorders are a consequence of problematic gambling rather than being contributing factors. It is also suggested that “BC gamblers may demonstrate instability, fluctuating between heavy gambling and pathological gambling”

(Nower & Blaszczynski, 2016). Moreover, gamblers typically receive wins in highly variable patterns (Browne, Rockloff, Blaszczynski, Allcock, & Windross, 2015), and it has been theorized that variable reinforcement schedules are a powerful environmental factor that maintain gambling behaviour” (Hurlburt, Knapp & Knowles, 1980). It is proposed that “counselling and minimal intervention programmes benefit this subgroup” (Nower & Blaszczynski, 2016).

Pathway 2: Emotionally Vulnerable

Pathway 2 gamblers share similar ecological determinants, conditioning processes, and cognitive schemas; however, these individuals are present with pre-morbid drug abuse, anxiety, and/or depression, a history of poor coping and problem-solving skills, problematic family background experiences, and major traumatic life events that fuel gambling participation motivated by a desire to modulate affective states and/or meet specific psychological needs. This subgroup of gamblers displays “higher levels of psychopathology, in depression, anxiety and alcohol dependence” (Blaszczynski & Nower, 2002). In contrast, Pathway 2 gamblers are emotionally vulnerable as a result of psychosocial and biological factors, utilizing gambling primarily to relieve aversive affective states by providing escape or arousal. Once initiated, a habitual pattern of gambling fosters behavioural conditioning and dependence in both pathways.

However, psychological dysfunction in Pathway 2 gamblers makes this group more resistant to change and necessitates treatment that “addresses the underlying vulnerabilities as well as the gambling behaviour” (Blaszczynski & Nower, 2002).

Pathway 3: Biologically-Based Impulsive

Finally, Pathway 3 gamblers possess psychosocial and biologically-based vulnerabilities similar to Pathway 2 but are distinguished by a high degree of impulsivity, antisocial personality and attention deficit disorders, manifesting in severe multiple maladaptive behaviours. Clinically, gamblers with a background history of impulsivity engage in a wider array of behavioural problems independent of their gambling, including substance abuse,

suicidality, irritability, low tolerance for boredom and criminal behaviours. In an interactive process, the effect of impulsivity is aggravated under pressure and in the presence of negative emotions. Poor interpersonal relationships, excessive alcohol and poly drug experimentation, non-gambling-related criminality and a family history of antisocial and alcohol problems are characteristic of this group. Gambling starts at an early age, rapidly escalates in intensity and severity, may occur in binge episodes and is

associated with early entry into gambling-related criminal behaviours. These gamblers are less motivated to seek treatment in the first instance, have poor compliance rates and respond poorly to any form of intervention. Blaszczynski, Steel and McConaghy (1997), have labelled these gamblers the 'antisocial impulsivist' sub-type.

The diagram below in Figure 1 shows Problem and Pathological Gambling Model of Blaszczynski and Nower (2002).

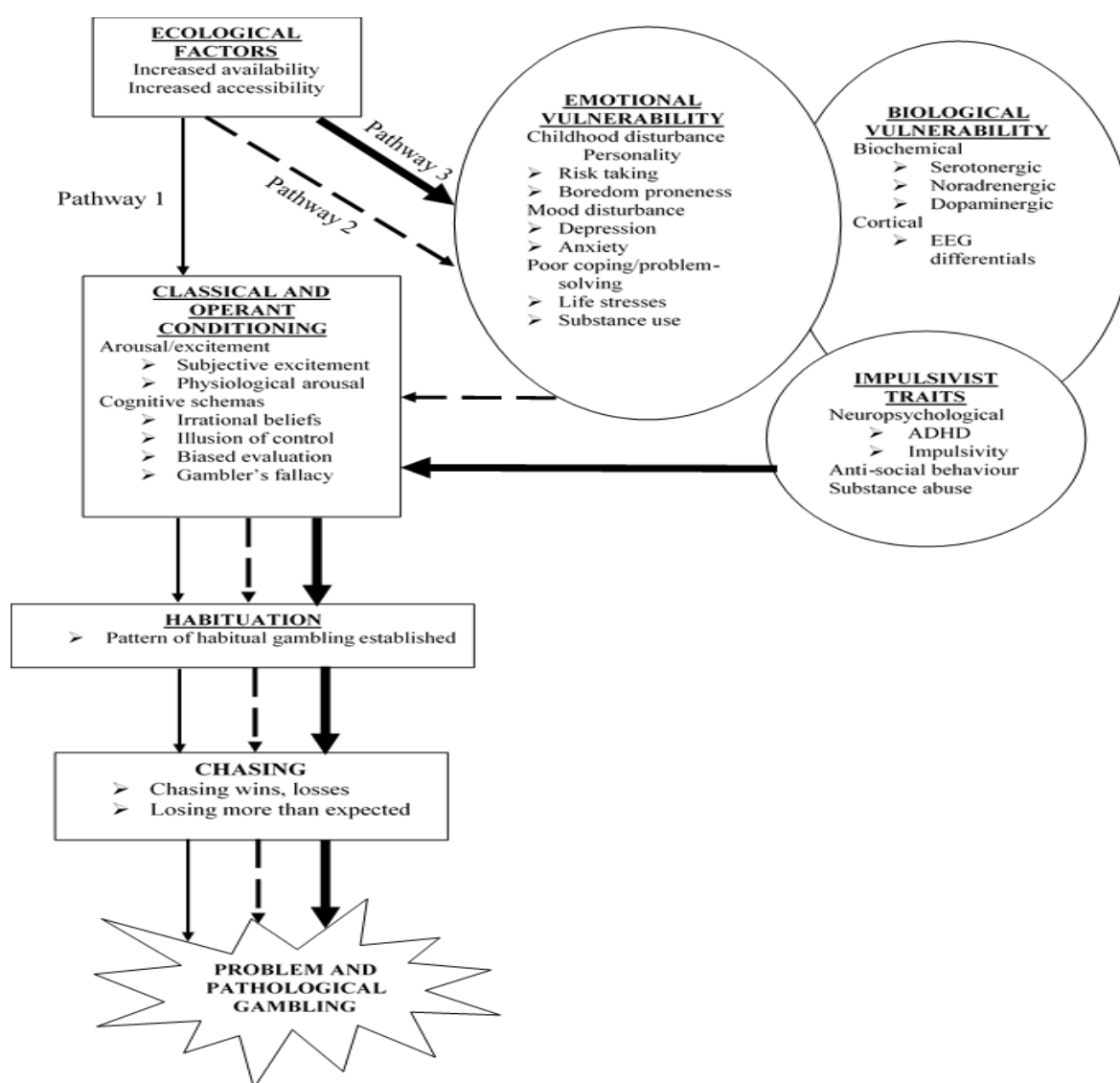


Figure 1: Problem and Pathological Gambling Model of Blaszczynski and Nower (2002)

IV. RESEARCH METHODS

Descriptive survey design was used in the study. In descriptive design research, the nature of a certain phenomenon is defined and events are determined and reported the way they exist. The

adoption of descriptive survey design was to ensure high objective standard in the analysis and answering of the research questions.

The accessible population for the study were all level 400 students (4,172) of the University of

Cape Coast. This sample was selected because they have spent 4 years on the university's campus and are well acquainted with the university's environment. A fair representative sample size was determined through the Krejcie and Morgan (1970) minimum sample size determinant.

According to Krejcie and Morgan a fair representation of a population of 4,172 is 351. The

researchers further used disproportionate stratified sampling technique to draw from each college the number required for the study. With disproportionate sampling, different strata (colleges) have different sampling characteristics and hence difference percentages were surveyed from each college.

Table 1: The total number of level 400s sampled for the study

Colleges	No. of level 400 student in a college/ Per (%) sampled.	Expected no. of sample from each college
"College of Education Studies"	1064 (11.8%)	126
"College of Health and Allied Sciences"	666 (6.3%)	42
"College of Humanities and Legal Studies"	1704 (8.8%)	150
"College of Agric. and Natural Science"	738 (4.5%)	33
Total		351

Source: Student Record Section of UCC, (2019); Field survey (2020)

The precision of the design was highly dependent on the sampling percentage/fraction allocation of the researcher. The disadvantage of this technique is that some sample will be overrepresented or underrepresented which will result in skewed results. Nonetheless, this has a merit of increasing the likelihood of fair representation and virtually ensure that any key characteristics of individuals in the population are included in the same population in the sample (Fraenkel & Wallen, 2012).

Questionnaires were used to conduct the study. The Modified Gambling Motivation Scale was adopted for this study to measure the motivation of students towards sports gambling.

Shinaprayoon, Carter and Goodie (2017) discovered six broad motivations for gambling. The scale is a six-factor structured scale of 28 items, which sought to measure motivation for gambling. The internal consistencies of the MGMS total scores ($\alpha = .92$) (Shinaprayoon, Carter & Goodie, 2017). The instrument consists of dimensions with items that measure the individual's motivation for gambling. These variables are: Intellectual challenge (8-items), Excitement (4-items), Socialization (4-items),

Monetary gain (4-items), Social recognition (4-items) and Amotivation (4-items). The scale is a 4-point Likert-type scale (1=strongly disagree, 2=disagree, 3=agree, 4=strongly agree). Scores on each subscale is the average of the items. Higher scores indicate greater motivation to gamble for a specific reason or greater motivation to gamble in general. Each subscale score ranges from 0 to 4. A mean of 0.00 to 2.49 was regarded as low and those statements that scored a mean from 2.50 to 4.00 was regarded as high. The criterion value of 2.50 was calculated for the scale. To obtain the criterion value ($CV=2.50$), the scores were added together and divided by the number of scales ($4+3+2+1= 10/4=2.50$). This allowed the researcher to assess specific motivations or a general motivations of gambling.

The Problem Gambling Subtype Index (PGSI) of the CPGI was also used to assess the preponderant rate of problem gambling. The PGSI 9 - items are scored between 0-27. The 9 items below are scored as: 0 for each response of "Never", 1 for each "sometimes," 2 for each "most of the time," and 3 for each "almost always." A score of between 0 and 27 points is possible. There are four classification categories based on the following cut-points for PGSI scores: 0 =

non-problem gambler, 1-2 = low risk gambler, 3-7 = moderate risk gambler 8+ = problem gambler.

Depending on a respondent's score on these nine PGSI items, he or she may be classified as being in one of four gambler sub-types, namely: (a) non-problem gambler, (b) low risk gambler, (c) moderate risk gambler, and (4) problem gambler. Scoring the 9-item PGSI is key hence no item was altered in anyway.

V. ANALYSIS, RESULTS AND DISCUSSIONS

Data collected was processed using the Statistical Product and Services Solution (SPSS) version 22 software. Means and standard deviations values were used to determine motivations towards gambling. Frequency count and percentages were

used to determine the preponderant rate of problem gambling.

5.1 Motivational Factors of Sport Gambling/Betting

The researchers assessed student's motivational factors of gambling. To derive evidence for students' motivations of gambling, university students were made to rate their desire to gamble using four-point Likert type scale. Means of each item were computed and the various means of the each variables (i.e: Intellectual challenge, Excitement, Socialization, Monetary gain, Social recognition and Amotivation) were later compounded and computed in other to determine which variable highly motivate students to gamble. Table 2 presents the results.

Table 2: Means, Standard Deviations and Ranks of Motivation for Sport Gambling

Motivation towards Sport Gambling	M	SD	MR
"I play for money".	2.16	1.097	1 st
"I play for money, but I sometimes worry if I should continue playing"	2.14	.994	2 nd
"It is quick and easy money".	2.14	1.033	2 nd
"I play for money, but I sometimes wonder if it is good for me".	2.12	1.012	4 th
"I feel important when I win".	2.12	1.023	4 th
"It is exciting to sport bet"	2.09	1.019	6 th
"I play for money, but I sometimes feel I do not get a lot out of it".	2.08	1.007	7 th
"I am curious to know what will happen in the game".	2.07	1.011	8 th
"It makes me a lot of money".	2.07	.996	8 th
"I play for money to buy what I desire".	2.06	1.046	10 th
"I enjoy learning new strategies".	2.06	.997	10 th
"It gives me a thrill or strong sensation".	2.05	.955	12 th
"Sport bet allows me to test my control".	2.00	.950	13 th
"I enjoy knowing my ability in this game".	1.99	.937	14 th
"I like it when I can control the game".	1.99	.938	14 th
"I play for money, but I sometimes wonder what I get out of sport bet".	1.98	.980	16 th
"I enjoy improving my knowledge of the game".	1.97	.966	17 th
"It gives me a feeling of control".	1.97	.908	17 th
"It is the best way to spend time with friends"	1.95	.902	19 th
"It is the best way to relax".	1.93	.890	20 th
"It allows me to enjoy myself enormously".	1.93	.925	20 th
"It is my hobby to clear my mind".	1.90	1.384	22 nd
"It makes me feel important".	1.87	.874	23 rd

"I feel competent when I sport bet".	1.87	.871	23 rd
"I experience strong sensations when I gamble".	1.83	.859	25 th
"It is the best way I know to eliminate tension".	1.82	.846	26 th
"To show others that I am a dynamic person".	1.77	.795	27 th
"I want to be envied by others".	1.77	.857	27 th
Mean of means/Standard Deviation	1.99	.748	

Source: Field survey (2020) (n=351)

The results of Table 2 shows that, majority of the student participants in the study on a total-base were lowly motivated to engage in sport betting in the university of Cape Coast. This was evident after the calculated means for all the items on the motivation scale scored a mean less than the test value of 2.50 ($MM=1.99$, $SD=.748$). From the results, though generally the majority were lowly motivated due to the presence of non-gambler students among the sample, but when ranked, student who gambled were highly motivated by the fact that they gamble for money ($M=2.16$,

$SD=1.097$). Most of them expressed that, "they play for money", but "they sometimes worry if they should continue playing" ($M=2.14$, $SD=.994$). Others asserted that "it was a quick and easy means of getting money" ($M=2.14$, $SD=1.033$). In another evidence, it reported that "many play for money, but they sometimes wonder if it was good for them" ($M=2.12$, $SD=1.012$). The findings show that most of the students who gambled were motivated to gamble because of the money they earn. From the above Table 2, it was evident that some of the items were ranked more than others.

Table 3: General Motivation for Sport Gambling by Students' Sport Bettors

General Motivation for Sport Gambling	M	SD	MR
Monetary gain	2.10	.922	1 st
Amotivation	2.08	.856	2 nd
Intellectual challenge	2.01	.823	3 rd
Excitement	1.97	.769	4 th
Socialization	1.89	.789	5 th
Social recognition	1.88	.716	6 th
Mean of means/Standard Deviation	1.99	.748	

Source: Field survey (2020) (n=351)

From Table 3, as stated earlier, majority were less motivated, because the calculated mean was less than the test value of 2.50 ($MM=1.99$, $SD=.748$). Generally, those who gambled were motivated because of the monetary gain ($M=2.10$, $SD=.922$).

This was followed by the fact that majority experience amotivation for their gambling behaviour ($M=2.08$, $SD=.856$). Next on the rank was that good number of sport bettors were motivated by the fact that it was intellectually challenging to sport gamble ($M=2.01$, $SD=.823$).

Again, excitement was the next motivational factor for gambling ($M=1.97$, $SD=.769$). Least on the ranks, socialization ($M=1.89$, $SD=.789$) and

social recognition ($M=1.88$, $SD=.716$) were also motivational drives for student who sports bet in the University of Cape Coast.

Theoretically, the results found in the study was in line with the theory of self-determination. The self-determination theory (SDT) deals with how both intrinsic and extrinsic motivation influence one's responses within a situation. SDT examines why people behave the way they do. To this, students who engaged in sport betting responded to gambling in relation to the factor(s) that drives them. SDT also states that people tend to be amotivated for a behaviour when they have no intentionality or motivation.

Empirically, some findings validated the results of this study. McGrath et al. (2010) in their study reveal that gambling for money and for charitable events were frequently endorsed reasons for gambling. In support of the findings, Koross (2016), established that money was the main and biggest motivator causing university students to gamble. He further stated that students rely on the money from the bets for their daily up keep and entertainment. Similarly, in Ghana, Ofosu and Kotey (2020), revealed that sports betting participants viewed betting as a means to an end, a chance to improve their financial circumstances.

They further reported that for a return of substantive payoff, the participants were willing to stop sports betting, thereby indicating that the financial payoffs were the main motivation for sports betting. Also, they asserted that participants were both risk-aware and risk-averse but engaged nevertheless in betting for a chance of winning a high payoff. In the same line, Neighbors et al. (2002), from their comprehensive set of 16 gambling motives based on open-ended responses revealed that most college students gamble to win money, for fun, for social reasons, and for excitement. For social reasons, Aguocha et al (2020), found that social acceptability (by parents and peers) is recognized as a very important motivation factor towards gambling.

The results from this study also revealed that a good number of students who engages in sport betting were amotivated. This was also in line with Neighbors et al. (2002), who found that students gamble for no reason than just to have something to do. Also, Mwadime (2017), affirms the findings of the study when he found that majority of the respondents perceived self-controlled when betting. That is, most student believe that they were in control of their gambling behaviour and for that matter bet to challenge their intellect. This finding from the study contradicted the finding of Salonen, Hellman, and Castr (2018), among south-eastern university students who reported that they feel angry about not controlling their gambling activities. From the study, most of the students who bet are basically motivated to do so because of the monetary component of gambling.

5.2 Preponderance of Problem Gambling Severity Among University Students

The research question was answered by using the nine items from the Problem gambling behaviour on the instrument which formed the Problem Gambling Severity Index, PGSI. The results of the 9-items from the four-point Likert scale type questions were merged and computed so as determine rate of prevalence for the various problem gambling severity or gambler sub-type.

Table 4: Preponderance of Problem Gambling Severity

Gambler sub-type	Freq.	Per (%)
Non-Problem Gambler	189	53.8
Low risk Gambler	10	2.8
Moderate risk Gambler	51	14.5
Problem Gambler	101	28.8
Total	351	100.0

Source: Field survey (2020)

From Table 1, it was realised that most of the participants were classified as non-problem gamblers (n=189, 53.8%). More than one-fourth of the participants were problem gamblers (n=101, 28.8%). Also, 14.5% (51) were found to be moderate risk gamblers with low risk gamblers recording the least (n=10, 2.8%) among the

participants. The result showed that all the four levels of gambling classification was identified by the Canadian Problem Gambling Index instrument.

In other works, van der Maas et al (2018), discovered that problem gambling was quite low

in their sample as compared to non-problem gamblers based on the PGSI. This was also similar to the findings of this study. For van der Maas et al, the percentage of problem gambling was very low in their study but comparing the percentages, though the percentage of problem gambling in this study was low, it was relatively higher than the findings of Maas et al. It was also found that a good number of students who bet, spend some of their monthly income on sport betting.

Confirming this, Ahaibwe, Lakuma, Katunze and Mawejje (2016), also revealed that on average, those who gamble spend about 12 percent of their monthly income on gambling activities. They noted that expenditure on gambling by the gambler to some extent is impulsive and not budgeted for, and hence participants tend to underreport the facts. The findings could be attributed to the unregulated gambling and gaming centres in and around the university communities.

VI. CONCLUSIONS AND RECOMMENDATIONS

It was also found that money was the leading motivational factor for students' sports bettors. It could be concluded that a good number of students on the university's campus are challenge financially or may have unmet financial needs. It could also be concluded from the findings that most students struggle with their self-identity as they were also in self-doubt as to their motivations of gambling. From the findings, a good number of students were found to be problem gamblers and as such it could be concluded that sport betting is very prevalent on the University's campus. This could be attributed to the fact that there are unregulated gambling centres in the university's communities. Likewise the easy access to Wi-Fi or internet connections on the university's campus could have resulted in most student's engaging in sport betting. Some of these bettors could indulge in the act secretly through the easy access of the Wi-Fi at their various halls or hostels in order to avoid any stigma that comes with one going to the game centres to place their bets.

The researchers recommend that since a good number of students had unmet financial needs, the university through its new initiative of Students' Support Office (StuFSO) which provides support to brilliant but needy students should also widen their scope in amassing resources to also provide for average students who may be engaged in gambling the opportunity to apply for a semester bursary which will cater for the students basic needs within a semester. Application of this bursary should come with a contract that students who apply will produce a budget of their basic expenses in the semester and also sign a bound to the effect that their semester's GPA will significantly increase in that semester. This would be the baseline for obtaining another bursary for another academic semester. This in a way could also reduce the red-tapes in the system for obtaining financial help with the university. To amass resource for such an agenda, for instance, a proposed 'Gaming Research Unit' in partnership with the Students' Support Office (StuFSO) under the auspices of the University, could generate levies from these gambling centres sited on the university's campuses to finance the bursaries for average but needy students of the university.

The researchers recommend that gambling educational programmes and awareness seminars should be embarked by the University. To effectively and consistently achieve and execute this on the university's campus, the university and the department of Psychology and Education should consider creating a "Gaming Research Unit" which will focus on designing and evaluating of gambling products in and around the university's environment. This unit could also liaise with other universities in the country to work together with the gambling companies under the auspices of the Gaming Commission of Ghana to put in protective measures to minimise the harm from gambling. The leadership, stakeholders and parents of wards in the university communities could also be involved in the awareness of the preponderance of problem gambling among university students.

Conflict of Interest Statement

The authors state that there is no conflict of interest.

Ethical Approval

The data used for the estimates do not include confidential information about individuals or animals that may raise ethical concerns.

Consent for Publication

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Data Availability Statement

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REFERENCES

1. Aguocha, C. M., Duru, C. B., Nwefoh, E. C., Amadi, K. U., Olose, E. O., Igwe, M. N., & Ndukuba, A. C. (2019). Determinants of gambling among male students in secondary schools in Imo State, Nigeria. *Journal of Substance Use*, 24(2), 199-205.
2. Ahaibwe, G., Lakuma, C. P., Katunze, M., & Mawejje, J. (2016). *Socio-economic effects of gambling: Evidence from Kampala City, Uganda*. Economic Policy Research Centre (126). <http://www.ageconsearch.umn.edu>
3. American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5thed.) https://www.amberton.edu/media/SyllabiGraduate/CSL6798_E1.pdf
4. Binde, P. (2014). Exploring the impact of gambling advertising: An interview study of problem gamblers. *International Journal of Mental Health and Addiction*, 7(4), 541-554.
5. Blaszczynski, A., & Nower, L. (2002). A pathways model of problem and pathological gambling. *Addiction*, 97(5), 487-499.
6. Blaszczynski, A., Steel, Z., & McConaghy, N. (1997). Impulsivity in pathological gambling: the antisocial impulsivist. *Addiction*, 92 (1), 75-87.
7. Browne, M., Rockloff, M. J., Blaszczynski, A., Allcock, C., & Windross, A. (2015). Delusions of expertise: The high standard of proof needed to demonstrate skills at horserace handicapping. *Journal of Gambling Studies*, 31, 73-89.
8. Calado, F., & Griffiths, M. D. (2016). Problem gambling worldwide: An update and systematic review of empirical research (2000-2015). *Journal of Behavioural Addictions*, 5 (4), 592-613.
9. Caldeira, K. M., Arria, A. M., O'Grady, K. E., Vincent, K. B., Robertson, C., & Welsh, C. J. (2017). Risk factors for gambling and substance use among recent college students. *Drug and Alcohol Dependence*, 179, 280-290.
10. Cassidy, R., Loussouarn, C., & Pisac, A. (2013). *Fair game: Producing gambling research*. Goldsmiths, University of London. Routledge.
11. Chen, J. H., Wu, A. M., & Tong, K. K. (2015). Evaluation of psychometric properties of the inventory of gambling motives, attitudes and behaviours among Chinese adolescents. *International Journal of Mental Health and Addiction*, 13(3), 361-375.
12. Conrad, M. (2008). *College student gambling: Examining the effects of gaming education within a college curriculum*. (Unpublished master's thesis). Department of Hospitality and Tourism, University of Massachusetts, Massachusetts.
13. Custer, R., & Milt, H. (1985). *When luck runs out: Help for compulsive gamblers and their families*. New York: Facts on File.
14. Deci, E. L., & Ryan, R. M. (1985). The general causality orientations scale: Self determination in personality. *Journal of Research in Personality*, 19 (2), 109-134.
15. Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behaviour. *Psychological inquiry*, 11(4), 227-268.
16. Delfabbro, P., King, D., & Griffiths, M. D. (2014). From adolescent to adult gambling: An analysis of longitudinal gambling patterns in South Australia. *Journal of Gambling Studies*, 30(3), 547-563.

17. Derevensky, J. L., & Gupta, R. (2004). Adolescents with gambling problems: A synopsis of our current knowledge. *Journal of Gambling Issues*, 10 (10), 1-22.
18. Derevensky, J., Sklar, A., Gupta, R., & Messerlian, C. (2010). An empirical study examining the impact of gambling advertisements on adolescent gambling attitudes and behaviors. *International Journal of Mental Health and Addiction*, 8, 21-34.
19. Ferris, J. A., & Wynne, H. J. (2001). *The Canadian problem gambling index*. Ottawa, ON: Canadian Centre on Substance Abuse.
20. Fraenkel, J. R., & Wallen, N. E. (2012). *How to design and evaluate research in education*. (6th ed.). Palgrave Macmillan.
21. Francis, K. L., Dowling, N. A., Jackson, A. C., Christensen, D. R., & Wardle, H. (2015). Gambling motives: Application of the reasons for gambling questionnaire in an Australian population survey. *Journal of Gambling Studies*, 31(3), 807-823.
22. Giralt, S., Müller, K. W., Beutel, M. E., Dreier, M., Duven, E., & Wölfling, K. (2018). Prevalence, risk factors, and psychosocial adjustment of problematic gambling in adolescents: Results from two representative German samples. *Journal of Behavioural Addictions*, 7(2), 339-347
23. Global Betting and Gaming Consultancy (GBGC) (2018) *State of Play*. Castletown: GBGC.
24. Glozah, F. N., Tolchard, B., & Pevalin, D. J. (2019). Participation and attitudes towards gambling in Ghanaian youth: An exploratory analysis of risk and protective factors. *International Journal of Adolescent Medicine and Health*, 1 (3), 20-39.
25. Griffiths, M. (2009). *Problem gambling in Europe: An overview*. Nottingham Trent University.
26. Griffiths, M. D., & Parke, J. (2010). Adolescent gambling on the Internet: A review. *International Journal of Adolescent Medicine and Health*, 22(1), 59-75.
27. Griffiths, M., Wardle, H., Orford, J., Sproston, K., & Erens, B. (2011). Internet gambling, health, smoking and alcohol use: Findings from the 2007 British Gambling Prevalence Survey. *International Journal of Mental Health and Addiction*, 9(1), 1-11.
28. Hurlburt, R. T., Knapp, T. J., & Knowles, S. H. (1980). Simulated slot-machine play with concurrent variable ratio and random ratio schedules of reinforcement. *Psychological Reports*, 47 (2), 635-639.
29. Jazaeri, S. A., & Habil, M. H. B. (2012). Reviewing two types of addiction—pathological gambling and substance use. *Indian Journal of Psychological Medicine*, 34 (1), 5-7.
30. Kam, S. M., Wong, I. L. K., So, E. M. T., Un, D. K. C., & Chan, C. H. W. (2017). Gambling behaviour among Macau College and university students. *Asian Journal of Gambling Issues and Public Health*, 7(1), 1-12.
31. King, D., Delfabbro, P., & Griffiths, M. (2010). The convergence of gambling and digital media: Implications for gambling in young people. *Journal of Gambling Studies*, 26(2), 175-187.
32. Koross, R. (2016). University students gambling: Examining the effects of betting on Kenyan university students' behaviour. *International Journal of Liberal Arts and Social Science*, 4(8), 57-66.
33. Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Journal of Educational and Psychological Measurement*, 30, 607-610.
34. Kwarteng-Nantwi, E., Adu-Akoh, P. J. & Edjah, J. O. (2022). Problem Gambling Severity of Students Sports Bettors and Its Relationship among the Dimensions of Study Habits: Implications for Counselling. *Journal of Education, Society and Behavioural Science*, 35(11), 70-76.
35. Ly, C. (2010). *An exploratory investigation of online gambling amongst University students in Tasmania*. Gambling support program, Department of Health and Human Services, University of Tasmania, Australia.
36. McBride, J., & Derevensky, J. (2012). Internet gambling and risk-taking among students: An exploratory study. *Journal of Behavioral Addictions*, 1(2), 50-58.
37. McGrath, D. S., Stewart, S. H., Klein, R. M., & Barrett, S. P. (2010). Self-generated motives

- for gambling in two population-based samples of gamblers. *International Gambling Studies*, 10 (2), 117-138.
38. Milner, L., Hing, N., Vitartas, P., & Lamont, M. (2013). Embedded gambling promotion in Australian football broadcasts: An exploratory study. *Communication, Politics & Culture*, 46(2), 177-198.
39. Mwadime, A. (2017). *Implications of Sports Betting In Kenya: Impact of Robust Growth of the Sports Betting Industry*. (Unpublished doctoral dissertation). United States International University-Africa.
40. Neighbors, C., & Larimer, M. E. (2004). Self-determination and problem gambling among college students. *Journal of Social and Clinical Psychology*, 23(4), 565-583.
41. Neighbors, C., Lostutter, T. W., Crouce, J. M., & Larimer, M. E. (2002). Exploring college student gambling motivation. *Journal of Gambling studies*, 18(4), 361-370.
42. Nower, L., & Blaszczynski, A. (2016, December 12). Development and validation of the Gambling Pathways Questionnaire (GPQ). *Psychology of Addictive Behaviours*. Advance online publication. <http://dx.doi.org/10.1037/adbo000234>.
43. Nzimande, S., Louw, S., Mannya, C., Bodasing, A., & Ludin, A. (2010). *Review of the South African gambling industry and its regulation: A report prepared by the Gambling Review Commission. Final report submitted to the Minister of Trade and Industry*. <https://www.pmg.org.za>
44. Ofosu, A., & Kotey, R. (2020). Does sports betting affect investment Behaviour? Evidence from Ghanaian sports betting participants. *Journal of Gambling Issues*, 43, 61-83.
45. Petry, N. M., & Weinstock, J. (2007). Internet gambling is common in college students and associated with poor mental health. *American Journal on Addictions*, 16 (5), 325-330.
46. Rodriguez, L. M., Neighbors, C., Rinker, D. V., & Tackett, J. L. (2015). Motivational profiles of gambling behaviour: Self-determination theory, gambling motives, and gambling behaviour. *Journal of Gambling Studies*, 31(4), 1597-1615.
47. Ryan, R. M., & Deci, E. L. (2008). A self-determination theory approach to psychotherapy: The motivational basis for effective change. *Canadian Psychology/Psychologie Canadienne*, 49 (3), 186-193.
48. Ryan, R. M., & Deci, E. L. (2015). Self-determination theory. *Elsevier Ltd*, 11, 7886-7888.
49. Salonen, A. H., Hellman, M., Latvala, T., & Castrén, S. (2018). Gambling participation, gambling habits, gambling-related harm, and opinions on gambling advertising in Finland in 2016. *Nordic Studies on Alcohol and drugs*, 35 (3), 215-234.
50. Shaffer, H. J., & Bethune, W. (2000). Introduction: youth gambling. *Journal of Gambling Studies*, 16(2-3), 113-121.
51. Shen, Y., Kairouz, S., Nadeau, L., & Robillard, C. (2015). Comparing problem gamblers with moderate-risk gamblers in a sample of university students. *Journal of Behavioural Addictions*, 4 (2), 53-59.
52. Shinaprayoon, T., Carter, N. T., & Goodie, A. S. (2017). The Modified Gambling Motivation Scale: Confirmatory factor analysis and links with problem gambling. *Journal of Gambling Issues*, 37, 108-135.
53. Ssewanyana, D., & Bitanirwe, B. (2018). Problem gambling among young people in sub-Saharan Africa. *Frontiers in Public Health*, 6, 23-24.
54. Van der Maas, M., Mann, R. E., Turner, N. E., Matheson, F. I., Hamilton, H. A., & McCready, J. (2018). The prevalence of problem gambling and gambling-related behaviours among older adults in Ontario. *Journal of Gambling Issues*, 39, 361-363.
55. Verbeke, E. M., & Ditttrick-Nathan, K. (2007). Student gambling. Principal Leadership. "How close is my state to legalizing sports betting?" <https://www.nefamilies4kids.org>
56. Wardle, H., Moody, A., Spence, S., Orford, J., Volberg, R., Jotangia, D., Griffiths, M., Huss-ey, D. & Dobbie, F. (2007). *British gambling prevalence survey 2007*. London, UK: The Stationery Office.
57. Williams, R. J., Volberg, R. A., & Stevens, R. M. (2012). *The population prevalence of problem gambling: Methodological influen-*

ces, standardized rates, jurisdictional differences, and worldwide trends. Ontario Problem Gambling Research Centre.

58. Winters, K. C., Stinchfield, R. D., Botzet, A., & Anderson, N. (2002). A prospective study of youth gambling behaviours. *Psychology of Addictive Behaviours*, 16 (1), 3-4.
59. Wood, R. T., Griffiths, M. D., & Parke, A. (2007). Experiences of time loss among videogame players: An empirical study. *Cyberpsychology & behaviour*, 10 (1), 38-44.
60. Wu, A. M., Tao, V. Y., Tong, K. K., & Cheung, S. F. (2012). Psychometric evaluation of the inventory of Gambling Motives, Attitudes and Behaviours (GMAB) among Chinese gamblers. *International Gambling Studies*, 12 (3), 331-347.

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