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Edited by Prof. M. Camino Escolar-Llamazares



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PREFACE

This book covers key areas of arts and social studies. The contributions by the authors include job-related stress, mental and physical health, cardiovascular-musculoskeletal-gastrointestinal disorders, anxiety and depression, socio-economic development, tourism, cultural festival, employment opportunities, empirical identity and progress, theory choice, cumulative and non-cumulative view, coordination theory, community engagement, Tuckman's teamwork model, stacked influence theory, institutional stakeholders, beach resorts, iron curtain, colossus of prora, communist rule, musicology, anthropology of music, musical language, Rhombus diamond theory, intelligent disobedience, civil-military relations, political-military complex, aesthetic experience, computational expression, ideology, metaphysics, Schwartz's Theory, bipolar dimensions, e-government domains, Information and communication technology, internet technology, community services. This book contains various materials suitable for students, researchers and academicians in the field of arts and social studies.

A Brief Overview of the History of Sea Resorts Along the Baltic Coast

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ABSTRACT

The history of sea-resorts along the Baltic Sea over the last three centuries is an almost unknown topic of European integration in terms of (social) hygiene, investment, culture, architecture as well as the important contribution of Jewish origin and the impact of British influence, due to dynastic networks. This chapter aims to highlight the History of Sea Resorts along the Baltic Coast.

Keywords: Sea resorts; baltic coast; coastal spas.

1. INTRODUCTION

Beach resorts evolve from natural contexts through the expansion of accommodation and other recreational functions. With greater size they lose their natural characteristics and become increasingly urbanized. The transition from natural to urban resort is often rapid, with some beach resorts being transformed into cities in less than two decades [1-3]. In the years since the reunification in 1990 tourism has become an important economic sector of Mecklenburg-Western Pomerania, with the coast of the Baltic Sea playing a decisive role [4].

Since 1730, England's inventive spirit has served as a model for the creation of coastal spas, which were initially established as summer residences on the North and Baltic Seas by princely and community investors. The duke of Mecklenburg established the first princely site at Heiligendamm in 1793, followed in 1803 by the duke of Putbus on the island of Ruegen. The first communal spa was founded by the citizens of Lübeck in 1802 at Travemünde. Cranz/ from 1947 Selonogradsk in the Oblast Kaliningrad, was the first spa in Eastern Prussia since 1816; Zoppot/ Swinemünde/ Swinojskie in Pomerania, now in Poland, evolved as Bathtubs for

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Berliners since, due to the railways linking them with the capital since 1850. The enriched bourgeoisie cultivated the resources of these spas on sea, eager to exploit the medical progress of applied hydrotherapy. The prohibition of casinos in the North German Federation since 1868 and in the German Reich since 1871 had a negative influence on sea site tourism. Since 1873, vacancies were increasing again thanks to holidays granted to state employees and the application of the new laws for social hygiene.

For masses of Berliners and other German citizens, a real Bathtub to be was realized with uniformed and stereotype blocs on 5 km along the sea on the island of Rügen. Initiated in 1935 by the KdF (Kraft durch Freude= Force by pleasure) and executed by that NS body for organizing leisure: 20.000 people were to spend their holidays in the Coloss of Prora. Unachieved in 1939 due to the necessities of the Second World War, the future use of these gigantic, almost indestructible buildings, since 1990 of uncertain future, has found a new outlook as luxurious apartments for holidays [5].

2. BATHTUBS FOR BERLINERS

The English impetus to the founding of baths on the emerging continent around 1800 on the Baltic coast, is due to different innovative medical models. Johann Georg Lichtenberg, the author of a paperback almanac published in Göttingen that initiates this cultural transfer, offers sea-bathing cures after having personally tested the Margate waters: In 1793 he publishes an article questioning why Germany does not have a public sea bath. On the continent, princes and aristocrats will apply them on their land, beholden to the conscience given to health, recreation, entertainment society, eclecticism and architectural Orientalism, or else as part of parks landscaping. These influences include the seaside resorts in Pomerania, a province that remained under the reign of the Kingdom of Sweden since the peace of Münster from 1648 until the Congress of Vienna in 1815. The hot baths, installed after 1800 at the first seaside resorts in Heiligendamm are inspired by English cures at the Great Pump Room of the hot bath erected in 1786 in Bath, Somerset County. In 1800, this thriving spa town already has 34,000 inhabitants.

The founding of the first German sea hospital on Norderney Island, in the North Sea [6], focuses on the Royal Sea Bathing Infirmary for the Relief of the Scrupulous Poor of London and All England in Margate, County of Kent, founded in 1796 at the mouth of the Thames: Friedrich Wilhelm Beneke (1824-1882), professor of medicine at the University of Marburg, examines the beneficial effects of seawater during the winter of 1881/82 with 53 patients, aged between three and 49 years old. After its positive conclusion, Emperor Wilhelm II personally invested half of the construction costs, namely 250,000 Reichsmark, with the aim of installing a large national institution for public health. The remainder will finance the donation of an American of German origin and the revenues of 700,000 lots of lottery. In 1886, the Pediatric Hospital and the Kaiserin Friedrich Sea Hospice, dedicated to Empress Victoria, the daughter of the Queen of England and Prince Albert of Saxe-Coburg, were inaugurated. Since 1947 under the direction of the Deaconess

Order, the imperial institution installed in a building that resembles a barracks, survives to this day.

Another British model to be copied in the German Empire was the sporting event of Cowes Week. Founded in 1826 by the Royal Yacht Club and Prince Regent, the future King George IV, the sailing regatta for the Cowes Cup trophy was held on the English Channel off the Isle of Wight. In 1889, William II, supported by Imperial admirals and merchants of Kiel, initiated the copy for the sailing regatta christened Kieler Woche, "the week of Kiel" still in force; the Navy enthusiastic emperor will attend every year from 1894 to 1914.

Since 1800, the tourist prestige of sea bathing on the Baltic owes its progress to princely investors and bold visionary communities. Most of these sites lost their brilliance of 'Baltic Sea pearls' following the destruction of World War II and during neglect under the Cold War. Often located in zones declared military, the body of their architecture survives by the forgetfulness and the refusal to maintain the architecture considered as "feudal" and bourgeois. But since the fall of the wall, in the former GDR, Poland and the Baltic countries, their beauty of the past has found a new glamor, thanks to multiple investors, under the eye of the respective national monuments.

The Duke of Mecklenburg founded the first princely site in 1793 at Heiligendamm, followed by the Duke of Putbus in 1803 on the island of Rügen [7], while the first communal sea bath already started in Travemünde in 1802 on a private initiative of citizens of the Freie Hansestadt Lübeck, followed by that of Cranz in 1816 in East Prussia, then Zoppot, near Gdansk, in 1823. The fashion of taking baths of the sea conquered the habits of the sovereigns and their families. Soon, a suite of bright white resorts nicknamed Kaiserbäder (imperial baths) will be built on Usedom, the sunniest island of the Baltic: Swinemünde in 1824, Heringsdorf in 1825, Zinnowitz in 1851, Ahlbeck around 1851, Bansin the youngest of the Kaiserbäder in 1857[8].

Due to the prestige of their clientele, of high European aristocracy and in particular of Russian and Baltic origin, and the high costs of the stay, these mundane baths, exclude other visitors. The elite is exclusive in the first decades. But because of low rental prices, the Kaiserbäder became popular around the end of the 19th century. Before the arrival of the railways, travels were practiced in coaches and diligence, exceptionally by boat by the sea, for four to six weeks in families, accompanied by servants and equipped with trunks and suitcases to fill a house [9]. Around 1900, social clothing took the place of English suits and hats, recreational toys and sports. For the resorts of Berliners, it is the railways that provide the connection with the capital in less than two hours since the 1880s.

3. RAILWAYS AND HYGIENE

Now accessible by all means of transport, these once prestigious sites east of the Baltic were cut off from the West by the Iron Curtain. The border was erected east of Lübeck from 1945 until 1989/90, under the light of projectors kept overnight and

patrolled by boat patrols, along the mined coastlines of the GDR and Poland to the East, in the Russian territory of Oblast Kaliningrad, the former royal province of East Prussia. These decades of 'lead' in border areas were marked by the depressing impression of debris, of concrete gray intertwined and unhealed wounds of war, even without intentional destruction of residential buildings, for lack of material means to build in their places. No one could imagine the usual socialites linked to the European elite of the past, to see a future rebirth.

The worldly Kolberg / Kolobrzeg history between Swinemünde and Küstrin, today in Poland, is the prime example: The War Ministry even authorized the commander of the former naval fortress which was erected against the Swedish navy, in 1828 to plant trees on the dunes to shade the walks at the seaside [10]. The walled city ends in ruins of war in March 1945 with 17000 victims to lament: Destroyed 90%, the remains of the Prussian naval stronghold, the former seaside resort frequented by the upper aristocracy, the bourgeoisie and wealthy Jews, were transported to Gdansk and Warsaw for the reconstruction of these cities. Since then, despite public housing projects of the communist period, some modest attempts to revoke the former grandeur of the seaside site prove that a current clientele will want to enjoy wellness facilities and modern spa in architectural nostalgia from before 1914.

Thus, as a mirror of architectural devastations suffered at the curls of German history, the Baltic holiday resort testifies its dramatic whims for more than 200 years.

These resorts relate the decline of a luxury society: In 1793, Johann Daniel Metzger, professor of medicine (1739-1805) publishes "About the lack of bathing establishments in Prussia for the pleasure of the mind and to the elevation of the soul" ("Über den Mangel an Anstalten zu Seebädern in Preußen ... das Gemüth zu erheitern und die Seele zu erheben). His study and the opinion of his colleague Samuel Gottlieb Vogel (1750-1837), an ordinary doctor at the ducal court persuaded the sovereign Friedrich Franz I. duke of Mecklenburg to found the first German sea bath at Heiligendamm [11]. During the Congress of Vienna and the return of Napoleon from the island of Elba, from 1814 to 1819 and continued until 1870, classicist buildings, homes of cures, baths of society are erected as an amazing set. Since 1822, an equestrian race course, open to the neighboring bath (Bad Doberan), has yielded to the ducal fund the considerable sum of 30,000 florins per year.

4. AN ARCHITECTURE OF FUNCTION AND FOLLIES

During the 19th and 20th centuries, the high supreme aristocracy of Europe, including the Tsar of Russia's family, frequented this elegant bath. Since 1866, the railway connects it to Bad Doberan with its welcoming Chinese culinary pavilions. In 1870, the small residence has 4,000 inhabitants but its activity declines: in 1872, the estates of Heiligendamm will be sold to the company of Baron Otto von Kahlden (1829-1899) for the sum of 500,000 florins before the latter, in 1885, ~~is to~~ became the sole owner. A bankruptcy settles down until the Jewish banker, Baron

Adolf von Rosenberg (1878-1939), acquires the prestigious ensemble in 1924. In 1939, the buildings serve as military hospital, in 1941 the Nazis expropriate the Jew Rosenberg. In 1992, an investor acquired them to make it a luxury hotel site.

In June 2007, the G8 summit is held with the participation of US President George W. Bush I under a strong protection against anti-globalization protesters' Attack. The photo of the hostess of the summit, Chancellor Angela Merkel surrounded by other heads of state, gathered in beach chairs, will go down in history. However, in February 2012, despite the extension of the historic buildings into a luxury complex, insolvency settled there. Since, other investors are trying their luck to exploit this unique place of princely prestige of yesteryear.

In 1810, following the neighbor who attracts high nobility to Bad Doberan / Heiligendamm, Prince Wilhelm Malte I. of Putbus (1783-1854) invests in bath facilities on his estate named Putbus on the island of Rügen [12]. He creates around his residence the 'white city' of classicist style. The first bathing accommodation receives bathers since 1816: on the Goor'sches Badehaus inaugurated in 1817/18, follows a residential theater in 1819-21, with stables in 1821-24; a castle is built from 1817 to 1824 and will be demolished by the authorities of the GDR in 1962 to erase the vestiges of feudalism. The ensemble will be decorated with an English park designed by the architect Karl Friedrich Schinkel and completed by his pupil August Stüler. From 1828, other residential buildings were added around the Putbus Circus with an obelisk in the center, from which eight axial aisles left. The ensemble refers to the circus model of Bath in southern England, famous for its Georgian architecture inspired by Palladio from the Roman Aqua Sulis. Today, the small town of Putbus of some 5,000 inhabitants and its luxurious old buildings have lost their true scale.

The bourgeoisie enriched by industrialization invests its new fortunes with the upcoming seaside sites. Entrepreneurs become resort shareholders. By placing her financial and physical resources, she indulges in hydrotherapy in fashion. Sea tourism is part of the capitalist imagination, which has become a source of health for the soul and a refuge from the demands of daily work. Thanks to spa treatments, tourism is geared towards economic income. Nervous diseases, ladies' vapors, constipations, and hemorrhoids or gout, as well as fashionable psychic diseases such as melancholy or hypochondria are treated [13].

In 1890, the Baltic Sea baths were adapted to the standards of hygiene and service of the thermal baths, which preceded them [14].

After Heiligendamm and Bad Doberan, Travemünde will be the third sea bath in Germany. This idyllic fishing village at the mouth of the Trave, turns into a mundane resort under the economic impetus of the merchants of Lübeck in 1802. It will be continued during the Napoleonic occupation from 1806 to 1813. A first cure establishment was erected there in 1803. Already in 1824, a steam boat connected Lübeck, the former Hanseatic stronghold, to its port of Travemünde [15]. Since 1825, the revenues of a first casino will be paid to the profits of social institutions, until the prohibition of games of chance, established by the Reich law of 1872. In

1879, access to the baths, in 1908 a walk along the beach will be offered. Tourists reach there by boat or coach, then by rail. Famous guests include the German Romantic poet Joseph von Eichendorff, the Russian novelist Iwan Turgenev, the composer Richard Wagner and Clara Wieck, then the wife of Robert Schumann. Travemünde serves as a model for Thomas Mann's society novel, "Die Buddenbrocks", published in 1901. One hundred years after the year of its founding, in 1902, the Travemünde cliffs welcome the first German naturalists, enthusiasts of nudity in baths. In 1914, Franz Kafka walks barefoot on the beach. In 1949, the Casino was reopened, very frequented by Scandinavians accustomed to escape the restrictions of alcoholism at home.

5. BEFORE AND AFTER THE IRON CURTAIN

Sea bath resorts on the island of Usedom such as Swinemünde (1824), Heringsdorf (1825), Zinnowitz and Ahlbeck (around 1851), Bansin (1857) tell their specific political history. After decades of military and human blockage during the Cold War reopened in 2007, on the sunniest Baltic Island, the formerly mined and guarded border crossing leads to the oldest of the imperial baths, the Kaiserbad of Swinemünde / Swinojście, today located in Poland. This Prussian naval town, fortified since 1850, proposed in 1824 a salty sea bath that proved successful: In 1826, it received 626 customers, in 1913 they were 40.247!

In Pomerania on the Polish side, these luxurious baths revived after the opening of the Iron Curtain as Kühlungsborn and Kolberg, Swinemünde remained until 1939 the third bath of the Baltic coast by frequencies. However, its future was bleak: In March 1945, the US air force destroyed its naval port, in May 1945 the Soviet army occupied the city and returned it in October to the Poles. Since then, Swinojście has experienced an influx of Polish and Ukrainian inhabitants, while ethnic Germans will be expelled (in 1950 there were 500 to 600 German workers left in the Polish shipyards).

After Swinemünde, Heringsdorf, founded in 1825, will be the most mundane bath on Usedom. In 1818, the entrepreneur Georg Bernhard von Bülow (1768-1854) entrusted his forest estate extending to the beach, to the vision of a holiday colony to be realized following the investments of the nobility or fortunate bourgeois. This new site, with its pontoon and beach promenade, will be nicknamed the "Baltic Nice". The visits of King Friedrich Wilhelm III. and Prince Regent Friedrich Wilhelm (IV.) of Prussia in 1820, earned the resort its name because of its wealth of herring ("Heringsdorf"). Its villas compete with elegance. The presence of Emperor William II. at the Kaiserbad - the first name for an imperial bath - enhances its fame.

Heringsdorf proceeded Ahlbeck with its establishment of hot baths, created in the 1850s by fishermen foreshadowing their profit. Since 1896, Ahlbeck has been known as a family bath thanks to its separate pools for men and women. This English model already served as a European cultural transfer to the continent, by the pen of Johann Georg Lichtenberg in 1793 [16] who recommends in his reports on English baths, to go to sea with the help of "Kupplerinnen", these women who attend users with access in cabins, either pushed to the waves, or pulled by horses

or even donkeys, also known for the benefits of their milk to the applications of the "wellness" of yesteryear.

Inaugurated in 1857, the youngest of the Kaiserbäder was Bansin. Since the founding of the Reich in 1871, popular tourism has grown. The regulars of these modern wealthy seaside resorts do not go there anymore in coaches; now they arrive from Berlin by the railroad. As locations in Heringsdorf were inaugurated in 1825, the Berlin banker Delbrück founded the shareholding company Seebad Heringsdorf für den Kur- und Badebetrieb in 1872. Five years later, the site received the official title of bathing.

Zinnowitz, already active since 1851, benefits from its noble architecture interspersed with shady alleys. Thanks to the massive attendance of the 1920s and 30s, the summer press baptized this specific bath the *Badewanne der Berliner*, "the bathtub of Berliners". Today, these bath pearls on the island Usedom which have regained their former cachet, can be reached by the train of Berlin in less than four hours.

In East Prussia, the nostalgic holiday resort of Cranz, created in 1816 on the Amber Coast (Samland), lost its German name. Since 1821, Cranz has offered hot baths and a large apartment on the beach. Combined with mud baths, until 1859 Cranz bore the title of Königlich Preussisches See-und Moorbad (Royal Prussian bath of sea and mud). In 1843, in order to capture the shifting sands of the dunes, ~~the~~ King Friedrich Wilhelm IV. of Prussia finances, in a personal capacity, the planting of trees in front of the Curonian Spit which has been devastated since the end of the Seven Years' War in 1757. As early as 1862, a roadway linking Cranz to Königsberg, the royal residence in East Prussia, at a distance of 20 km. From 1885, the railway provides the journey in half an hour, pulled by locomotives in the name of songbirds. Cranz attracts tourists thanks to its wide sandy beaches, its corso, its cure house, its 50 hotels, its tennis courts and its music pavilions.

Since 1947 in the region (Oblast in Russian) Kaliningrad Cranz is called Selonogradsk in Russian. Until 1989, the Soviets guarded a military zone along its vast sandy coastline.

This elegant Kaiserbad of yesteryear is worth the imperial baths of the island of Usedom as well as the social sanatorium of Zoppot, near Gdansk. Johann Georg Haffner (1777-1830), the former surgeon of the Grande Armée founded it in 1823, the sea bath followed by 1900. During his summer vacation in Cranz, the writer Thomas Mann acquired a wooden house in Nida in 1920. He spent the summers of 1930 to 1932 on the Curonian Spit. Today in Lithuania, the old town of Cranz is largely preserved, despite a massive immigration policy under the USSR regime. While in German Cranz in 1939 resided 5000 people, Russian Selonogradsk today counts 13,500 inhabitants [17,4] placed the city in the Polish corridor, just like the noble Hanseatic city of Gdansk. The Nazis will only allow the inauguration of new casinos in 1933, and only in cities with at least 70,000 customers with an attendance rate of 15% foreigners, as for the reopening of the casino Baden-

Baden. Before 1914, Crown Prince Frederick William of Prussia was training at the tennis courts in Zoppot, to the delight of happy female holiday.

Since the War of 1870, the commercial success of the German Empire's Sea baths is due to the growing mass society. The Reich's new health and social protection laws support their survival. In the aftermath of 1918, seaside tourism evolved despite the fall of the elite, thanks to the holidays granted to civil servants. These state employees follow the application of the holidays imposed by social hygiene to remedy the effects of accelerated urbanization. The architect of the Reich, Bismarck succeeded the integration of the political adversaries by these social laws in order to break with the radical movements of the left. Through their political effectiveness, this pattern of charitable laws will be adopted by other European nations.

6. THE COLOSSUS OF PRORA, A NAZI INVESTMENT

The real bathtub of Berliners and other Nazi subjects will be realised in Prora on the island of Rügen in a unique uniform architecture extending for 5 km along the coast [18,19]. Despite its unfinished state after the Second World War, this complex of massive buildings testifies to the colossal dimensions undertaken by the Nazis to accommodate holidaymakers en masse. This privilege was granted only to loyal adherents of the party. This national-socialist organization under the direction of Robert Ley, organized the totality of the Nazis' concept of leisure according to the schedule of the KdF (Kraft durch Freude = Force by Pleasure): the joys of the holidays were to serve and raise the purified Germanic soul with the requirements of the National Socialist ideology. Initiated, commanded and executed under the tutelage of the KdF since 1935 and abandoned in an unfinished state in 1939 following the Second World War (the workers were cleared to fight at the Eastern fronts), these uniform buildings along the coast were destined to receive 20,000 vacationers and built almost indestructible. In 1935, the KdF organization acquired the land to be built near the seaside resort of Binz. The seller was the successor of the same name as his ancestor Malte Prince of Putbus, creator of that beautiful residence founded in 1803. After a call for tenders, this unique example of a set of five buildings intended to receive masses, will see the day in Prora. Its identical uniform architecture was designed by Clemens Klotz (1886-1969), an architect distinguished by the Nazi authorities for his sober yet functional works. At the 1937 World Fair in Paris, his model was honored with the Grand Prix.

Today, this blockade of equal buildings follows the coast for 5 km in length. One block has 10.000 guest rooms of 2.5m on 5m of surface, linked from one door to the neighbor; with sea views, the corridors standing on the other side. The uniform rooms were furnished with two beds, a corner \emptyset for a sofa, a wardrobe, a washbasin, all equipped with a speaker because of the constant political propaganda of first the Nazis and then the communists. Other areas in common were restaurants, kitchens, reading rooms, bowling alleys, wave pools, cinemas. The vacationers deviated to arrive on the marina in ships.

Until 1945 only the blocks for guest rooms were completed. After the armistice of 1945, these aligned giants were partly abandoned and vandalized and fell under the administration of the GDR. The post-war years saw the explosive destruction by the Red Army of part of the Prora Colossus; then barracks were set up by the Army of the GDR, which even completed the unfinished parts until 1956.

Since 1993 this unique site is accessible to all. From 1995 to 2005, an initiative created some museum rooms narrating the history and fate of this extraordinary authentic place of memory of the National Socialist regime for leisure. Then came multiple uses: From 1993 until 1999, the biggest accommodation for Youth stayed there, since 2002 followed by the One World Camp Youth Hostel equipped with some 400 beds, subsidized by the state of Mecklenburg-Pomerania and by EU funds. Other investors tried to set up hotels there. In March 2012, a Berlin investor acquired blocks 1 and 2 of the Gigant of Prora for 2.75 million Euros. But until then, despite its partly ruinous state, the architecture proves to be too solid to any means of destruction. Recently, these buildings have found a new use: investors have installed luxury apartments dedicated to vacationers, a Youth hostel and a museum on the specific history of this resort has been installed.

7. UNDER COMMUNIST RULE

In the GDR, other sites for mass vacationers were created by communist authorities. Founded in 1947/48, the hospice of the FDGB (Freier Deutscher Gewerkschaftsbund / Free Association of German Trade Unions), the oldest of many equal holiday camps in Communist East Germany, often installed outside hard buildings, lack of means in tents erected along the dunes under shady conifers, a sea bath already visited since 1840 was born in Boltzenhagen, Mecklenburg.

In both the GDR and the Third Reich, the privilege of seaside holidays was given to the workers, whose merits of work gave the sacred right to recreation on the Baltic coast. Trabant migration (flammable vehicles of the "Trabant" brand made of plastics) created traffic congestion on the motorway from Berlin every summer. Other masses of vacationers were sent to the coasts of sister countries in the Balkans and, for the very happy, to the Soviet Union on the shores of the Black Sea.

However, through the 20th century, the holiday idyll on the Baltic coast is misleading. A sad report shows the victims of the regime of the GDR, whose sea borders were illuminated in lighthouses at night, beaches in places mined. Armed Vopos (Volkspolizei = People's Police), trained to shoot at probable refugees, regularly carried out their deadly patrols, on foot and by boat, assisted by fierce German shepherd dogs. By wishing to leave their country by sea, by swimming or by ship, 174 victims lost their lives until November 1989 along the East German coasts from Wismar to Swinoujście.

8. CONCLUSION

The beauty of the beach scenery, often still in the wild, rises to the east towards the Russian fortifications of Narva (built by Tsar Ivan the Terrible) and Kronstadt (founded by Peter the Great), since the 16th century erected against enemies coming from Sweden.

Today, these unknown coasts with their architecture have survived in large parts the disaster of two world wars and the period of the Cold War. The resorts witness an upheaved history, inviting to the peaceful discovery of their multiple beauties, just reconstituted and exploited, by sailing boats, by bicycle or on horseback along the coast with woods of pine trees, large dunes of almost white sand and impressive steep banks. Since Lübeck / Travemünde towards the Baltic countries, they open the prospect to the towers of churches and the sumptuous palaces of St. Petersburg.

COMPETING INTERESTS

Author has declared that no competing interests exist.

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The Current Status, Influencing Factors, and Ways to Improve Father's Involvement

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ABSTRACT

Background: Father's involvement plays an important role in children's growth and development. Since the 1980s, many researchers have conducted theoretical exploration and empirical research on father's involvement.

Method and Content: This article adopts a method of literature search, first correcting the long-standing concept of neglecting the role of father's involvement, and then focusing on the current situation and influencing factors. Based on this, measures to promote father's involvement are proposed.

Conclusion: Through reviewing previous research, we found that father's involvement in China is currently at a moderate level, which is the result of a comprehensive effect of social and cultural factors, father's personal characteristics, and family factors. We need to find ways to enhance father's involvement from these three aspects.

Keywords: *Father's involvement; parent-child relationship; influencing factors; physical and psychosocial development of child.*

1. INTRODUCTION

Father's involvement [1] refers to the cognitive, emotional, and behavioral involvement of fathers in the physical and psychosocial development of children.

For a long time, the academic community has mainly focused on the role of mothers in children's socialization, but has not given enough attention to the role of fathers. Fathers are ignored or only regarded as a necessary condition for

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biological reproduction, and their role in the socialization process of their children is negligible [1]. However, this is not the case. Father's involvement is an indispensable part of promoting children's mental health. It is precisely due to some characteristics of the father's personality and intelligence, as well as the openness of communication between father and children, and the unique way of activities, that children can gain more knowledge, experience, imagination, and creative consciousness from interacting with their father, which is conducive to stimulating children's thirst for knowledge, curiosity, willpower, self-confidence, and various interests. For infants and young children, the father's emotional engagement, emotional connections with children, and resources provided to children (such as economic resources) lay the foundation for the development of the child's body [2], cognitive ability [3], emotional regulation [4], delayed gratification [5], self-control ability [5], self-esteem and confidence [4], interpersonal trust [6], gender roles [4], social emotions and efficacy [6], prosocial behavior [7], and social adaptation [8]. For children in primary school, in addition to the aforementioned effects, father involvement can also positively predict their academic performance and school adaptation [9]. The same applies to children in their adolescence. If they have a stable and close relationship with their father, they will have better learning [10], behavioral, and emotional development outcomes [11-12]. High quality father's involvement can help reduce internalized or externalized behavior problems [11,13] and reduce the risk of substance abuse among adolescents [14].

Research on children with mental health problems has also found a similar situation. Father's involvement can promote language development in children with autism [15], enhance their gaming skills [15], increase parents' positive experiences [16], and maintain the family stability [17].

In summary, the research on father's involvement is still in its early stages. Through a systematic literature review, this article summarizes the current situation, influencing factors, and promotion ways of father's involvement, providing scientific basis for promoting father's involvement and improving children's physical and mental health.

2. THE CURRENT STATUS OF FATHER'S INVOLVEMENT

93.75% of fathers believe that father's involvement is of great significance [18]. However, the level of father involvement is not rather high, and the father's "vacancy" is severe. Meanwhile, the involvement of fathers is closely related to the age of children.

During the fetal period, father's involvement begins, mainly manifested in psychological and economic preparation for a new life. Since their wives became pregnant, the father has shared with the mother the psychological and physical upbringing of the child, as well as the financial support for the child. According to reports, urban men have a strong sense of identity and responsibility towards their role as expectant fathers, with 52% participating in "Maternal Health Counseling/Courses". More than two-thirds of them frequently participate or do

more in improving their wives' nutrition/health (such as cooking and purchasing nutrients for their wives), taking on household chores, providing emotional support, and accompanying their wives for prenatal examinations/medical treatment [19].

Infancy is a critical period for infant survival and mother recovery. The survival of a baby completely depends on the caregivers, and the mother experiences a series of life events such as childbirth, postpartum recovery, and adapting to the mother's role, especially requiring the involvement of father to jointly raise the baby. Wang Yu [20] found that 67% of fathers of 0-3 yearold babies pay attention to their children's upbringing, and they believe that scientific parenting is the top priority at present. Sun Jie et al. [21] investigated the fathers of 181 infants aged 0-3 months and found that their FCI (Father Caretaking Inventory) scores were (31.80 ± 6.64) points. Among the six dimensions, the average score of the "accompanying sleep" item was the lowest, with a score of (2.52 ± 0.76) points, which is considered a moderate score; The items of 'accompanying and playing' and 'feeding' have the highest average scores, with scores of (3.61 ± 0.80) and (3.56 ± 0.89) , indicating a high score. The scores of the three dimensions of "caring for the body", "humming nursery rhymes", and "soothing" are all between "accompanying sleep" and "feeding", belonging to moderate scores; The total average score of PSOC (Parenting Sense of Competence) and parenting self-efficacy are (4.35 ± 0.56) and (4.58 ± 0.63) , respectively, which belong to high scores; The average score of parenting satisfaction dimension is (4.14 ± 0.72) , which is considered a moderate score. That is to say, although these fathers believe they can take good care of their babies, they are not satisfied with their actual care results.

In the middle and late stages of infancy, fathers have a higher level of involvement, with the average score of the Father's Involvement Scale of (4.39 ± 1.20) , which belongs to the high score [22]. Whether in daily care, behavioral education, care and companionship for children, whether in father's self-narration or mother's evaluation, father's involvement is relatively high. For example, 48% and 46% of fathers do a lot or more of "preparing meals/feeding their children" and "taking care of their children in the midnight", respectively. 71% of them take their children to see a doctor/get vaccinated/take care of/accompany children; Even "changing diapers" and "bathing children" which are traditionally defined as "women's jobs", accounting for 39% and 41% of fathers respectively. Sixty to seventy percent of fathers actively engage in conversations with their children, demonstrate and cultivate good habits/behaviors, and give children hugs and physical contact, while forty to fifty percent teach children how to count/read, tell stories, play games or conduct outdoor activities together [19].

75.4% of early childhood education is jointly borne by parents, while only 21.5% is fully borne by fathers; 63% to 99.31% [18,20] of fathers participate in early childhood education for less than 3 hours per day, 46.53% to 49.2% [20,23], 48.61% to 50.8% [20,23], 4.17% [20] and 0.69% [20] of fathers participate in early childhood education for less than one hour, one to two hours, two to three hours, more than three hours per day respectively. Father is more concerned

about "major learning matters" and mostly neglects "small life matters". In choosing kindergartens and interest classes, 35.4% of fathers have a high degree of participation, while only 7.7% and 10.8% participate more in choosing clothing and toys, respectively. 16.9% and 15.5% of fathers do not participate in such selection activities; 52.3% of fathers "occasionally" take their children to gatherings, and 56.9% of fathers occasionally take their children for outdoor activities during holidays; 88.5% of fathers participate in parent activities in kindergartens. In terms of emotional communication with their children, fathers are more willing to praise and encourage them, but are not good at comforting or enlightening them; 66.2% of fathers participate in "daily pick-up and drop off of young children", but are less likely to take care of their children alone or handle daily chores, and only provide more care to their children when they are sick; In terms of parenting issues, fathers play the role of "strict fathers" "outside", attach importance to educating young children on social rules, set an example for children, and encourage them to interact; but they are not very good at answering children's questions, reading books, and telling stories "indoor" [24]. From the perspective of relearning, due to the fact that the upbringing of young children is mostly carried out by mothers and fathers lack practical experience, their parenting knowledge mostly comes from the emotional experience of mass media and relatives, friends, and elders, and is rarely obtained through professional parenting institutions or training. Therefore, the parenting knowledge and skills that fathers possess are not only scarce, but also lack professional guarantees and lack scientific knowledge. From the content of participation, 65% of fathers of children aged 3-6 pay attention to children's education, and they believe that it is time for children to cultivate character and learn knowledge and skills [20].

Father's involvement in various aspects of rural children is lower than that of urban children. Take early reading as an example. The vast majority of rural fathers realize the importance of early reading, but their understanding of early reading is not deep enough and their understanding of the functions of reading is not comprehensive enough. Fathers who engage in early reading with their children less than 6 times a year and do not participate in parent-child early reading account for 50.69%, while only 6.85% of fathers engage in parent-child reading every day. Among fathers who engage in parent-child reading less than six times a year, 85% of fathers read for less than 30 minutes each time; Among fathers who read between 1-3 times a month, 70.59% read for less than 20 minutes each time, while 29.41% read for 20-30 minutes each time. It can be seen that rural fathers participate in early parent-child reading less frequently and for a shorter duration [25].

In primary school, father's involvement is mainly manifested in five aspects from high to low: emotional expression, indirect support, academic encouragement, interactive supervision and rule constraints. In addition, fathers have more rule constraints on elementary school children than young children [26]. Fathers of primary school students participated in most dimensions at a moderate level, with individual dimensions scoring higher. Wang Siqi et al. [26] found that the scores of acceptance and companionship, standardization and obedience, and control

and punishment among fathers of primary school students were at medium level. Yu Qinfang [27] found that the father's involvement in primary school students ranges from high to low, including indirect support, educational planning, educational constraints, companionship and interaction, academic counseling, daily care, and home-school connections. Among them, the scores in the first three dimensions are high, while the other four dimensions are at a moderate level. In the core dimension of "companionship and interaction", from low to high, they are educational companionship, interactive communication, and emotional support.

There is not much research on the involvement of fathers in middle school students in China. From the perspective of schedule, the curriculum arrangement in middle school is tight, usually starting at 6:30 am and ending at 11:00 pm. In addition to normal class hours, students also have to squeeze time from their spare time and study against the clock. Therefore, most middle school students choose to live on campus, saving at least 10 minutes per day compared to day students and at least 182.5 hours over three years. In this way, there is less direct interaction supervision, rule constraints, and emotional expression from parents towards their children, mainly manifested in home-school communication, indirect support, academic encouragement, negotiation and guidance instead. For example, Zhang Yingying et al. [12] found that the total score and scores in four dimensions of support and planning, daily care, encouragement and praise, and discipline constraints of Fathers Participating in Parenting Questionnaires for rural boarding junior high school students were lower.

In summary, more and more fathers are participating in the upbringing of their children, and they are investing more and more manpower and material resources in the upbringing, involving a wider range of aspects, and having a more profound impact. On the other hand, regardless of the stage of children's growth, the incidence of daily care centered on mothers is significantly higher than that of fathers. The majority of dimensions in which fathers participate are at a moderate level, while a few dimensions are at a higher level.

3. FACTORS INFLUENCING FATHER'S INVOLVEMENT

In 1998, Doherty et al. [28] proposed a theoretical model for the influencing factors of father's involvement, emphasizing the influence of father factors, parental relationships, mother factors, and child factors on father-child relationships, as well as the influence of social background factors (such as system, economy, culture, race, etc.) on father's involvement. Although the model covers a comprehensive range, the logical classification of influencing factors is not clear. Pantin et al. [29] proposed the ecological systems theory of children's development, which divides the background of children's development into three parts: internal environment, external environment, and macro environment, effectively supplementing the Doherty's model. Based on the above two theoretical models, this article divides the influencing factors of father's involvement into three layers: socio-cultural factors (family division of labor,

social transformation), father's personal factors (including demographic characteristics, Father's identity and self-efficacy, The Influence of Father's Original Family), and family factors (including mother's factors and marital relationships, child characteristics and parent-child relationships).The classification results are shown in Table 1.

Table 1. Factors Influencing Father's Involvement

Layer	Name of layer	Composition
1	Socio-cultural factors	Family division of labor, social transformation
2	Father's personal factors	Demographic characteristics, Father's identity and self-efficacy, The Influence of Father's Original Family
3	Family factors	Mother's characteristics and marital relationship, child characteristics, parent-child relationship

3.1 Socio-cultural Factors

In traditional Chinese culture, there is a family division of labor where "men lead the outside and women lead the inside". Men mainly bear the economic responsibility of the family, while women are mainly responsible for managing the family and taking care of the children. Therefore, it has resulted in a division of labor in children's upbringing that is "strict father and compassionate mother", where the father is mainly responsible for educating children on moral and behavioral norms, while the mother is responsible for taking care of their daily lives. However, China is currently in a period of social transformation, with significant changes in the division of labor among families. On one hand, more and more women are working outside, coupled with the implementation of the "multi child policy", which increases the likelihood and opportunities for men to participate in taking care of their children. The increasing divorce rate has led to more men taking care of their families alone; On the other hand, influenced by multiculturalism, men's tendency towards "chauvinism" has weakened, which may also lead to more and more fathers taking on the responsibility of taking care of their children [25].

3.2 At the Personal Level of the Fathers

3.2.1 Father's personal characteristics and health status

In terms of demographic characteristics, father's involvement is influenced by factors of their socio-economic status, such as father's education, family income, and occupation. However, there are differences in the research results on socio-economic status and father's involvement. Pleck [30] found that there is a significant positive relationship between father's income and father's involvement. Xing Xuewei et al. [31] and Xu Anqi [19] found that the higher the education of father, the higher his participation in upbringing; The higher the income, the lower the participation in parenting. Yu Qinfang [27] found that fathers with high levels of education perform much better in participation than fathers with low levels of

education. Fathers with high incomes have a higher level of participation in parenting than fathers with low incomes, and fathers with greater work pressure have a lower level of participation in parenting. Rockville's study [32] did not find a correlation between demographic variables and father involvement.

In healthy children, Lynn et al. [33] found that positive personality traits of fathers are associated with higher levels of father's involvement and better quality of father-child relationships [33]. Wilson et al.'s meta-analysis [34] found that fathers' depressive symptoms can lead to a decrease in positive parenting behavior and an increase in negative parenting behavior, and the impact is greater as children age. On the contrary, the difficulty of father's involvement can also lead to father's depression, thereby increasing children's behavioral problems [35]. For children with mental health issues, Romirowsky et al. [36] found through a controlled trial (n=74) that ADHD symptoms in fathers of ADHD children can reduce the time and quality of father's involvement. Sicouri [37] found in his qualitative research on fathers' involvement in intervention projects that certain beliefs held by fathers, such as "men are not good at taking care of children" and "intervention projects are designed for mothers", are obstacles to fathers' involvement.

3.2.2 Father's identity and self-efficacy

In healthy children, the higher the father's own recognition of father's role, the more they look forward to participating in parenting [38]. Opondo [39] found that the role identity of fathers has a greater impact than the amount of their participation in parenting activities. Trahan et al. [40] found that self-efficacy may be more important than interpersonal factors such as co-parenting and marital satisfaction in the USA sample. Kwok et al. [41] also found that fathers' self-efficacy is a mediating factor in father's involvement in a survey of 2-6 year old children in Hong Kong, China. Planalp et al. [42] evaluated and interviewed 2900 children at 9 months, 2 years, and 4 years old, and found that the higher the father's sense of role identity, the more behaviors he participated in care and father-child play. However, no relevant research has been conducted among children with mental health problems.

3.2.3 The Influence of Father's Original Family

Cai Ling [43] found that the parental involvement of fathers in their original family, as recognized by fathers, affects their parenting participation. Erzinger et al. [44] found through a 23year follow-up of 128 families that parents' rigid parenting beliefs are transmitted to adult children. Jesse et al. [45] surveyed 2970 Americans and found that the quality of father involvement at the age of 1 can predict the quality of father-child relationship at the age of 9, and there is a characteristic of intergenerational transmission. At present, the mechanism of intergenerational transmission is still controversial, and more research is needed from the operational level to reveal the ways and mediating factors of the influence of the original family on father's involvement. No research has been

conducted on the original families of fathers of children with mental health problems.

3.3 At the Family Level

3.3.1 Mother's Characteristics and Marital Relationship

In healthy children, studies on the gatekeeper effect of mothers (i.e., whether fathers participate or not is determined by mothers) [31,43,46-47] consistently found that the more open a mother's parenting concept is, the higher the degree of father's involvement. Fagan et al. [46] found in a follow-up of 3605 families that encouragement from mothers towards father's involvement when the child was at the age of 3 can increase the degree of father's involvement at the age of 5. Sicouri et al. [37] also found this effect in children with ADHD. Among them, marital harmony [37] and consistency between parents in raising children [37] are key elements. On the other hand, the impact of a mother's mental health status cannot be ignored. Research [35] has shown a significant negative correlation between father's involvement and mother's depression.

In healthy children, the research results on the impact of marital relationships on father participation [22,48] are consistent, and He Huihua et al. [22] found a correlation between marital quality and the quality of father-child relationship. Research on children with mental health issues has also shown that father's involvement can improve parental relationship, but there is a lack of research on the impact of parental relationship on father's involvement. This is related to the fact that intervening in children's issues can expose marital issues, and such parents rarely seek help proactively due to marital issues.

3.3.2 Child Characteristics

In healthy children, the age, gender, and temperament of the child can affect father's involvement. Fathers may overlook introverted boys or unsociable girls [42]. The meta-analysis by Jeynes et al. [49] found that the impact effect value of father's involvement decreased with the age of children, but this result may only reflect the changes in children's needs for father's involvement at different age stages [48]. Parents have a greater impact on children of the same sex as themselves, and father's involvement has a greater impact on boys, known as the "same gender dyads" phenomenon [50]. Fathers prefer to interact with boys [48]; Gryczkowski et al. [51] investigated the level of parenting participation in 135 couples and found that fathers' involvement in boys was significantly higher than that in girls. However, Chen Yulan's survey [52] showed that girls reported more involvement from fathers in their growing. In addition, Only child fathers have a higher level of involvement than non-only child fathers [43,52]. In summary, there are cultural differences regarding the impact of children's gender, temperament, and birth order on father's involvement.

Research on children with mental health problems has found that father's involvement is closely related to the types of diseases in children. The more

severe the symptoms of ADHD children, the greater the likelihood of father's involvement in intervention projects [53]. However, in long-term follow-up of fathers of children with mental retardation, it was found that there was no significant difference in the father's involvement in the diseased and normal groups [54].

3.3.3 The Impact of Parent-Child Relationship

Social reciprocity is a term often associated with social interaction and attachment theory, referring to the two-way interaction between adults and children [55]. The theory of social reciprocity holds that any interpersonal interaction is based on communication, which occurs at both linguistic and nonverbal levels. Positive interactive communication has obvious reciprocity, meaning that everyone's words or actions will receive corresponding responses. For example, a 'socially capable child' has a positive response to parental care, which triggers further positive reactions from caregivers and establishes positive parent-child interaction and communication. On the contrary, children who react slowly or have "no social ability" may cause discomfort to their parents, forming a negative parent-child interaction pattern [56-57], which hinders further parental care behavior.

4. SUGGESTIONS FOR PROMOTING FATHER'S INVOLVEMENT

Based on the influencing factors of father's involvement, the ways to promote father's involvement are as follows. First, on the personal level, it is necessary to stimulate fathers' awareness of actively accepting and adapting to their father's role and identity, promote fathers' understanding of the psychological needs of children at different developmental stages, increase interaction with children, and strengthen sensitivity to their needs. Second, at the family level, cooperative parenting by parents has been proven to be the most effective way to promote children's mental health. Therefore, it is necessary to promote family members, especially mothers [46], to change traditional parenting concepts, improve marital relationships, and promote father's involvement [58]. Final, at the social level: Numerous intervention studies have shown that imparting knowledge and skills in parenting to fathers can improve the quantity and quality of father's involvement, as well as their self-efficacy [37, 48]. Therefore, we should reduce the difficulty of obtaining information, increase the involvement of fathers in education, and guide fathers to master attitudes, methods and skills for effective interaction with children. It helps to promote the transformation of parenting concepts and create a supportive social atmosphere for father's involvement, make fathers aware that in addition to economic and material support, they also have a special and indispensable parenting role for their children in the family, and make parenting skills an essential quality for men. Simultaneously, at the policy level, provide guarantee measures for father's involvement, such as extending father's paternity leave, praising the role models of father's involvement, and distributing father's involvement subsidies, providing spiritual and material support. Furthermore, setting up training programs to promote father's involvement in primary health care for children, enhancing the awareness and ability of

professionals (such as pediatricians, teachers, psychological counselors, etc.) to promote father participation, is also an effective means of promoting father's involvement [59-60].

5. CONCLUSION

With the diversification of family models, the definition of father is no longer limited to biological father [48], and the connotation of father's involvement is also constantly evolving [61]. In the context of Chinese culture, there is a lack of recognized standards for implementing father's involvement, and further exploration is needed through large sample and multi center intervention projects.

COMPETING INTERESTS

Author has declared that no competing interests exist.

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Socio-Economic Implications of Tourism Cultural Festival Induced Population Pressures in Calabar Metropolis, Cross River State, Nigeria

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ABSTRACT

The study examines the effect of Calabar cultural tourism induced population pressures on socio-economic development in Calabar Metropolis, Cross River State, Nigeria. Relevant body of literature was reviewed and survey design method was adopted. The study utilizes stratified and purposive sampling techniques to select 335 respondents. Instruments used to gather data were questionnaire, interview and Focus Group Discussions (FGD). Analyses of items were descriptively carried out using tables and percentage, mean and standard deviations while research hypothesis was analyzed using simple linear regression analysis. The result indicated that an r – value of .851 was obtained; giving an r – squared value of .724, meaning that about 72.4% of the total variation in socio-economic development in Calabar Metropolis is accounted for by variation in Calabar cultural tourism induced population pressures. Consequently, the findings revealed that Calabar tourism festival attracts a lot of persons such as tourists, investors, business men and women among others, thus exerting population pressures on the socio-economic development of the study area. The population pressures yielded positive and negative outcomes. On the positive side, it influenced infrastructural development and triggered income generating businesses and government pro-activeness. On the negative perspective, it instigated inflationary trends as prices of goods and services soared high and brought about depletion of resources and infrastructural facilities as well as increased crime rates and immoral activities. To mitigate the effects of tourism cultural festival induced population pressures, government should

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increase her budgetary expenditures on tourism development and should provide modern tourism infrastructures that will accommodate increasing populations in subsequent tourism festivals. Besides, social work practice is imperative in terms of awareness creation, sensitization workshops and enlightenment campaigns as a means of cushioning the effects of the population pressures.

Keywords: Tourism; cultural-festival; population-pressures; socio-economic; implications.

1. INTRODUCTION

Culture has a direct impact on tourism just the same way tourism impacts on culture. Culture has become an important motive of tourist travels. Moreover, the impact of tourism on culture, which also reflects on the society, operates with all its positive and negative effects [1]. The Calabar cultural tourism festival is usually celebrated in Calabar on December of every year as part of Christmas celebration. The Calabar tourism festival was officially established by the Cross River State Law Number 4 of 2006 and was managed by the Cross River State Carnival Commission. When tourism brings significant investment in infrastructure, residents tend to support tourism development, inspired by the perceived positive impacts brought, even in cases when the costs outweigh actual benefits [2]. The agency however works hand in hand with the Cross River State Tourism Development Commission (CRSTDC) to oversee tourism activities and carnival festivals in the state. The Calabar tourism cultural festival is unique in several aspects. It features both carnival floats and cultural festivals, and each of these events was attended by series of sub events. The tourism cultural festival usually progressed last two to three weeks. The carnival festival for instance, is usually celebrated on 27th and 28th December, each year. The 27th marks the outings of different orchestra, cultural dances and masquerades of different types drawn from all parts of the state. It also features the "children day" wherein children appear in colourful costumes, entertaining audience with all manner of talents and endowments [3].

The 28th day being the grand finale, carnival bands, namely: Bayside band, Freedom band, Passion 4 band, Master Blaster band and Seagull's band were showcased. The carnival festival is also marked by the exhibition of different unique attires of varying colours and fashions, by groups of different kinds and parades. During the festival, the streets of Calabar were agog with many people, some as dancers or spectators, while many others are engaged in one form of trade such as hawking, sale of souvenirs. Calabar festival is usually populated by tourists, investors, business men and women, politicians, coordinators, planners, researchers and consultants and is unique in the sense that the state is abound with traditional and cultural festivals which add colour and ardour to it [4]. For example, traditional dances like the Ekeledi dance, the Obin dance group, Moni-Nkim, Giz-ammakwol, Ekombi, Ikpaticmana, Abakpa and Abang which are found in different parts of the state are conscripted to participate in the Calabar tourism festival. During the cultural troop parade, different cultures in the state also expressed their unique traditional attires. The effect of all these cultural attributes

summed up to make the Calabar tourism festival attractive, thereby pulling plenty of people to Calabar during its celebration.

Due to the increasing number of tourists' visitations during the Calabar tourism festival, the Cross River State government further reinforced the positioning of the state as a tourism haven where its various tourism potentials including its diverse cultural heritage are showcased. This made the state a touring destination with strong opportunities for outsiders to experience [5]. They did this through special tourist phases and unique indigenous cultures through hundreds of annually scheduled festivals and events. All these increased the influx of people into the state on yearly basis. The Calabar cultural tourism festival has become a rallying force for different kinds of people as well as the enhancement of a business booming environment, thus creating population pressures in virtually all areas of socioeconomic development of the state [6].

Within the Calabar metropolis are highly visited places which experience population pressures. These include: Tinapa resort, Calabar Botanical Garden (Zoo), Old Museum, Marina Resort, Old Calabar Prison Brick wall to mention but a few [7]. The Calabar tourism festival has also gained a lot of praises and admiration and has the spirit of love, joy, peace and unity coupled with its cultural rejuvenation, attracts people from all works of life [8]. Tourism festivals generally pull a wide range of people or groupings of people who may be tied to the same bond of socio-economic interests [9] [10]. In spite of its benefits and positive impacts on the socio-economic development of Cross River State, the Calabar tourism festival induced population pressure has its negative impacts. This is reflected in shortage of hotel accommodations, traffic congestions, and inadequate social amenities, high inflationary trends as prices of goods escalate, increased crime rates and other vices as well as poor security management. It is against this background this study examines the socioeconomic implications of Calabar tourism cultural festival induced population pressures in Calabar Metropolis of Cross River State.

Research objective: To determine the effect of Calabar tourism induced population pressures on socio-economic development in Calabar Metropolis of Cross River State.

Research hypothesis: There is no significant effect of Calabar tourism induced population pressures on socio-economic development in Calabar Metropolis of Cross River State

2. LITERATURE REVIEW

Tourism festivals and population increase: Tourism events and tourism festivals all over the world serve as magnet that attracts people from diverse places. Like all attractive events, tourism festivals help to showcase the culture of a people and reinforce the values that keep the people together as well as the celebration of their identity. It is therefore understandable that tourism festivals would continue to engage the attention of man as long as he breathes [11].

The beauty of tourism festival lies on its celebration and wherever it occurs in any part of the globe is usually marked by a throng of diverse people from different backgrounds and ethnic nationalities [12]. This is because people like to visit places where there can have fun and relax, invest and be secured.

Tourism festivals gives one the opportunity to behold other people's culture, lifestyles, products, values, beliefs and idiosyncrasies. Not only does a tourism festival stimulate the movement of people, it also influences the conveyance and borrowing of cultures from other people [13]. Tourism festivals transport enduring lifestyles and cultures of most people to others. It is an event which some people use to express their values, tradition and customs. As a social event people are keen to be involved in it and through which they borrow the culture of other persons [14]. It is indeed a core attraction to tourists and investors. Examples are Ugep Leboku new yam festival.

Tourism festivals encourage tourists' visitation and foster cross-cultural communication easily [15]. In Nigeria, the government uses tourism carnival as a marketing tool to attract people from all works of life to Abuja [16]. The carnival celebration in Brazil has become a big business, making Brazil, the most visited country in the world. He added that it is during the period of the carnival festival that many tourists got to know how the people of Brazil lived in the ancient days, their craft works and culture [17].

Tourism festivals and population pressures: The number of people in a particular place relative to the available resources has been a major topic in demographic studies, especially as concerns the welfare and health of the people and society's development [18]. Analysis of the trends and differentials in population sizes suggests the dynamics of livelihood can be determined by the aggregation and dynamics of movement of people to and from that location [19]. As more people gather in a tourism festival, they are more likely to exert some pressures on the growth process of the host community, as well as the limited resources of that community [20]. In other words, a relatively large population in a particular tourism festival is believed to mount pressure on available scarce resources at the time of its celebration [21]. Thus, it was recommended that governments and other stakeholders should ensure that social amenities and other resources are made available to support the population that grace tourism festivals [22].

The tourism cultural festivals may enhance tourists' visitations to tourists' sites and famous places such as historical buildings, museum, galleries, theatres, shopping, hotels, castles, sports and old towns and in the process, affect and change their original character and nature [23].

The large population that attend the Chinese tourism festivals mount a lot of pressures on existing Chinese products and services to the extent that the Chinese felt challenged and began to plan towards meeting the needs of tourists at all seasons. The Chinese utilizes their history, culture, traditional festivals, historical events, beautiful scenic heritage, historical sites, architecture, folk arts

(music, dancing, and craft work) and cultural heritage to meet the needs of tourists' population at all seasons [24]. The attraction of people to tourism festivals influences so many businesses to spring up, thus, reducing the unemployment ratio of the places where tourism festivals are hosted [25].

In most tourism festivals, the influx of participants impede on the cleanliness of the city, facilities (lodging, parking space) and infrastructure (road, street light and medical facilities) as well as affects the attitude of the host community [26]. The arts, crafts, confectionaries, snacks, and food are usually on high demand during tourism festivals, especially if the population relative to the resources is on the high side. The Virginia Triangle cultural tourism for instance harbors more than 5 million people at a time, with lots of businesses which rarely meets the needs of the population [27]. The ambience of the Victorian Christmas festival attracts a lot of tourists and investors such that much challenges are experienced, especially as regards shortage of accommodation, comfortable amenities, food and drinks as well as parking spaces [28].

Countries like Bahamas, Fiji, Maldives, Seychelles, Trinidad and Tobago where tourism carnival celebrations have become a permanent tradition, attracting very high population is accompanied with corresponding high government expenditure [29]. The impact of tourists' overall visitations on the socio-economic development of Nigeria was overwhelming in view of the fact that about ten tourism festivals attributes such as organization, promotion, facilities, shopping, refreshment, food, infrastructure, environmental ambience, safety and security were fully engaged to the extent that in some areas these festival attributes were in short supply relative to the huge crowd of people who needed to be served [30]. Tourism festivals are usually attended by huge turnout of people who also mount pressure on goods and services as well as the available infrastructural facilities [31].

In Thailand the unavailability of adequate resources in terms of housing and infrastructural facilities and accommodation to cater for the large population during her tourism festival poses a great challenge to government. Consequently, the huge crowd of participants in Thailand's tourism festival exerts enormous pressure on the country's resources, such that in 1998, the country suffered a huge economic deficit and had to draw support from international communities to mitigate the financial, emotional and time constraints associated with the tourism festival [32]. The success of a tourism festival in any context is dependent on the provision of infrastructure, production and wealth flows as well as the relative strength of the economy to cater for the expected population. The effect of a large number of people in a tourism festival can be determined by the level of development, modes of production, access to resources and welfare of the people before and after the celebration [33].

Effect of population pressures on tourism development: The number of people who throng tourism festivals not only helps to boost local economy but also stimulate the movement and spread of goods and services to wider destinations [34]. Generally, tourism festivals attract viable customer groups and

elicit high repeat visitations [35]. A tourism festival with a high population engenders the creation of new employment opportunities, generation of revenue and encourages the development of infrastructure which is visitor friendly and sustainable [36]. Tourism festivals with a great turnout of people, especially tourists boost the morale and pride of the host community, showcases ethnic identity, their character and businesses. It is also believed that high population in tourism events exerts some measures of influence on cross-cultural contacts and interactions on wider dimensions [37] [38].

It was observed that whether tourists migrate seasonally or permanently they still exert pressure on the economy of the place visited and that some tourists contribute to or depend upon the resources of the places visited [39]. This implies that tourism festivals like social events attract networks of people, some of whom exploit the resources of the host community. The population in a tourism festival serves as human resources for development and the creation of more labour markets for the host community. It follows too that a large population in tourism festivals will lead to higher standard of living [40] [41]. Most countries of the world notably Trinidad and Tobago are functionally sustained by the huge population in her tourism festivals [42]. This implies that tourism festival is uniquely important in supporting the economies of host countries. The population size of a tourism festival is very unique and distinct in tourism development, and that no matter the challenges encountered, the host community stands to gain at the long run [43]. Tourism festivals can bring about sustainable development both for the tourists and for the entire members of the host community. In most cases the variety of tourists' support enables the host community and her members to achieve their ends [44]. However, it has been noted that while a large population of tourists in a tourism festival, help to bring about the development or growth of a host community, some may on the other hand be involved in illegal exploitation of resources at the detriment of the host community [45]. It was since reported that the interdependence of population size and available resources would jointly determine the development and sustainability of tourism festival in a place [46].

3. RESEARCH METHODOLOGY

The setting for the study is Calabar Metropolis; the administrative headquarter of Cross River State. It comprises Calabar Municipality and Calabar South Local Government Area. The survey method was adopted in carrying out the study. The population of the study consists of residents, tourists and investors in Calabar Metropolis. Examples of tourism events and sites in the area include Calabar festival (carnival attractions), Calabar zoo, Museum, Marina resort, Tinapa resort, and the Atlantic slave trade departure point. Stratified and purposive sampling techniques were used to select participants for the study. The target population was stratified into seven, namely: officials of the Calabar Carnival Commission, Cross River Tourism Bureau, Calabar Carnival bands, and members of Calabar cultural festival, tourists, investors and residents in Calabar Metropolis.

The purposive sampling method was adopted to select the sample of respondents. Altogether, a sample of 335 respondents participated in the study. University students were used as research assistants to facilitate the study and were properly instructed. A focus group discussion FGD session was also organized for the study. It was composed of 10 discussants purposively selected from the target population. The session it lasted for about one hour. The discussion was guide by ten predetermined open-ended questions. The quantitative data was analyzed using tables, percentages, mean and standard deviations while the FGD data set was analyzed using ATLAS. Ti 8 software for windows. Moreover, the regression analysis was adopted to analyze the research hypothesis. Sample-by-sample distribution of respondents by their strata and selection is shown on Table 1.

Table 1. Sample-by-sample distribution of respondents by strata and selection

S/n	Strata	Number of respondents	Percentage of respondents
1	Calabar residents	60	17.9
2	Tourists	52	15.52
3	Officials of tourism bureau	47	14.03
4	Members of carnival floats	32	9.55
5	Cultural troops	55	16.42
6	Officials of carnival commission	43	12.84
7	Foreign investors	46	13.73
Total		335	100.0

Source: Fieldwork, 2018

4. RESULTS

The result in Table 2 shows the items with their mean scores and standard deviations on the increasing tourists and investors' population in Calabar cultural festival. The result shows that the 5 items measured had mean scores above 2.5 which is the scale critical mean. That is, Calabar tourism festival has many tourists and investors and had impacted on the livelihood of indigenes through exchange of goods and services. It also shows that tourists and investors contributed to the transformation processes in Calabar festival.

The result in Table 3 indicates the mean scores and standard deviations of items on infrastructural development provided by the government during the Calabar tourism festival. The result shows that out of the 5 items measured, 4 had mean scores above 2.5 while only 1 item had mean score below 2.5. This implies that government expanded social infrastructures and hospitality industries; and renovated the Obudu ranch resort as well as provided security infrastructures whereas investment infrastructures were not considered as such.

Table 2. Responses to increasing tourists and investors' population and their impact on Calabar cultural festival (n = 335)

Items	Agree	Disagree	Don't know	Mean	Std
There are many tourists in Calabar tourism festival	225	78	32	2.7	2.11
Investors abound in Calabar tourism festival	253	68	14	2.5	2.10
Tourists impacted on the livelihood of indigenes	213	112	10	3.7	3.19
Exchange of goods and services occur between tourists and indigenes	310	22	3	3.5	2.25
Tourists and investors contribute to the transformation processes in Calabar festival	232	99	4	2.8	2.12

Source: Fieldwork 2023

Mean > 2.5 represent positive impacts, while Mean < 2.5 represent negative impacts

Table 3. Responses to infrastructural development during the Calabar tourism festival (n = 335)

Items	Agree	Disagree	Don't know	Mean	Std
Expanded social infrastructures	252	81	2	2.8	3.12
Expanded hospitality industries	258	65	12	2.7	3.17
Renovation of Obudu ranch	232	81	22	2.6	2.29
Investment infrastructures*	51	274	10	2.3	1.9
Security infrastructures	294	39	2	2.5	3.07

Source: Fieldwork 2023

Mean > 2.5 represent infrastructural development provided by the government during the Calabar tourism festival while Mean < 2.5 represent not considered

The result in Table 4 shows the items with their mean scores and standard deviations on the employment opportunities available during the Calabar tourism festival. The result shows that all the 5 items measured had mean scores above 2.5, which implies that trading businesses, contract jobs, international businesses, local businesses and tourism resources provided the employment opportunities

The result in Table 5 shows the items with their mean scores and standard deviations on the inflationary trends during the Calabar tourism festival. The result shows that all the 5 items measured had mean scores above 2.5, which implies that the inflationary trends were measured by the high rate of prices of goods and services, porous transport system, shortage of material resources, scarcity of hotel accommodations and short supply of basic amenities.

The result in Table 6 shows the items with their mean scores and standard deviations on crime indices during the Calabar tourism festival. The result shows that out of the 9 items measured, 7 had mean scores above 2.5, whereas only 2 items had mean scores below 2.5. Thus, the crimes noticeable during the festival include cultism, drug abuse, sexual assault, car snatching, kidnapping, theft and armed robbery while thuggery and youth restiveness were not observed.

4.1 Test of Hypothesis

H₀: There is no significant effect of Calabar cultural tourism induced population pressures on socio-economic development in Calabar Metropolis, Cross River State

H₁: There is significant effect of Calabar cultural tourism induced population pressures on socio-economic development in Calabar Metropolis, Cross River State

The independent variable in this study was Calabar cultural tourism induced population pressures while the dependent variable was socio-economic development in Calabar Metropolis of Cross River State. To test this hypothesis, simple linear regression analysis was carried out. The results are presented in summary as Table 7.

Table 4. Responses to employment opportunities available during the Calabar tourism festival (n = 335)

Items	Agree	Disagree	Don't know	Mean	Std
Trading businesses	246	86	3	3.8	3.01
Contract jobs	204	118	13	2.5	2.19
International businesses	305	26	4	3.6	2.29
Local businesses	218	106	11	3.7	3.17
Tourism resources	258	75	2	2.6	3.07

Source: Fieldwork 2023

Mean > 2.5 represent the items showing available employment opportunities during the Calabar tourism festival while M < 2.5 represent item not considered as such

Table 5. Responses to inflationary trends during the Calabar tourism festival (n = 335)

Items	Agree	Disagree	Don't know	Mean	Std
Prices of goods and services soared high	294	36	5	2.8	3.33
Transport system became porous	225	106	4	2.5	2.12
Shortage of material resources	258	70	7	2.6	2.45
Scarcity of hotel accommodations	282	49	4	2.7	3.34
Basic amenities were in short supply	288	38	9	2.9	3.18

Source: Fieldwork 2023

Mean > 2.5 represent the items showing inflationary trends during the Calabar tourism festival while M < 2.5 represent item not considered as such

Table 6. Responses to crime indices during the Calabar tourism festival (n = 335)

Items	Agree	Disagree	Don't know	Mean	Std
Cultism	204	116	15	2.6	4.31
Thuggery*	76	245	14	2.4	4.13
Drug abuse	305	23	7	2.5	1.40
Sexual assault	218	77	40	2.7	3.33
Car snatching	238	78	19	2.5	2.15
Kidnapping	189	135	11	2.6	4.31
Theft	301	26	8	2.9	3.17
Armed robbery	299	26	10	2.7	3.44
Youth restiveness*	34	285	16	2.3	1.39

Source: Fieldwork 2023

Mean > 2.5 represent the items showing crime indices during the Calabar tourism festival while M < 2.5 represent item not considered as such

Table 7. Regression of Calabar cultural tourism induced population pressures and socio-economic development in Calabar Metropolis, Cross River State (n=335)

R = .851 Adj. R-Squared = .723					
R-Squared = .724 Std. error = 2.101					
Source of Variation	Sum of squares	Df	Mean square	F-value	P-value
Regression	11,506.664	4	2876.666	651.558*	.000
Residual	1,456.95	330	4.415		
Total	11,508,120.95	334			
Variables	Unstandardized coefficient	Standard coefficient		T-value	P-value
	B	Std error			
Constant	3.451	.455		7.583*	.000
Calabar cultural tourism induced population pressures	.782	.031		.851	25.528*

*Significant at .05 level. $P < .05$

From Table 7, an r – value of .851 was obtained, giving an r – squared value of .724. This means that about 72.4% of the total variation in socio-economic development in Calabar Metropolis is accounted for by variation in Calabar cultural tourism induced population pressures. The P – value (.000) associated with the computed F – value (651.558) is less than .05. Consequently, the null hypothesis is rejected. This means that Calabar cultural tourism induced population pressures significantly influences the P – values (.000) associated with the computed t –values 7.583 and 25.528) for the regression constant (3.451) and coefficient (.782) respectively are less than the chosen level of significance (.05). This means that both the constant (3.451) and regression coefficient (.782) contribute significantly to the prediction of socio-economic development in Calabar Metropolis using Calabar cultural tourism induced population pressures.

5. DISCUSSION OF FINDINGS

The finding of the study revealed that the Calabar cultural tourism affected the socio-economic development in Calabar Metropolis from both positive and negative dimensions. The positive effects were measured in terms of increasing tourists and investors' population, high government expenditures, infrastructural development, employment opportunities, tourists' attraction and placing Cross River State in the world tourism map while negative effects were measured in terms of inflationary trends, depletion of resources/ infrastructures, and increased crime rates.

Increasing tourists and investors' population during the Calabar tourism festival: The influx of tourists and investors to Calabar festival has a wide range of social, cultural, political and economic implications. The assessment of the effects of these tourists and investors has been a catalyst for the transformation process taking place in Calabar Metropolis. A significant impact of this has been the creation of wealth and a source of development for the indigenous populace. It resulted to income earning ventures for most households. Indeed, there has been exchange of goods and services as well as transfer of knowledge and skills among tourists, investors and indigenes. Most importantly has been the transfer of financial assets (including remittances) from Cross River State citizens who lived abroad and were back home for the festival to their families.

The effect of the influx of people to Calabar not only necessitated cash inflows in terms of remittances but also facilitated a wide range of development issues, governance and legal protection, employment and social, protection, health services and education, tertiary education, knowledge and skills development, economic growth, financial services and growth, agriculture and rural infrastructural development, and environment issues [47]. All these helped to expand human capabilities and functioning.

High government expenditures and infrastructural development during the Calabar tourism festival: Government officials who participated in the FGD brought to fore how the population pressures induced by the Calabar festival

stimulated increased government expenditures. The participants observed that in a bid to cope with the population pressure exacerbated by Calabar tourism festival, the government opens up new layouts in the city of Calabar. The winding and often narrow roads in the capital city of Calabar were reconstructed, and replaced with dual carriageways. The government also mapped out certain designated areas for certain events such as children cultural displays, cultural dances, and carnival floats among others.

The transportation system was also affected as motor cyclists were banned from plying the roads culminating to hardship for those who could not afford the use of motor transportation.

Government budgetary expenditures increased in order to meet with the demands of the festival. Thus, the Cross River State government renovated Obudu Ranch Resort, furnishing it with modern facilities such as an air strip, a cable car and even reshaped the topography. It also introduced for the first time, an international mountain race tournament in a bid to extend tourists' accommodation and relaxation centers. It was observed by the FGD participant that so many tourists and investors who graced the tourism festival were accommodated in Obudu ranch resort due to its serene environment. The old slave departure point situated at the Marina resort in Calabar which hitherto was considered as a classic example of dark tourism was renovated and built into the tourism cultural festival plan of the Calabar cultural festival.

Employment opportunities during the Calabar tourism festival: The Calabar cultural festival with its beehive activities invariably generated employment opportunities for the youth, increased output, facilitated the growth process of the state and brought about income generating businesses for both the private and public enterprises. It also helped the government to generate surplus revenue for the state through foreign exchange earnings and taxations. Also, big, medium and smallscale enterprises like hotels, transportation, hotels and communication businesses were established while many others such as shopping facilities, refreshment centers, standard hotels and a business environmental ambience flourished. For instance, to meet with the demands of the population, various companies, industries and other business outfits were established and became increasingly competitive, showcasing their products, services and other areas of needs. A lot of people seize the opportunity to earn a living by engaging themselves in personal selling such as hawking, and sale of fast foods.

Inflationary trends during the Calabar tourism festival: Tourist festivals are usually populated by people and somehow deplete the resources of the host community [48]. During the Calabar tourism festival, the population pressure in Calabar Metropolis was generally high, as Calabar, experiences influx of people who came in to grace the festival. The Calabar festival induces the migration of people from the rural areas of the state to Calabar Metropolis, thus imparting on the living standard of the people [48]. This no doubt exerts some pressures on the growth process, especially on resources and infrastructure of the state. The cultural festivals in Trinidad and Tobago reported that people with intense social

and economic interdependences come together and exert a great pressure on the resources of the host country within the period of their stay [49].

The participants of the FGD observed that the population during the Calabar cultural tourism festival was high relative to available resources. For example, as a result of the population pressures, the transport system became porous, as many people were found stranded on the streets, caused by road blocks, packed cars beside the roads, and traffic hold ups. Consequently, many people walk long distances, and many unable to access certain places or even reach their destinations on time. Most visitors were found stranded, not able to secure hotel rooms. Hotels in Calabar became filled with visitors and more people found searching for hotel accommodation which they hardly find. Moreover, shortage of accommodations and hotel congestions were also experienced.

Basic amenities like water and electricity were in short supply. It was also observed by tourism officials who participated in the FGD that they experienced exhaustion, stress and heavy workload as well as shortage of material resources due to the population pressures.

Also, prices of goods and services went high during the festival. For example, hotel accommodations that hitherto cost N5, 000 rose up to N15, 000. Taxi fares that were charged N100 were doubled. Prices of goods like confectionaries, snacks, and foods also escalated.

Crime indices during the Calabar tourism festival: It was observed by the FGD participants that the population pressures during the Calabar tourism festival gave rise to increased crime rates. Cultism, thuggery, drug abuse, immoral behavior like sexual assault, rape, car snatching, kidnapping, theft and armed robbery became common scenes. It was also observed that population pressures rendered security resources including basic security equipment like security vans, communication gadgets, arms and ammunitions to be inadequate. In some occasions, the population made it difficult for security operative to protect lives and properties effectively. It was further observed that the increasing population rate also carries with it increasing rate of immorality, street children, and drug abuse as well as youth restiveness among others.

6. CONCLUSION

The Calabar tourism festival attracts a lot of persons such as tourists, investors, business men and women, politicians, among others, thus exerting great pressures on the study area. The population pressures yielded positive and negative outcomes. On the positive side, it influenced infrastructural development and triggered income generating businesses and government pro-activeness. On the negative perspective, it instigated inflationary trends as prices of goods and services went up and brought about depletion of resources and infrastructural facilities as well as increased crime rates and immoral activities.

7. RECOMMENDATIONS

It is imperative that government and tourism management agencies acquaint themselves with the dynamics of Calabar cultural festival and the problems faced by people in order to help prevent, solve, and resolve them.

There is the need for proper tourism planning and development as essential tools towards mitigating the effects of population pressures that characterize the Calabar tourism festival. There is also the need to create awareness and sensitize the public and in such a way that tourists, investors and all those involved in Calabar tourism will benefit optimally from it. For these tasks to be carried out effectively adequate resources and logistics should be provided and more training of tourism staff and security personnel should be carried out to enable them address problems that arises from the tourism cultural events.

It is equally recommended that the government of Cross River State should increase her budgetary expenditure on tourism development in subsequent years in order to expand areas of need and that of the population. Government should also provide the necessary incentives, facilities and other enabling environment that will accommodate huge crowd of people in subsequent tourism festivals.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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Empirical Identity: A Guiding Factor in Theory Selection

Lei Ma ^{a*}

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ABSTRACT

Coordination theory advocates that scientific criteria can only be established through theory comparison. Theory comparison is not a comparison of logic and content, but a comparison of coordination force, that is, a comparison of theory problem-solving manner and problem-solving strength. There are many theories about theory choice in philosophy of science, but no any indicator of scientific theory has been precisely defined, let alone a united index system. By the example of empirical identity, I shall show that a range of scientific indicators to decide theory choice can be precisely defined by some basic concepts. I think that these indicators can provide us a better description of the principles of philosophy of science. The certain pursuit of theories' empirical identity and novelty leads the cumulative view of scientific progress; under non-cumulative circumstance, it is totally practicable to judge a theory's empirical identity as well as empirical novelty; empirical identity underdetermines the acceptance of a particular theory. It is possible that all the principles of philosophy of science could be explained again through the system of index of theory choice, thus a more rigorous theory of philosophy of science could be established. Just as the conflict of empirical identity underdetermines the abandonment of a theory, the coordination of empirical identity also underdetermines the acceptance of a theory. At a certain moment, any single coordination force or local coordination force is underdetermined.

Keywords: Empirical identity; theory choice; united index system; Kuhnian losses; underdetermination.

1. INTRODUCTION

What are the criteria for a reasonable evaluation of competition theory? Philosophers of science have been very confused about this. Laudan compares

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his research on incommensurability with Kordig [1]. They all believe that although substantive translation between different theories is inappropriate, there still exist methodological criteria for theory comparison. Laudan regards the relationship between theory and problems as a criterion for comparative evaluation, while Kordig stresses the empirical confirmation, extensibility, multiple connection, simplicity, and causality of theory, believing that these theoretical characteristics are the best criteria for comparative evaluation of theory. Laudan does not object to the criteria stressed by Kordig, but he criticizes Kordig's concepts for only staying at an intuitive notions and not elevating them into sophisticated analytical tools for theoretical comparative evaluation [2]. Obviously, Laudan hopes that these criteria of Kordig can be accurately defined, so that they can truly play a role in theoretical comparative evaluation. Unfortunately, Laudan does not explore in this direction and does not delve into the connection between Kordig's criteria and the 'problem criteria' he proposed.

Coordination theory [3] is a new solution I proposed for problem-solving philosophy of science, which refines the problem-solving model of Laudan. Its core is to expand Laudan's 'problem-solving effectiveness' into a series of scientifically reasonable criteria that can be uniformly defined. It connects various scientific criteria with a main thread, forming a formal system of scientific criteria, and providing an understanding and analysis of the quantitative issues involved in the criteria. In this way, the theory of coordination greatly expands the scope of the Kordig's criteria and combines new series of criteria with problem criteria, making bold attempts at the work that Laudan and Kordig hoped to complete but did not complete. The prominent feature of coordination theory is to explore the rational criteria model of scientific progress in conflict and coordination, and fully reflect the unity of history and logic, the unity of content and form, and the unity of descriptiveness and normalization.

2. SCOPE OF THE STUDY

Coordination theory advocates that scientific criteria can only be established through theory comparison. Theory comparison is not a comparison of logic and content, but a comparison of coordination force, that is, a comparison of theory problem-solving manner and problem-solving strength. They are manifested as scientific criteria and can be uniformly and precisely defined. These definitions preserve a new unity of form and non-form, and go beyond logic and history. Empirical coordination force, conceptual coordination force, and background coordination force are equally important, and all single coordination forces are equally important. The pursuit of a theory is determined by local coordination force, while the acceptability of a theory is determined by comprehensive coordination force. Enhancing the coordination force of theory is an indirect means of grasping truth. A theory with strong coordination force has greater truth. I will define and clarify the criteria for evaluating empirical identity in this article. I believe it is necessary to provide a clear definition for each empirical criterion, as a standardized description of the history of science requires formal and practical analytical mechanisms. My definition method is based on the basic concepts of 'questionor' and 'solutionor', focusing on the comparison of

asymmetry between theories, defining the special connotations of each single coordination force, and clarifying its special statistical methods or algorithms. Based on this definition or model, we can statistically or calculate the magnitude of the theory coordination force compared to others. We say that theories with less coordination are in a state of empirical conflict or decline, while theories with greater coordination are in a state of empirical coordination or rise.

1. The definition of empirical identity
2. Cumulative and non-cumulative empirical progress
3. The underdetermination of empirical identity

1. The Definition of Empirical Identity

I think that there are three sorts of scientific indexes to depict theory choice, that is, empirical indexes, conceptual indexes and background indexes. These indexes show the theory's problem-solving efficiency, which contains not only a theory's problem-solving quantity and weight, but also 'a theory's problem-solving styles' (i.e., quantified indicators for accepting or pursuing a theory). Each sort of indexes includes some single indicators. For instance, empirical indexes include empirical identity, empirical simplicity, empirical unity, empirical novelty, empirical mightiness, empirical succinctness and the like; conceptual indexes include conceptual identity, conceptual unity, conceptual novelty, conceptual mightiness, conceptual succinctness, and others; background indexes include background experiment, background technology, background thinking, background psychology, background action, and so on. It is necessary and possible to definite each of these indicators, since a rigorous analytical mechanism is needed to describe theory choice, and a formalized theory of philosophy of science should be constructed.

In this paper, I will give some examples, especially empirical identity, to show that all these indicators may be defined by same conceptions, and that each of these indicators could describe some of principles in philosophy of science. My definition method is to make an unsymmetrical comparison between two theories and to show their merits by basic conceptions 'problemor' and 'solutionor.' I shall not definite empirical identity of scientific theories until 'problemor' and 'solutionor' and other relevant conceptions have been explained. All single indicators include two aspects of stronger and weaker. What is unsymmetrical comparison between two theories? If each single indicator is regarded as a balance, and if the two theories on both ends of the balance do not weigh the same, then the one theory shows its weaker problem-solving efficiency, and the other shows its stronger problem-solving efficiency. Any theory has two component parts, i.e., the part of problems or questions and the part of solutions to problems or questions. The first part consists of 'problemor' which is anything that we feel curious, thirst for understanding and to that we put questions or problems, and the form of posing problems, such as 'why,' 'what,' 'how,' and all. The second part consists of 'solutionor' or the join of 'solutionors.' The conception 'solutionor' is generally called all single internal tactics, which are internal reasons to judge the relation between two theories and present static

forms of ideology such as definition, hypothesis, law, principle, regulation, method, etc., and all single external tactics, which are external reasons to judge the relation between two theories and present dynamic forms of non-ideology such as the process of observation, experiment, function of technological object, confirmation from scientific communication, support in policy, and that.

When we feel it necessary to raise, in certain form, a problem of an empirical fact or a test implication which could be called 'empirical problemor,' an empirical problem is generated. A solution to an empirical problem constitutes 'empirical solutionor' or the link of some 'empirical solutionors.' There are two different kinds of 'empirical problemors.' I shall call the first an observation-type empirical problemor which is an empirical fact coming from observation or experiment and may constitute an empirical sets by different forms of posing problem. For example, 'Why and how an apple falls toward the earth?' Newton's answer is: 'There are mutual gravitational force between the apple and the earth.' 'An apple falls toward the earth' could be called an observation-type empirical problemor, and Newton's answer constitutes an empirical solutionor. The second could be called a theory-type empirical problemor which is a theory's test implication deduced from theories and, in principle, could be tested by observation and experiment and could in itself bring about an empirical problem sets. Einstein's theory of relativity, for instance, deduced a curved light which could be called a theory-type empirical solutionor. If we examine the matter from solving problems instead of posing problems, all theory-type empirical problemors could be regarded as the lowest level empirical solutionors, since it is the most simple and direct answer to an empirical fact.

According to the above-mentioned definitions and the unsymmetrical relations of theory comparison, the definition of empirical identity is as follows:

By comparison between theory $T1$ at time τ and theory $T2$ at time τ' , we say that $T1$'s empirical identity decreases (noted by $IT1\tau\downarrow$) and $T2$'s empirical identity increases (noted by $IT2\tau'\uparrow$), if and only if, at time τ , m sorts of different theory-type empirical problemors, w , that tally with observation-type empirical problemors (noted by e), can be deduced from $T1$'s empirical solutionors j (noted by $T1\tau(j\rightarrow(ew)^m)$); at time τ' , n sorts of different theory-type empirical problemors that tally with observation-type empirical problemors, can be deduced from $T2$'s empirical solutionors j (noted by $T2\tau'(j\rightarrow(ew)^n)$); and $n > m \geq 0$. Here, "tally with" means "with a tolerance of less than the fixed error". Time τ can be or can not be equal to time τ' .

The definition may be stated in symbols as follows:

$$IT1\tau\downarrow \wedge IT2\tau'\uparrow \longleftrightarrow T1\tau(j\rightarrow(ew)^m) \wedge T2\tau'(j\rightarrow(ew)^n) \wedge (n > m \geq 0)$$

2. Cumulative and Non-cumulative empirical Progress

The cumulative idea of scientific progress reflects, in empirical aspect, certain effort both to pursue a theory's empirical identity and also to pursue a theory's

novelty¹. Collingwood writes: 'Progress in science would consist in the supersession of one theory by another which served both to explain all that the first theory explained, and also to explain ... 'phenomena' which the first ought to have explained but could not' [4] Popper also points out: 'A new theory, however revolutionary, must always be able to explain fully the success of its predecessor. In all those cases in which its predecessor was successful, it must yield results at least as good ... ' [5] Lakatos' narration is more well-organized, he demands that a series of theories, T_1, T_2, T_n , must meet the following characteristics, and hence constitutes a consistently progressive theoretical problemshift:

(A) T_n has excess empirical content over T_{n-1} : that is, it predicts novel facts, that is, facts improbable in the light of, or even forbidden, by T_{n-1} ;

(B) T_n explains T_{n-1} , that is, all the unrefuted content of T_{n-1} is included (within the limits of observational error) in the content of T_n ;

(C) Some of the excess content of T_n is corroborated. (cf. Lakatos, [6], p.116)

Above-mentioned three progressive characteristics can at least be changed into conditions as follows:

(A') More novel theory-type empirical problemors can be deduced from T_n at r' than from T_{n-1} at r ;

(B') All theory-type empirical problemors tallying with observation-type empirical problemors, which can be deduced from T_{n-1} at r , can also be deduced from T_n at r' ;

(C') Some theory-type empirical problemors tallying with observation-type empirical problemors, which can be deduced from T_n at r' , can not be deduced from T_{n-1} at r .

Condition (A') directly expresses the pursuit of a theory's conceptual novelty, and expresses the pursuit of a theory's empirical novelty together with condition (C'). From conditions (B') and (C'), we can draw that more theory-type empirical problemors tallying with observation-type empirical problemors can be deduced from T_n at r' than from T_{n-1} at r . Consequently, conditions (B') and (C') co-expresses the pursuit of a theory's empirical identity. The three conditions which have accumulated characteristics represents, from concert force point of view, certain progress pattern in science, and represents, as for empirical identity, a sort of pattern to pursue empirical identity. Imaging that there is a magic box, B , which can not be opened, in which there are some balls different both in colour and in quantity, and as time goes on, the colour and the quantity may be changed. The conceptual novelty of T_2 at r' is stronger than theory T_1 at r , if, one black ball in B can be deduced from theory T_1 at r , but both one black ball and one white ball in B can be deduced from T_2 at r' . Assuming that, as a result of

experimental test, the deductive results of both theory T_1 at τ and theory T_2 at τ' (theory-type empirical problemors) tally with facts (observation-type empirical problemors), then theory T_2 at τ' is stronger than theory T_1 at τ not only in empirical novelty but also in empirical identity. Logical empiricists, however, make a mistake to regard the possible model of progress as an inevitable model of progress, which was criticized by some historians and philosophers of science. As Kuhn put it, there are usually problem losses as well as problem gains associated with the replacement of any older theory by a newer one, i.e., a new theory will lose partial explanatory power when it gains certain new explanatory power [7]. Feyerabend even complained that Lakatos' 'progressive problemshift' is a Utopia in science. When theory T_1 is superseded by theory T_2 , the common case is as follows:

(A) Theory T_2 explains theory T_1 ' partial but not all success.

(B) Theory T_2 explains additional predictions that T_1 can not explain.

This 'Kuhnian losses' phenomenon which discovered by Kuhn and Feyerabend is common in science, and becomes a powerful evidence to deny the accumulated view of progress. However, we should avoid thinking in terms of absolutes. It is wrong to repudiate totally accumulated characteristics which may be emerged at certain period of time. Feyerabend, however, has recognized that Lakatos' critical standards have practical force only if they are combined with a time limit (what looks like a degenerating problem shift may be the beginning of a much longer period of advance) [8].

Is a new theory with the emergence of 'Kuhnian losses' progressive? L. Laudan once gave a vivid historical case, namely, the shift in geological problems early in the nineteenth century, to explain that the progress is possible even if 'Kuhnian losses' emerges in a new theory. Prior to Hutton, Cuvier and Lyell, geologists had been interested in some empirical problems to which solutions had been offered, among them: how deposits get consolidated into rocks; how the earth slowly acquired its present form; when and where the various animals and plants originated; how the earth retains its heat; and so on. Yet after 1830, particularly with the emergence of stratigraphy, many of the problems mentioned above were no longer followed with interest by geology, and it does not mean that geology did not make any progress between 1830 and about 1900 for the fact that geological theories after Cuvier and Lyell successfully (addressed themselves to) a very different range of empirical problems, including those of bio-geography, stratigraphy, climate, erosion, and land-sea distribution. A further study would show that the precision and range of empirical problems that could be solved by mid-nineteenth century geology (as well as the acuteness of the conceptual and anomalous problems generated) compared favorably to the overall problem-solving success which late eighteenth-century geological theories could claim for themselves. Laudan writes: 'Knowledge of the relative weight or the relative number of problems can allow us to specify those circumstances under which the growth of knowledge can be progressive even when we lose the capacity to solve certain problems.' [2]. Thus Laudan points out a non-logicism normative

stand of the non-cumulative progress, that is, under the situation of overlap or separation of problem sets of any theory and its successor, whether a new theory is progressive or not can be analysed or judged by the relative weight or the relative number of problems. However, Laudan doesn't pay more attention to appropriated and quantified aspects of theory comparison. 'The relative weight or the relative number of problems' can not reflect the rich indicators of science, which can be defined by the solutionors and problemors. For example, empirical simplicity is decided by the proportion of problemors to solutionors of a theory. If a theory's most conclusions or solutionors that have been verified deduce from its least assumptions or problemors, we say the theory gain its maximum empirical simplicity. This kind of quantified characters of scientific theory can not be showed in Laudan's theory.

Under non-cumulative circumstances, it is totally practical both to specify a theory's empirical identity and to specify a theory's empirical novelty. From the progressive condition of empirical identity, the demand that more theory-type empirical problemors tallying with observation-type empirical problemors should be deduced from T_2 at t' than from T_1 at t , does not mean that there must be inclusive relation between the theory-type empirical problemors tallying with observation-type empirical problemors from T_1 at t and those from T_2 at t' , i.e., between $T_1t(\varepsilon w)$ and $T_2t'(\varepsilon w)$. They may overlap and separate. Assuming that one black ball and one white ball in magic box, B , can only be deduced from theory T_1 at t , and one black ball, one red ball, one blue ball in the same box can be deduced from theory T_2 at t' , and all the results were tested and verified through observation and experiment, then, there is a overlapping relation between the two theories' theory-type empirical problemors that tally with observation-type ones. Assuming that only one black ball in magic box, B , can only be deduced from theory T_1 at t , and one white ball, one red ball in the same box can only be deduced from theory T_2 at t' , and all the results were tested and verified through observation and experiment, then, there is a separating relation between the two theories' theory-type empirical problemors that tally with observation-type ones. Under the two kinds of conditions, the empirical identity of theory T_2 at t' is in a relative increasing state of affairs. Empirical novelty has similar cases. It is important to note that, under circumstance of kuhnian losses, both a theory's empirical identity and empirical novelty may be retrogressive (i.e., may be in a relative weaker state of affairs), and a theory's comprehensive should also be analysed by specific circumstances. In addition, the theories used to compare could be either from the same domain or from different domains, and could be both synchronic and diachronic.

3. THE UNDERDETERMINATION OF EMPIRICAL IDENTITY

If theory T_2 explains more facts than T_1 , namely, the quantity of sorts of theory-type empirical problemors tallying with observation-type ones deduced from T_2 exceed that of from T_1 , then, under this circumstance, to abandon theory T_1 can not be abundantly decided, for lack of abundant reasons.

Firstly, the starting point of a new theory is often confined to certain narrow domain, so the quantity of empirical problems solved by the new theory may be

smaller than an old theory. With further evolvement of the new theory, however, it is entirely possible that the developed new theory could solve more empirical problems than the old theory. At the outset, the theory of Copernicus can not explain more phenomena than the theory of Ptolemy. The opposition to Copernicus was from three famous arguments, namely, there is no stellar parallax; a body thrown upward falls vertically to earth; the objects on the ground is in a state of rest. They asked: As the Earth moves from one place to the opposite place in the same orbit, but why can not the parallax be watched? If the Earth revolves on its axis, a body thrown upward would fall to the west of its point of projection, but why does the body return to its original point? If the Earth spun, loose objects would fly away from the ground, and the Earth itself would fly to pieces, but why do not the phenomena emerge? The Copernican system was advanced late by Galileo who refuted the three arguments. To counter the first argument, Galileo pointed out that the distance from the star to the Earth is at least ten thousands times as much than that from the Sun to the Earth, because the stars is too far from the Earth, the parallax can not be perceived. That doesn't mean there is no paradox. In the light of the second argument, Galileo refuted it by the law of inertia. Before Galileo, it was assumed that every motion required a continual force to maintain it. But Galileo found that it is not motion, but the creation or destruction of motion, or a change in its direction, that requires external force. When matter is endowed with inertia, a body thrown upward and the air share the rotation of the Earth, a falling body would return to its original place. In accordance with the third argument, Galileo said that the rotation of the Earth is slow, and centrifugal force is far smaller than gravitational force, so objects would be independent of the rotation of the Earth, and still stay where they are. Galileo not only refuted the opposition to Copernicus, but also explained briefly, by the rotation of the Earth, the phenomena which the theory of Ptolemy can not explain, such as the halt and retrograde motion of the planets, tide and trade wind on the Earth, and so on.

Secondly, if a theory's empirical novelty is strong enough, there would have a vast space for the growth of the theory's empirical identity, but the solution to the theory's weaker empirical identity can not be worked out from it. Besides revising and perfecting a theory to dispel the weaker empirical identity, experiment designs and experiment conditions are also very important, namely, the background experiment² should be strengthen. However, a theory's novel prediction may take long before being tested and verified by experiments. As a result of the essential invention of astronomical instrument and method, an observation of the parallax of a fixed star, which was predicted by Copernicus early in the sixteenth century, was made by Henderson at the Cape of Good Hope in 1832, and accurate measurements by F. W. Bessel and by Struve followed in 1838. In the beginning of the twenty century, Einstein, by the general relativity, proposed a quadrupole formula of gravitational wave, by which the existence of gravitational wave is quantitatively predicted. Although gravitational wave has not been discovered, scientists have been trying every means to observe it. In order to survey gravitational wave, a sensitive gravitational antenna needs designs to overcome strong background interference, acoustic sounder, weber bar (name after Joseph Weber, whose pioneering work in 1960s are still

inspiring present scientists), monocrystal, electromagnetic detector such as laser interferometer, etc., need to be designed to survey the frequency range from 100Hz to 10kHz. To employ space probe to find gravitational wave (range from 10^{-2} to 10^{-4} Hz) by Doppler's tracking method is taken into consideration. At the present time, experts of experiment relativity hunger for employing pulsar to observe directly gravitational wave.

Thirdly, the decreasing trend of empirical mightiness³ and empirical distinctness⁴ is certain to weaken empirical identity at one stage, but empirical mightiness and empirical distinctness may increase in another stage and enhance empirical identity. The inconsistency between a theory's deductions and experimental data leads to the drop trend of empirical mightiness and empirical distinctness, and thus reduce empirical identity. Any experiment, however, has a direct bearing on designed level, auxiliary theories, and explanation, therefore so-called 'falsification' of an experiment at certain time may not only arouse many controversy within the period of time, but also be proved to be inadequate, even be placed by other 'verified' experiments. In 1906, W. Kaufmann gave the relationship of velocity and mass by the experiment that the cathode rays could be deflected by an electric field as well as by a magnetic field, he claimed that the relationship is not in agreement with Einstein's special relativity, and further claimed that the measured value does not agree with Lorentz-Einstein hypothesis, but agree with Abraham-Bucherer equation. Kaufmann's experimental results is unfavorable to Lorentz-Einstein hypothesis, Lorentz was somewhat disappointed and wavered between two choices, while Einstein's stand is firm and unshakable. Einstein's confidence does not come from his doubt of Kaufmann's experiment, he commended that Kaufmann's work to define the relation between electric and magnetic deflection of β rays is careful and respectable. Although Einstein confirmed that the curve from Abraham-Bucherer's theory tallies more with experimental results than with the curve from relativity, he believed that Abraham-Bucherer's theory has little possibility of success, because their basic assumption about moving electron mass can not be proved by a theoretical system which contains more wide-ranging and complicated phenomena, that is, can not be proved by a theory that has stronger empirical identity and empirical unity⁵. Unlike Einstein, W. Wien doubts the reliability of Kaufmann's experiment, he, early in 1912, wrote a letter to Nobel committee in which he denied that the experiment of cathode rays and β rays has decisive proving force, for the experiment is too delicate to guarantee cancelling all errors. The experiment to support relativism was finished in 1914-1916.

Finally, in the indicator system, even if a theory's single indicator is in the state of decrease, scientists should not lose their confidence in the theory, because the theory's other indicators may have an outstanding advantage. Scientists have reasons to believe that as long as a theory's single or partial indicators are stronger, they will, sooner or later, promote the development of other indicators, and thus the complex index will surpass its rivals. Judged by the history of science, Ptolemy's geocentric theory, which has considerable practical value, had been dominating the Western astronomy for 1500 years. Some scientific historians and philosophers of science argue that almost no evidence show that

Corpernican system is better than Ptolomaic system in empirical identity and empirical accurate, it may be empirical simplicity⁶ that appeals a lot of scientists. Someone even denies that the acceptance of Corpernican theory comes from its practical purposes, namely, the pursuit of the system comes from its explanation of phenomena, accurate prediction and simplicity. Kuhn points out that Corpernicus's argument does not appeal to the judgment from utility, but only to their aesthetic judgment, i.e., to their perception of mathematical harmony [9]. James W. McAllister simply asserts that the acceptance of Corpernican theory is not determined by empirical factors, but chiefly by esthetic factors. He argues that Corpernican mathematical theory of astronomy is more strictly accord with Aristotelian physicisism than Ptolomaic theory [10]. It is arbitrary that esthetic factors are confined within the limits of category aspects and considered without empirical and background factors. But their arguments show that the initial acceptance of Corpernican theory is deeply influenced by its stronger conceptual indexes. At the beginning of founding relativity theory, the theory's stronger succinctness and background thinking⁷ play an important role in compensating its unfavorable condition of its weaker empirical identity. While Kaufmann's experiment is adverse to relativity theory, M. Plank stood firmly by Einstein, he argued that Kaufmann's method and measuring results can not make a decisive judgement, relativity theory draws the simplicity into the electrodynamics of moving bodies to emancipate the puzzling electrodynamics without special hypotheses and arbitrary images. The immediate reaction to the relativity in the field of physics is, to certain extent, attributed to Plank's warm and firm support.

Empirical identity conflict underdetermines the abandonment of a theory, in same way, the stronger empirical identity underdetermines the acceptance of a theory. The strong and the weak of a theory's empirical identity are relative, that is, a theory, T , may show stronger empirical identity in comparison to T_1 , but may show weaker empirical identity in comparison to another theory T_2 ; what is more, the theories are advancing, the power contract in empirical identity may change through time. The theory whose empirical identity increases rapidly in a short time is very promising and worth pursuing, but that underdetermines the acceptance of the said theory either. Scientists, at certain time, should accept a theory which has the most strong complex index, but their attitude to the theory may be changing, because, at another time (the interval of the time is generally long, because scientific research is a arduous process of expending time and energies), the condition of the theory's complex index may have changed. Any single or partial indexes, at certain moment, are factually undetermined [11,12,13].

4. CONCLUSION

In non-cumulative situations, it is entirely feasible to determine the empirical novelty and empirical identity of a theory. In the case of kuhnian losses, at a certain moment, the theory may regress in terms of empirical novelty and empirical identity, that is, it is in a state of conflict, and specific analysis should also be conducted for the comprehensive coordination force of the theory. If a theory, T' , explains more empirical facts than another theory, T , that is, if the

number of theory-type empirical problemors inferred from T' that tally with observation-type empirical problemors exceeds the number of theory-type empirical problemors inferred from T that tally with observation-type empirical problemors, then in this case, it underdetermines the abandonment of T because there is no sufficient reason to abandon T . T may not be weak in terms of comprehensive coordination force. Even though T 's comprehensive coordination force is weak, as long as its certain local coordination force is strong, it still has development potential. The starting point of new theories is often limited to a certain narrow area, and the number of empirical problems it can solve may be less than that of old theories. However, with the further improvement of the new theory, the number of empirical problems it can solve may exceed that of the old theory. If the conceptual novelty of a theory is strong, it will increase the empirical novelty of the theory, thereby providing a relatively broad space for the growth of empirical identity. The enhancement of experimental coordination force is neither a necessary condition nor a sufficient condition for adding positive examples. There is only correlation between empirical identity and experimental coordination force, but there is no necessary deductive relationship between the two. In a theory, the decrease in empirical mightiness and empirical succinctness means that the number of counterexamples encountered is increasing, which does not necessarily weaken its empirical identity. In a comprehensive coordination force system of a theory, even if a single coordination force is in a declining state, it cannot stop scientists from pursuing it enthusiastically. This confidence often comes from the outstanding performance of other coordination forces of the theory. Scientists have reason to believe that as long as the theoretical local coordination is strong, it will eventually drive the improvement of other coordination forces, thereby surpassing opponents in comprehensive coordination force. Just as the conflict of empirical identity underdetermines the abandonment of a theory, the coordination of empirical identity also underdetermines the acceptance of a theory. At a certain moment, any single coordination force or local coordination force is underdetermined.

SCOPE FOR FUTURE RESEARCH

The aim of this paper is not to present a new tool for analyzing theory choice, but to do a better job motivating how to classify the past achievements and highlight the quantifiable features of scientific indicators. Scientific virtues or indicators have been discussed by many philosophers of science, but there are three problems which should be further discussed. The first problem is that if all scientific indicators could be defined by the same concepts. The second is that if scientific virtues could be measured, appropriated and quantified. The third is that if each of these indicators could describe part of the principles of philosophy of science. If these problems can be answered affirmatively, I believe that a united and statistically significant system of philosophy of science can be constructed.

NOTES

¹ I define empirical novelty as follows:

By comparison between theory $T1$ at time τ and theory $T2$ at time τ' , we say that $T1$'s empirical novelty decreases (noted by $ET1\tau\downarrow$) and $T2$'s empirical novelty increases (noted by $ET2\tau'\uparrow$), if and only if, at τ , m sorts of different novel (noted by ©) theory-type empirical problemors, w , that tally with observation-type empirical problemors (noted by $a\odot w$), can be deduced from $T1$'s empirical solutionors j (noted by $T1\tau(j\rightarrow(a\odot w)^m)$); and at τ' , n sorts of different novel theory-type empirical problemors, w , that tally with observation-type empirical problemors can be deduced from $T2$'s empirical solutionors j (noted by $T2\tau'(j\rightarrow(a\odot w)^n)$); and $n>m\geq 0$. Here, 'tally with' means 'with a tolerance of less than the fixed error'. Time τ can be or can not be equal to time τ' .

The definition may be stated in symbols as follows:

$$ET1\tau\downarrow \wedge ET2\tau'\uparrow \longleftrightarrow T1\tau(j\rightarrow(r\odot w)^m) \wedge T2\tau'(j\rightarrow(r\odot w)^n) \wedge (n>m\geq 0)$$

For an articulation of this indicator, see especially Ma Lei, [3], pp.103-10.

The definition of conceptual novelty is as follows:

By comparison between theory $T1$ at time τ and theory $T2$ at time τ' , we say that $T1$'s conceptual novelty decreases (noted by $eT1\tau\downarrow$) and $T2$'s conceptual novelty increases (noted by $eT2\tau'\uparrow$), if and only if, at τ , m sorts of different novel (noted by ©) solutionors, j , can be deduced from $T1$'s solutionors j (noted by $T1\tau(j\rightarrow\odot j^m)$); and at τ' , n sorts of different novel solutionors can be deduced from $T2$'s empirical solutionors (noted by $T2\tau'(j\rightarrow\odot j^n)$); and $n>m\geq 0$. Here, "tally with" means "with a tolerance of less than the fixed error". Time τ can be or can not be equal to time τ' .

The definition may be symbolized as follows:

$$eT1\tau\downarrow \wedge eT2\tau'\uparrow \longleftrightarrow T1\tau(j\rightarrow\odot j^m) \wedge T2\tau'(j\rightarrow\odot j^n) \wedge (n>m\geq 0)$$

For an articulation of this indicator, see especially Ma Lei [3], pp.103-10.

² Background experiment is one of background index of a theory. The definition of it is as follows:

By comparison between theory $T1$ at time τ and theory $T2$ at time τ' , we say that $T1$'s background experiment decreases (noted by $xT1\tau\downarrow$) and $T2$'s background experiment increases (noted by $xT2\tau'\uparrow$), if and only if, the aggregative evaluation index number m of $T1$'s experimental solutionors j at τ (noted by $m(T1\tau xj)$) is less than the aggregative evaluation index number n of $T2$'s experimental solutionor j at τ' (noted by $n(T2\tau' xj)$). Time τ can be or can not be equal to time τ' .

The definition may be symbolized as follows:

$$xT1\tau\downarrow \wedge xT2\tau'\uparrow \longleftrightarrow m(T1\tau xj) < n(T2\tau'xj)$$

The aggregative evaluation index of experiment solutionors include experiment design, experiment operation, experiment apparatus, experiment results, experiment analysis, and so on, which should be studied detail by detail. For an account of this indicator, see Ma Lei [3], pp.285-92.

³ Empirical mightiness is one of empirical indices of a theory. I define it as follows:

By comparison between theory $T1$ at τ and theory $T2$ at τ' , we say that $T1$'s empirical mightiness decreases (noted by $MT1\tau\downarrow$) and $T2$'s empirical mightiness increases (noted by $MT2\tau'\uparrow$), if and only if, at τ , m sorts of different theory-type empirical problemors, w , that do not tally with observation-type empirical problemors (noted by $\neg e$), can be deduced from $T1$'s nucleus solutionors $j1$ together with other ones $j2$ (noted by $T1\tau((j1 \wedge j2) \rightarrow (\neg ew)^m)$); and at τ' , n sorts of different theory-type empirical problemors, w , that do not tally with observation-type empirical problemors, can be deduced from $T2$'s nucleus solutionors $j1$ together with other ones $j2$ (noted by $T2\tau'((j1 \wedge j2) \rightarrow (\neg ew)^n)$); and let $m > n$ by making $j1$ invariable and $j2$ variable (noted by $(j1 \Delta j2) \rightarrow m > n$, where, for every m and n , $m, n \geq 0$). Here, ' Δ ' for 'variable' that means 'be modified, be suppressed, be added, or be replaced by one or more new solutionors'; 'do not tally with' means 'exceed the fixed error'; 'nucleus solutionors' are those which are directly developed by certain key concept, i.e., a set of theoretical statements on the key concept; 'other solutionors' include hypothesis, initial condition, boundary condition. Time τ can be or can not be equal to time τ' .

The definition may be symbolized as follows:

$$MT1\tau\downarrow \wedge MT2\tau'\uparrow \longleftrightarrow T1\tau((j1 \wedge j2) \rightarrow (\neg rw)^m) \wedge T2\tau'((j1 \wedge j2) \rightarrow (\neg rw)^n) \wedge ((j1 \Delta j2) \rightarrow m > n)$$

For a detail discussion of this index, see especially Ma Lei [3], pp.110-16.

⁴ Empirical distinctness is one of empirical indices of a theory. The definition of the index is as follows:

By comparison between theory $T1$ at τ and theory $T2$ at τ' , we say that $T1$'s empirical distinctness decreases (noted by $DT1\tau\downarrow$) and $T2$'s empirical distinctness increases (noted by $DT2\tau'\uparrow$), if and only if, at τ , m sorts of different theory-type empirical problemors, w , that do not tally with observation-type empirical problemors (noted by $\neg e$), can be deduced from $T1$'s nucleus solutionors $j1$ together with other ones $j2$ (noted by $T1\tau((j1 \wedge j2) \rightarrow (\neg ew)^m)$); and at τ' , n sorts of different theory-type empirical problemors, w , that do not tally with observation-type empirical problemors, can be deduced from $T2$'s nucleus

solutionors j_1 together with other ones j_2 (noted by $T2r'((j_1 \wedge j_2) \rightarrow (\neg zw)^n)$); and let $m > n$ by making j_1 variable and j_2 invariable (noted by $(\Delta j_1 \wedge j_2) \rightarrow m > n$, where, for every m and n , $m, n \geq 0$). Here, ' Δ ' for 'variable' that means 'be modified, be suppressed, be added, or be replaced by one or more new solutionors'; 'do not tally with' means 'exceed the fixed error'; 'nucleus solutionors' are those which are directly developed by certain key concept, i.e., a set of theoretical statements on the key concept; 'other solutionors' include auxiliary hypothesis, initial condition, boundary condition. Time τ can be or can not be equal to time τ' .

The definition may be symbolized as follows:

$$DT1\tau \downarrow \wedge DT2\tau' \uparrow \longleftrightarrow T1\tau((j_1 \wedge j_2) \rightarrow (\neg rw)^m) \wedge T2\tau'((j_1 \wedge j_2) \rightarrow (\neg rw)^n) \wedge ((j_1 \wedge j_2) \rightarrow m > n)$$

For a detail study of this indicator, see especially Ma Lei [3], pp.117-28.

⁵ Empirical unity is one of empirical indicators of a theory. I define the index as follows:

By comparison between theory $T1$ at τ and theory $T2$ at τ' , we say that $T1$'s empirical unity decreases (noted by $UT1\tau \downarrow$) and $T2$'s empirical unity increases (noted by $UT2\tau' \uparrow$), if and only if, at τ , m sorts of heterogeneous empirical ranges (noted by W^m) are involved by theory-type empirical problemors, w , that tally with observation-type empirical problemors (noted by $zw \rightarrow W^m$, where ' zw ' for 'tally with observation-type empirical problemors') and that can be deduced from $T1$'s empirical solutionors j (noted by $j \rightarrow zw$); and at τ' , n sorts of heterogeneous empirical ranges (noted by W^n) are involved by theory-type empirical problemors, w , that tally with observation-type empirical problemors (noted by $zw \rightarrow W^n$, where ' zw ' for 'tally with observation-type empirical problemors') and that can be deduced from $T2$'s empirical solutionors j (noted by $j \rightarrow zw$); and $n > m \geq 0$. Here, 'heterogeneous' means differences in substance, property, structure, or level. Time τ can be or can not be equal to time τ' .

The definition may be symbolized as follows:

$$UT1\tau \downarrow \wedge ET2\tau' \uparrow \longleftrightarrow T1\tau((j \rightarrow rw) \wedge (rw \rightarrow W^m)) \wedge T2\tau'((j \rightarrow rw) \wedge (rw \rightarrow W^n)) \wedge (n > m \geq 0)$$

For an articulation of this index, see especially Ma Lei [3], pp.179-88.

⁶ Empirical succinctness is one of empirical indicators of a theory. I define empirical novelty as follows:

By comparison between theory $T1$ at τ and theory $T2$ at τ' , we say that $T1$'s empirical succinctness decreases (noted by $ST1\tau \downarrow$) and $T2$'s empirical succinctness increases (noted by $ST2\tau' \uparrow$), if and only if, at τ , m sorts of different

theory-type empirical solutionors j (noted by j^m) are established and applied by theory $T1$, and u sorts of different theory-type empirical problemors, w , that tally with observation-type empirical problemors (noted by zw^u) can be deduced from $T1$; and at r' , n sorts of different theory-type empirical solutionors (noted by j^n) are established and applied by theory $T2$, and v sorts of different theory-type empirical problemors, w , that tally with observation-type empirical problemors (noted by zw^v) can be deduced from $T2$; and the specific value of m to u is greater than the specific value of n to v . Here, for every m , n , u and v , m , n , u , $v \geq 1$. Time τ can be or can not be equal to time r' .

The definition may be symbolized as follows:

$$ST1\tau \downarrow \wedge ST2\tau' \uparrow \longleftrightarrow T1\tau(j^m \rightarrow rw^u) \wedge T2\tau'(j^n \rightarrow rw^v) \wedge (m/u > n/v)$$

For a detail study of this indicator, see Ma Lei [3], pp.162-175.

⁷ Background thinking is one of background indices of a theory. The definition of the indicator is as follows:

By comparison between theory $T1$ at time τ and theory $T2$ at time r' , we say that $T1$'s background thinking decreases (noted by $oT1\tau \downarrow$) and $T2$'s background thinking increases (noted by $oT2\tau' \uparrow$), if and only if, the aggregative evaluation indicator number m of $T1$'s thinking solutionors j at τ (noted by $m(T1\tau oj)$) is less than the aggregative evaluation indicator number n of $T2$'s thinking solutionor j at r' (noted by $n(T2\tau' oj)$). Time τ can be or can not be equal to time r' .

The definition may be symbolized as follows:

$$oT1\tau \downarrow \wedge oT2\tau' \uparrow \longleftrightarrow m(T1\tau oj) < n(T2\tau' oj)$$

The aggregative evaluation indicators of a theory's thinking solutionors includes the number and weight of those who accept the theory, the number and weight of the problems proposed from the theory, the appraisal states of the theory, and so on. For an account of this indicator, see Ma Lei [3], pp.297-301.

COMPETING INTERESTS

Author has declared that no competing interests exist.

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Impact of Job Stress on Psychological Distress, Cardiovascular Risk, Gastrointestinal Symptoms, and Musculoskeletal Pain in Professionals: A Cross-sectional Study

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ABSTRACT

Introduction: Job-related stress has become a critical concern due to its detrimental effects on both mental and physical health. This study investigates the correlations between job stress, mental health outcomes and physical pain outcomes in professionals from various industries.

Methodology: A cross-sectional online survey was conducted with 400 participants. We utilised validated instruments to measure job stress, mental health outcomes, and physical pain outcomes. Statistical analysis employed regression analysis to examine the relationships between job stress and health outcomes.

Results: Job stress was positively associated with all mental health and physical pain outcomes. Burnout emerged as the strongest predictor of mental health issues, while job stress directly contributed to all three physical pain types.

Limitations: The cross-sectional design limits causal inferences. Future longitudinal studies can strengthen the understanding of these relationships. The relatively small sample size might affect the generalizability of findings.

Conclusion: This study provides evidence for the significant interplay between job stress, mental health, and physical pain. Workplace interventions targeting stress reduction and burnout prevention are crucial to promote employee well-being and combat the harmful effects of job stress.

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1. INTRODUCTION

In recent years, the issue of job-related stress has become a prominent topic of discussion among individuals and organisations alike. This is due to the significant negative effects of job stress on mental and physical well-being. World Health Organization (WHO) stated that job stress is the emotional and physical responses that occur when the demands of a job exceed an individual's capabilities, thereby putting their ability to cope and manage effectively at risk [1]. As a result, it is important for individuals and organisations to understand the causes and consequences of job stress and to implement strategies to mitigate its negative impact on the well-being of employees.

Research has indicated that being exposed to job-related stress for extended periods of time could result in a range of negative health outcomes. A report by the American Psychological Association (APA) has established a connection between job stress and heightened rates of anxiety, depression, and burnout [2]. Besides, job stress has been discovered to elevate the likelihood of developing physical health issues such as cardiovascular disease, musculoskeletal disorders, and gastrointestinal disorders [3].

The negative impact of job-related stress on both physical and mental health has become a major concern for employers and policymakers alike. Organisations have come to recognise the importance of addressing this issue in the workplace, as it not only affects the well-being of employees but also impedes job performance and productivity. Policymakers are also taking action to tackle this problem, since the economic costs associated with job stress, including healthcare expenses and lost productivity, are significant [3].

Therefore, this study aims to examine the relationship between job stress and mental health outcomes such as depression, anxiety, and burnout and investigate the impact of job stress on physical health outcomes such as cardiovascular diseases, musculoskeletal disorders, and gastrointestinal disorders. The research objectives are expected to answer the following research questions: What is the relationship between job stress and mental health outcomes such as depression, anxiety, and burnout? How does job stress impact physical health outcomes such as cardiovascular, musculoskeletal, and gastrointestinal disorders?

2. LITERATURE REVIEW

2.1 Job Stress and Physical and Mental Health Impact

Job stress is a common problem in the modern workplace and can have a harmful impact on both mental and physical health. Several studies have focused on the prevalence of job stress and its impact on employee well-being. This literature review aims to provide an overview of recent research on the harmful impact of job

stress on mental and physical health. Job stress was prevalent among employees in various industries, including healthcare, education, and manufacturing [4–5].

2.2 Job Stress and Physical Health Impact

Job stress can have a detrimental impact on physical health. According to a study by Lee [6], job stress is linked to an increased risk of cardiovascular disease among workers in the manufacturing industry. Similarly, a study by Tsurugano [7] found that job stress is associated with an increased risk of hypertension among Japanese workers. In another study by Choi [8], job stress is significantly linked to an increased risk of metabolic syndrome, which is a cluster of risk factors for cardiovascular diseases, such as high blood pressure, high blood sugar, and abdominal obesity. A study conducted by Kouvonen [9] found that Finnish public sector employees who experience chronic workplace stress are at a higher risk of insufficient physical activity. This is a risk factor for various physical health problems, including cardiovascular disease. Similarly, Lee [10] found that job stress is significantly associated with gastrointestinal symptoms such as abdominal pain, bloating, and indigestion, which can negatively impact physical health and well-being.

2.3 Cardiovascular Disease

Hwang [11] found that job stress was significantly associated with an increased risk of cardiovascular disease, independent of other risk factors such as age, gender, and lifestyle factors. Li [12] found that job stress was significantly associated with an increased risk of cardiovascular disease, particularly among older and less educated nurses. Job stress also has various physical health outcomes, including cardiovascular [13].

2.4 Musculoskeletal Disorders

It has been found that job stress is closely linked with an increased risk of musculoskeletal disorders, particularly in the neck, shoulders, and lower back. This has been confirmed by various studies, including those conducted by [14–16]. Furthermore, Anadkat [13] found that job stress is associated with musculoskeletal disorders. According to Kääriä [17], high job demands are significantly associated with an increased risk of musculoskeletal pain in different body regions, including the neck, shoulders, and lower back.

2.5 Gastrointestinal Disorders

Several studies have explored the correlation between job stress and gastrointestinal disorders in employees. For example, Bianchi [18] discovered that job stress was significantly associated with an increased risk of gastroesophageal reflux disease (GERD). Similarly, Leite [19] conducted a systematic review and meta-analysis on health professionals and found that work stressors, such as job demands and interpersonal conflict, were significantly associated with an increased risk of irritable bowel syndrome (IBS). Oh [20] also found that job stress

was significantly associated with an increased risk of functional gastrointestinal disorders (FGIDs). In addition, Anadkat [13] discovered that job stress can have various physical health outcomes, including gastrointestinal disorders.

2.6 Job Stress and Mental Health Impact

2.6.1 Anxiety and depression

The issue of job stress is prevalent, impacting workers in various industries and leading to mental health problems such as anxiety and depression. Recent studies have highlighted the adverse effects of job stress. For instance, Chu [21] established a significant relationship between job stress and anxiety and depression among healthcare workers. Similarly, Kim [22] found that service industry workers who experienced job stress had an increased risk of depression. The findings of Lee [23] suggest that job stress is a key factor in the adverse impact of extended work hours on emotional well-being. This relationship is partially mediated by job stress. Similarly, according to Liu [24], job stress can have negative effects on mental health and job satisfaction, indicating that it has the potential to significantly harm these outcomes. Özyurt [25] found that job stress was positively correlated with these mental health issues, underlining the severity of the problem among nurses in Turkey.

2.6.2 Insomnia

Chronic job stress is a common cause of insomnia. Researchers have found that job stress is closely linked to difficulty falling asleep and waking up at night. In fact, studies by Chen [26], Lee [27], and Zhao [28] all showed a significant association between job stress and insomnia symptoms. Specifically, employees who reported high levels of job stress had a greater risk of experiencing insomnia, including difficulty falling asleep, staying asleep, and waking up too early.

Yang [29] conducted a study on Chinese university staff and discovered that job stress was a significant predictor of insomnia symptoms. In another study, Park [30] reported that job stress was significantly linked to insomnia symptoms, including difficulty falling asleep, maintaining sleep, and waking up too early, among hotel employees in Korea.

2.6.3 Burnout

Excessive job-related stress can lead to burnout, which can cause emotional, mental, and physical exhaustion. According to Chen [31], employees in the service industry are particularly vulnerable to burnout due to job stress. This stress can lead to an increase in emotional exhaustion and depersonalization, while reducing personal accomplishment. Lee [6] found that occupational stress is also linked to burnout and a decrease in overall well-being. Fatigue and burnout can cause employees to consider leaving their jobs, as confirmed by Shechter [32]. In healthcare, professionals are prone to burnout, which can lead to high levels of

emotional exhaustion, depersonalization, and reduced personal accomplishment, as evidenced by Sood [33].

Recent research has identified job stress and burnout as significant issues for many employees. Studies by Shi [34] and Wang [35] both demonstrated that job demands, lack of control, and social support are key contributors to these problems. Additionally, Wang [35] found that job stress can lead to decreased job satisfaction and increased likelihood of turnover, but that job satisfaction can mitigate these negative effects. Furthermore, Zhang [36] confirmed that job stress can negatively impact employees' psychological well-being.

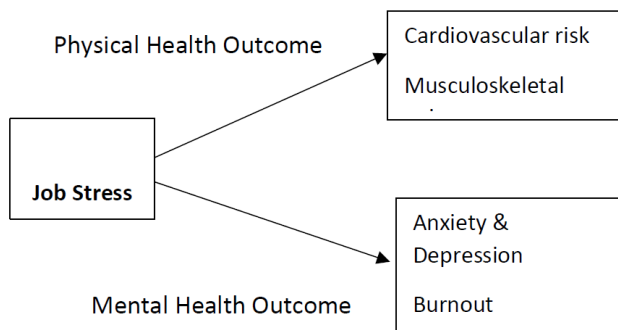


Fig. 1. Research frameworks

The literature reviewed highlights the harmful impact of job-related stress on both physical and mental health. The prevalence of job stress among employees in various industries, such as healthcare, education, and manufacturing, is a cause for concern. Several studies have consistently linked job stress to mental health outcomes such as anxiety, depression, and insomnia, emphasizing the need for effective interventions to tackle this issue. Moreover, job stress often leads to burnout, which is characterized by emotional, mental, and physical exhaustion, reduced personal accomplishment, and depersonalization. The literature reviewed supports the hypothesis that there is a positive relationship between job stress and mental health outcomes such as depression, anxiety, and burnout.

This study aims to investigate the effects of job stress on employees' physical and mental health. It will also identify the factors that contribute to job stress in the workplace and explore effective strategies that organizations can implement to alleviate it and promote employee well-being. Additionally, the study emphasizes the importance of policymakers addressing job stress and promoting healthy workplaces for the benefit of employees.

Therefore, the following hypotheses were developed:

H₁: There is a significant relationship between job stress and mental health outcomes such as depression, anxiety, and burnout.

H₂: Job stress significantly impacts physical health outcomes such as cardiovascular diseases, musculoskeletal disorders, and gastrointestinal disorders.

3. RESEARCH METHODOLOGY

The purpose of this study was to explore the connection between job stress, physical pain outcomes, and mental health issues in employees. A cross-sectional design was employed, and the study targeted individuals aged 25 and above from various industries, including doctors, engineers, lecturers, nurses, teachers, and police officers. Participants were selected using a random sampling method, and a total of 400 online questionnaires were distributed. Out of these, 115 valid responses were received, which corresponds to a response rate of 29%. Although the response rate was below the ideal level, it is still manageable for preliminary analysis, especially given the focus on specific professional groups. The data on three key aspects was collected through an online survey. This included a validated instrument to measure job stress, to assess different mental health aspects and physical health consequences of job stress. Before taking the survey, participants were given informed consent. The study also collected demographic information, such as age, gender, occupation, and years of experience. It is essential to prioritise ethical considerations at every stage of a study. Obtaining informed consent from participants, maintaining their confidentiality and privacy, and following the ethical guidelines of relevant professional associations and regulatory bodies are crucial steps. Additionally, it is necessary to provide participants with information on available mental and physical health support and intervention resources.

3.1 Data Analysis

A study investigating the harmful impact of job stress on mental and physical health could use various statistical techniques to explore the relationships between job stress, mental and physical health outcomes, and potential moderating and mediating variables. Correlation analysis could examine the relationship between job stress and mental health outcomes and between job stress and physical health outcomes. Correlation analysis is used to determine the strength and direction of the relationship. The regression analysis investigates the impact of job stress on mental health and physical health outcomes. Regression analysis can identify the unique contribution of job stress after controlling for other relevant variables. Regression analysis could test the research hypotheses and explore the potential moderating and mediating effects of variables.

3.2 Findings on Physical Health Outcomes

The study found that job stress is positively associated with physical health problems such as cardiovascular, musculoskeletal, and gastrointestinal disorders.

Findings on Physical Health Outcomes:

Table 1. Regression analysis

Regression Statistics								
Multiple R	0.97287							
R Square	0.94647							
Adjusted R Square	0.94129							
Standard Error	1.43271							
Observations	35							
ANOVA								
	df	SS	MS	F	Significance F			
Regression	3	1125.11	375.037	182.709	8.7E-20			
Residual	31	63.6321	2.05265					
Total	34	1188.74						
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	0.88231	1.31046	0.67329	0.50575	-1.7904	3.55501	-1.7904	3.55501
Cardiovascular	9.03418	3.32993	2.71302	0.01078	2.24273	15.8256	2.24273	15.8256
Musculoskeletal	0.87682	0.56334	1.55647	0.12975	-0.2721	2.02575	-0.2721	2.02575
Gastrointestinal	6.42753	6.12756	1.04895	0.30231	-6.0697	18.9248	-6.0697	18.9248

The "Multiple R" value of 0.972867471 represents the correlation between job stress and the combined outcome variables (Cardio pain, Musculoskeletal pain, and Gastrointestinal pain). It indicates a strong positive correlation between job stress and the outcome variables. The "R Square" value of 0.946471115 represents the proportion of variance in the combined outcome variables that can be explained by job stress. The "Adjusted R Square" value of 0.941290901 adjusts the R Square value for the number of outcome variables in the model, providing a more accurate estimate of the variance explained by the model. The "Standard Error" value of 1.43270643 represents the average difference between the actual outcome variable values and the predicted values from the regression model. The "Observations" value of 35 indicates the number of participants in the study.

The "ANOVA" table shows the analysis of variance results, which tests whether job stress significantly affects the outcome variables (Cardio pain, Musculoskeletal pain, and Gastrointestinal pain). The "F" value of 182.7088611 and the very low p-value of 8.70604E-20 suggest that the overall model is statistically significant, indicating that job stress significantly predicts the combined outcome variables.

The "Coefficients" table shows the results of the regression coefficients for the predictor variable (job stress). The columns provide the regression coefficient, standard error, t-statistic, p-value, and confidence intervals. The p-value for the predictor variable indicates whether the variable significantly affects the outcome variables. In this case, job stress has p-values less than 0.05 for all three outcome variables, suggesting it significantly affects cardiovascular, musculoskeletal, and Gastrointestinal pain.

In summary, Table 2 presents the impact of job stress on physical health.

Table 2. Physical health outcome

Physical Health Outcome	Association with Job Stress
Cardiovascular diseases	Increased risk
Musculoskeletal disorders	Positive correlation, increased pain
Gastrointestinal disorders	Positive correlation, increased risk

3.3 Findings on Mental Health Outcomes

The study found that job stress is positively associated with mental health outcomes such as depression, anxiety, and burnout. A positive correlation between job stress and mental health problems such as depression, anxiety, and burnout, and a positive correlation between job stress and insomnia.

Table 3. Regression analysis

Regression Statistics								
Multiple R	0.995168							
R Square	0.990358							
Adjusted R Square	0.989425							
Standard Error	0.608048							
Observations	35							
ANOVA								
	df	SS	MS	F	Significance F			
Regression	3	1177.281	392.4272	1061.411	2.57E-31			
Residual	31	11.46139	0.369722					
Total	34	1188.743						
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-0.88389	0.690396	-1.28026	0.20995	-2.29196	0.524183	-2.29196	0.524183
Anx&Dep	-0.16066	0.121134	-1.32627	0.194438	-0.40771	0.086397	-0.40771	0.086397
Burnout	0.975988	0.087137	11.20056	2E-12	0.79827	1.153706	0.79827	1.153706
Insomnia	0.057801	0.214335	0.269674	0.789198	-0.37934	0.49494	-0.37934	0.49494

The “Multiple R” value (0.99516752) indicates a strong positive relationship between the combined predictor variables (Anxiety & Depression, Burnout, Insomnia) and the dependent variable (job stress). The R Square value (0.990358393) represents the proportion of variance in the dependent variable explained by the predictor variables. The model explains about 99% of the variance in the mental health outcome, suggesting a strong explanatory power of the predictor variables. The Adjusted R Square value (0.989425334) considers the number of predictor variables and the sample size. It is slightly lower than the R Square but still very high, indicating a strong model fit. The Standard Error value (0.608047942) measures the average deviation of the predicted values from the actual values. A lower value is desirable as it indicates a better model fit. The study has 35 observations, which is a relatively small sample size, potentially limiting the generalizability of the findings to a larger population.

The ANOVA table presents the analysis of variance, testing whether the predictor variables (Anxiety & Depression, Burnout, Insomnia) have a significant effect on the dependent variable (mental health outcome). The F-value (1061.410564) and the very low Significance F value (2.57186E-31) suggest that the overall model is statistically significant, indicating that the predictor variables significantly predict the mental health outcome.

The Coefficients indicate the direction and strength of the relationship between each predictor variable and the dependent variable. The intercept (-0.883889119) represents the estimated value of the dependent variable when all predictor variables are set to zero. However, the p-value (0.209949839) for the intercept is greater than the commonly used significance level of 0.05, indicating that it is not statistically significant. The anxiety & depression coefficient (-0.160656637) suggests a negative relationship with the dependent variable. As Anxiety & Depression levels increase, job stress decreases. However, the p-value (0.194437792) is higher than the commonly used significance level of 0.05, indicating that the relationship may not be statistically significant. The burnout coefficient (0.975988341) indicates a positive relationship with the dependent variable, suggesting that higher levels of burnout contribute to more severe mental health issues due to job stress. The p-value (1.99842E-12) is much lower than the significance level of 0.05, confirming the statistical significance of this relationship. The insomnia coefficient (0.05780055) shows a positive but weak relationship with the dependent variable; however, the p-value (0.789198331) is higher than the significance level of 0.05, suggesting that the relationship is not statistically significant.

In summary, Table 4 presents the impact of job stress on mental health.

Table 4. Summary of mental health outcome

Mental Health Outcome	Association with Job Stress
Depression & Anxiety	Positive correlation (low – not significant)
Burnout	Positive correlation
Insomnia	Positive correlation (low – not significant)

4. DISCUSSION

Based on the findings from the literature review, this study provides evidence that job stress is a prevalent problem in various industries, and it can have harmful effects on both physical and mental health. The reviewed studies consistently linked job stress to mental health problems such as depression, anxiety, burnout, and insomnia. Additionally, physical health outcomes such as cardiovascular diseases, musculoskeletal disorders, and gastrointestinal disorders were positively associated with job stress.

The findings of this study provide valuable insights into the relationships between job stress, mental health issues, and physical pain outcomes. Our analysis revealed strong positive correlations between job stress and physical pain outcomes (Cardio pain, Musculoskeletal pain, and Gastrointestinal pain), as well as between the combined predictor variables (Anxiety & Depression, Burnout, Insomnia) and job stress. Job stress was found to be a significant predictor of Cardiovascular pain, Musculoskeletal pain, and Gastro pain, suggesting that employees experiencing high levels of job stress are more likely to suffer from these physical symptoms. This finding is consistent with previous research linking job stress to adverse health outcomes and underscores the importance of addressing job stress as a public health concern.

In another analysis, Burnout emerged as the primary factor significantly affecting the severity of mental health issues due to job stress. It suggests that employees experiencing high levels of burnout are at a greater risk of developing mental health problems. Interestingly, Anxiety & Depression and Insomnia did not show statistically significant relationships with the mental health outcome. It could be due to the small sample size or other factors not considered in the analysis.

5. CONCLUSION

In conclusion, this study highlights the importance of understanding the impact of job stress on employee health and well-being. Employers should recognize and mitigate the potential health risks associated with job stress, such as providing adequate resources, reducing job demands, and promoting healthy work environments. Policymakers should also consider the impact of job stress when formulating workplace policies and regulations. Addressing job stress in the workplace can lead to a healthier and more productive workforce, benefiting both employees and organizations.

6. RECOMMENDATIONS

Based on the findings of this study, the following suggestions are recommended to address job stress in the workplace:

Promote Work-Life Balance: Employers should encourage a healthy work-life balance by implementing flexible work schedules, remote work, and offering paid time off. These policies can reduce job demands and provide employees with the

time and resources they need to maintain their physical and mental well-being. Such initiatives can also improve employee satisfaction, productivity, and retention.

Resources for Stress Management: Employers can provide resources for employees to manage job stress, such as counselling services, mental health resources, and stress reduction programs. These resources can help employees cope with job stress, promote healthy coping strategies, and reduce the risk of developing mental and physical health problems.

Address Workplace Culture: Employers should promote a healthy workplace culture that encourages communication, collaboration, and positive employee relationships. A positive workplace culture can reduce workplace conflicts, improve job satisfaction, and reduce the likelihood of developing job stress and associated health problems.

Monitor Workload and Work Environment: Employers should monitor workload and work environment regularly to identify sources of job stress and implement appropriate changes. These may include reducing workloads, improving workplace ergonomics, and training employees on stress management techniques.

Encourage Physical Activity: Employers can encourage employees to engage in physical activity by providing access to fitness facilities, organizing fitness challenges, or promoting walking meetings. Physical activity can reduce stress levels, improve physical health, and improve overall well-being.

7. LIMITATIONS

However, the small sample size of 115 respondents is a limitation of the study and may restrict the generalizability of the findings to a larger population. Future research should aim to recruit larger and more diverse samples to explore further and validate the relationships between job stress, mental health issues, and physical pain outcomes.

COMPETING INTERESTS

The authors have declared that no competing interests exist.

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Grasping the Ideas of Community Engagement into Teaching Context

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ABSTRACT

This chapter explains the concept of community engagement through the lens of Teamwork Model and Stacked Influence Theory. Community engagement is described as a healthy community that has interconnected and interdependent groups, and also shares responsibility for identifying and solving problems and improving its well-being. Tuckman's Teamwork Model lists five stages of teamwork development which are the formation phase, the objection phase, the norm phase, the performance phase and the delay phase. The level of development in the formation of teamwork at each successive stage occurs at a different rate depending on the type, composition and leadership of an organization or group. In conjunction with Tuckman's Teamwork Model, Stacked Influence Theory integrates and extends educational, sociological, and psychological perspectives on social organization as well as research on the effects of family, school, and community environments on educational outcomes. Community engagement in the professional context of teaching leads to cooperation between the school represented by teachers and the school's internal and external environmental communities such as parents and the local community based on teaching ethics. By recognizing the role of each entity in shaping community engagement, researchers and scholars can design effective interventions to enhance community growth and well-being, thereby contributing to a more fulfilling and productive society.

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1. INTRODUCTION

The concept of community engagement has always received attention from scholars researching this topic. Various terms and definitions are presented to explain community participation in detail in terms of conditions, forms and methods. However, in order to shed more light on the topic of citizen participation, the definitions and concepts must first be explained in detail to allow for a deeper understanding. McCloskey et al. [1] explained that civic engagement means the process of working together with groups of people connected by geographical distance and specific interests to overcome problems that affect common well-being. This situation shows that channelled cooperation can bring about environmental and behavioural changes that will improve the quality of life of the surrounding community through personal or interpersonal skills in relationship building, effective communication and good moral values. These collaborative processes often involve partnerships and coalitions that help to mobilise resources and influence systems, change relationships between partners and act as a catalyst for change in policies and practises. Community engagement can be done through a variety of methods with the help of strategic partners, which may include government agencies, non-governmental organisations, educational institutions, community sectors and the public.

McCloskey et al. [1] also explained that there are four processes of community participation, namely system participation, social participation, virtual participation and individual participation. System participation is the process of community participation that is similar to other living entities in that it consists of different components that represent specific functions, activities or interests, each of which functions within certain boundaries to meet the needs of the community. For the community to function properly, each component must perform its task efficiently [2]. Healthy communities are made up of interconnected and interdependent groups that share responsibility for identifying and solving problems and improving their well-being.

Social engagement is a social and political network that connects individuals, community groups and leaders. Fundamentally, it is important to understand this network in order to make plans that consider strategies and processes for carrying out an activity. Identifying social relationships between individuals can help leaders understand community leadership, recognise their patterns of behaviour, identify at-risk groups and strengthen their networks. Virtual engagement focuses more on using the internet or computer to interact with each other. Social groups or groups with similar interests that regularly communicate with each other via the internet are considered virtual communities. Individual engagement is the feeling and quality of belonging to a community. Community engagement in the professional context of teaching in Malaysia leads to collaboration between the school, represented by the teacher, and the community in the internal and external

environment of the school, such as parents and the local community, based on teaching ethics [3].

Yong et al. [4] noted that teachers act as socialisation agents in disseminating social knowledge, forming a personality that conforms to the norms and values of society, and forming a caring society. Teachers also become role models for students and the community and as a link between teachers, parents, government officials and the community and community contributors [2]. Community engagement in the professional context of teaching leads to collaboration between the school represented by the teacher and the school's internal and external environment such as parents and the local community based on teaching ethics [3]. This clearly shows that the teacher always plays an important role in maintaining the unity of the school by striving to promote school peace and building effective collaboration with the community to help students learn and develop. However, the description of community engagement in the context of the teaching profession is still vague and unclear. In fact, the theories and models underpinning community engagement are also quite limited. Hence, there is a need to explain more clearly about the definition and conceptualization of community engagement. Models and theories that can be associated with community engagement are the Teamwork Model and the Stacked Influence Theory.

2. TEAMWORK MODEL

Tuckman's Teamwork Model lists four phases in the development of teamwork, namely the forming phase, the storming phase, the norming phase and the performance phase [5]. Subsequently, Tuckman improved the model by adding the last phase, the adjourning phase [6]. The formation phase is the organising phase where the purpose of the organisation has not yet been established and the identity of the group is not yet embedded in the organisational structure. In this stage of protest, members of the organisation face friction and conflict as they try to reach consensus on important issues of the task. In fact, they do not like the task and find it difficult to steer the organisation.

Tuckman [5] explains that the rate of development in teamwork formation varies at each successive stage depending on the nature, composition and leadership of an organisation or group. The development, progress and maturity of an organisation are closely related to the organisation's ability to resolve disagreements and remove obstacles that impede the organisation's progress. Given the importance of these characteristics, it is necessary to consider those that have the greatest influence and that steer the affective process of the task in a better direction by encouraging the participation of members with high quality to develop naturally. After setting realistic expectations for organisational behaviour, the organisation's leadership will use different intervention strategies to encourage and support the organisation's progress at each stage of development.

In relation to education, Ishak et al. [7] describe the role of teachers as agents of change who are responsible for educating students in school. In fact, teachers also play a role in disseminating knowledge in the community to shape character according to community norms and values. In addition, teachers help promote a caring society by being role models and providing services to the local community. A change agent is someone who helps implement a planned social change or innovation [8]. Mahmood & Abdul Rahman [9] define a change agent as a person whose role is to influence the goal of change and the link between the source of change and the social system. Ultimately, change agents are individuals who are able to work with other individuals, groups and communities to improve the overall quality of life.

Teachers may initially focus on internal processes such as inter-organisational relationships, communication and decision-making that involve the school community such as teachers, parents and the local community. This is because teachers need to closely analyse the culture of the targeted organisation so that dreams can be realised together. Mastering the organisational culture can help teachers plan strategies using a culture change approach so that any activity can be successfully implemented. Finally, teachers play an important role in the community and society to ensure that harmony is always maintained and sustainable. For the developmental phase of teamwork, Tuckman cites two components to describe the development of each phase, namely team structure and group assignments.

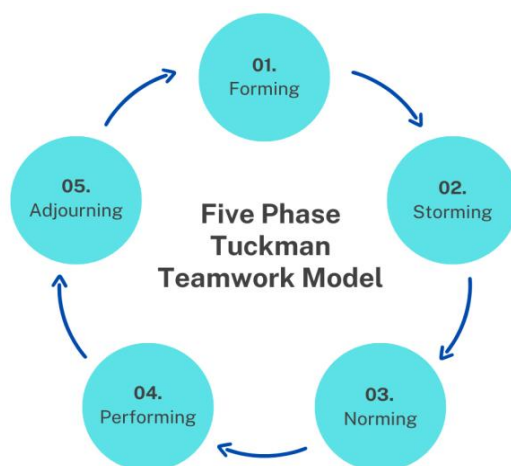


Fig. 1. Five phase Tuckman Teamwork Model

2.1 Forming Phase

In the forming phase, the team structure is formed by members discussing the strengths, weaknesses, opportunities and threats they will face in carrying out an activity. In this phase, it becomes apparent that team members tend to act relatively and independently without disturbing other team members. Although they are highly motivated, they are not mature enough to understand the difficulties and importance of group work. They highlight their best behaviour, skills and abilities, but still focus on themselves. In this situation, it is often beneficial to have a member of the organisation with extensive experience and to act as a role model for others. An important aspect of performing group tasks is the aspect of communication. This is because each member strives to become familiar with the individual tasks and the group tasks in order to ensure that the goals are achieved. In this phase, the boundaries, rules and norms of the organisation's work are established before the task is tackled. The focus of the discussion is on defining the scope of the task, how it will be carried out and other related issues. To ensure progress in the group's work, each member must leave their 'comfort zone' and always be prepared for any possibilities that may arise in the future.

2.2 Storming Phase

At this stage, each team member has begun to show his or her own importance in the team and to build the trust of the other team members. The team structure begins to develop and each team member is aware of the position and hierarchy of each individual in the organisation. Conflict at this stage usually occurs when team members question the credibility of individual members, including the team leader. There is friction between team members, jealousy, attempts to withdraw from continuing the task until boundaries, rules and norms have been ignored. Each team member shows concern, distrust and doubt in the others. However, this situation can be overcome if each team member shows a high tolerance attitude to ensure that the team structure is always stable and maintained to achieve the team's goals. In terms of the task, this phase usually begins when team members update the status of the task, views and opinions on the task, and conflicts and problems that arise in the execution of the task. Emotions are also expressed in this phase to reflect the true state of the task. In this phase, the weaknesses and shortcomings of the task set are actually revealed. However, Tuckman explains that this phase does not necessarily occur if task planning is carefully planned and a multistrategic approach is used to ensure that goals are achieved. However, confronting this situation makes each team member more mature, stronger, more versatile and able to work together more effectively.

2.3 Norming Phase

The team structure becomes stronger and more stable at this stage when each team member is more mature, stronger, more versatile and understands the function and role of each individual. The relationship between the group members becomes stronger and more stable. Each team member begins to tolerate the

wishes and needs of the other team members, to accept others as they are and to trust each other. However, there is a danger at this stage that team members are so anxious to avoid confrontation that they are reluctant to discuss contentious and conflicting issues. Group work at this stage is more open and tolerant of others. Each team member begins to share and discuss each opinion and view in detail and without conflict. Every view and opinion is always appreciated and makes the group work more dynamic.

2.4 Performing Phase

In this phase, the team structure is more cohesive and the team philosophy more pragmatic, and each team member is committed to achieving the planned goals. Each team member interacts positively with the others and acts as a unit. In other words, a strong team structure becomes a strong support system for getting tasks done. When the team structure is strong, tasks can be completed more easily to achieve the goal. This is because the interpersonal structure is the most important weapon in the execution of tasks. In fact, all the energy is directed towards the task without thinking about conflicts and problems. Any problem that arises always finds a solution and can be solved calmly and together with the team members.

2.5 Adjourning Phase

At this stage, the team structure is more cohesive and the team philosophy more pragmatic, and each team member is committed to achieving the planned goals. Each team member interacts positively with the others and acts as a unit. In other words, a strong team structure becomes a strong support system for getting tasks done. When the team structure is strong, tasks can be completed more easily to achieve the goal. This is because the interpersonal structure is the most important weapon in the execution of tasks. In fact, all the energy is directed towards the task without thinking about conflicts and problems. Any problem that arises always finds a solution and can be solved calmly and together with the team members.

3. STACKED INFLUENCE THEORY

The Stacked Influence Theory presented by Epstein in 1995 is a theory that recognises the interdisciplinary nature of the partnership between schools, families and communities [10]. This theory integrates and extends educational, sociological and psychological perspectives on social organisation, as well as research on the impact of family, school and community environments on educational outcomes [11]. Epstein acknowledges the interconnected history of the major institutions that socialise and educate children and explains that to achieve specific goals such as student development and academic success, the theory appeals to all of these institutions and can be achieved through collective action and support. This theory is graphically illustrated by three spheres symbolising the school, the family and the community. The theory of overarching influence is illustrated in Fig. 2.

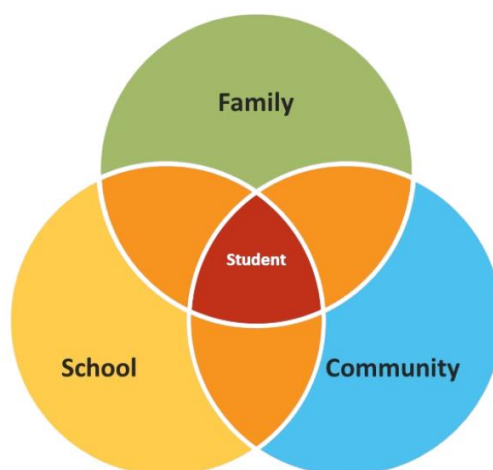


Fig. 2. Stacked Influence Theory

Epstein explains that this theory emphasises the importance of mutual interaction between parents representing the family, teachers representing the school, and community partners to understand each other's perspectives, identify common goals for students, and value each other's contributions to student development. In the context of this study, teachers who use parents as a reference group are more likely to plan and implement activities that consider the role of parents in their children's education. In fact, parents also understand teachers' roles and the school's goals, communicate with the school and organise activities at home that support children's learning [12].

Epstein has listed several types of school, family and community engagement that are important for student learning and development and for more effective schools and families. This list helps teachers develop different programmes and activities in partnership with schools and parents that are more inclusive. This list can also help researchers improve research and practise. Table 1 shows the types of school, family and community engagement.

Table 1 shows six types of school-family-community engagement. Each type of engagement includes many different practises of sharing, challenges and successes. Epstein emphasised that each school must take a different direction for implementing engagement to meet the needs and desires of the goals set. Teachers and other school communities can implement strategic partnerships such as implementing programs on a short-term or long-term basis. The programs implemented should lead to student learning and student competence improvement. As a result, students can improve their competence and thus contribute to society.

Table 1. Types of school, family and community engagement

No.	Types	Remarks
1	Parenting	Supporting all families in creating a home environment that supports children as learners and helps schools understand families
2	Communication	Design, plan and implement effective forms of two-way communication about school programmes and children's progress
3	Volunteer	Recruit and organise help and support from parents for lessons, school events and student activities
4	Learning at home	Providing information, ideas and opportunities for families to help students at home with academic outcomes, homework and curriculum-related activities
5	Decision Making	Involving parents in school decision-making and developing parent leaders
6	Collaborating with community	Integrating resources and services from the community to strengthen and support schools, students and their families; and schools, families and students to support the community

4. CONCLUSION

The concept of community engagement based on the Teamwork Model and Stacked Influence Theory in the context of teaching emphasises the importance of collaborative efforts and the contributions of various stakeholders in creating a thriving educational environment. By applying these models, educators can build a powerful network that promotes student learning, engagement and overall success. The Teamwork Model emphasises the importance of involving teachers, students, parents and the community in decision-making and learning processes. This collaborative approach creates a sense of shared ownership and fosters a positive learning culture that extends beyond the classroom. Teachers act as facilitators, students become active participants in their learning, and parents and community members contribute their expertise and resources to enrich the educational experience. As a result, students benefit from a holistic and supportive learning environment. On the other hand, Stacked Influence Theory emphasises the cumulative impact of various community engagement initiatives. Recognising that multiple levels of engagement can synergistically contribute to improved student outcomes, the theory emphasises the importance of contributions from multiple stakeholders, such as parent engagement, community partnerships and student empowerment.

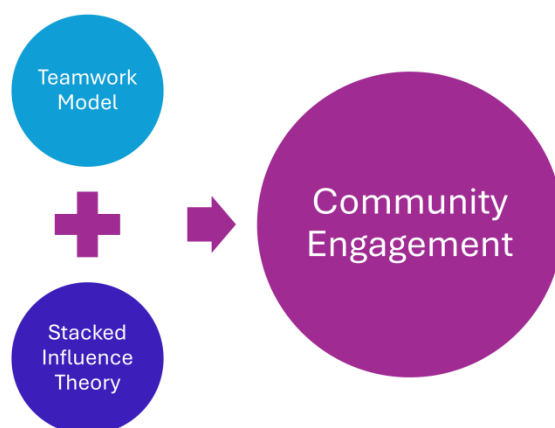


Fig. 3. Theory & model underpinning community engagement

This approach allows for tailored support and resources that meet students' specific needs and maximise their potential for success. Incorporating both models into the classroom encourages collaboration, relationship building and student ownership. By actively engaging students in their learning and giving them a voice, teachers instil a sense of ownership and motivation that drives their academic growth. The support and resources provided by parents and the community create a solid foundation for student development and allow teachers to access additional opportunities and expertise. In essence, community engagement based on the Teamwork Model and Stacked Influence Theory transforms education into a collective effort where teachers, students, parents and the community work together to raise well-educated and successful individuals. By fostering a collaborative, inclusive and resourceful educational ecosystem, this approach paves the way for a better future that benefits both students and society at large. When educators embrace these concepts, the educational landscape is enriched, and students are prepared to become active and responsible members of their communities and to realise their full potential.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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He has also received the Gold Medal and the Special Award from The French Federation of Inventors at the 14th International Invention and Innovation Show (INTARG) 2021 in Katowice, Poland for producing the Development and Psychometric Assessment of Malaysian Youth Adversity Quotient Instrument (MY-AQI) by combining Rasch model and confirmatory factor analysis.

He was also awarded the Bronze Medal at the the Pertandingan Rekapipta dan Inovasi Nasional (PRIN) dan Hari Matematik in 2021 for the Situational Judgment Test for Trainee Teachers (SJT³); and the International Educational Achievements Awards-2023 as the Dedicated Students of The Year from Suryadatta Group of Institute Uttar Pradesh, India during International Conference on New Horizons in Science, Engineering, Management and Humanities on 12th February 2023.



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- ☐ Best Paper Award - 2019, International Conference on Multidisciplinary Research and Innovation (ICMRI 2019), Kuala Lumpur
- ☐ Best Research Paper Award 2019 – International Conference on Entrepreneurship, Management, Education, Social Science and Technology (ICEMEST)
- ☐ Best Poster Award 2018 – The 6th Mechanical Engineering Research Day (MERD'19), Universiti Teknikal Malaysia Melaka (UteM), Melaka
- ☐ Gold medal and Special Awards in the 35th World Genius Convention, WGC 2021, at the TOKYO, JAPAN
- ☐ Gold medal and Canadian Special Awards in the 5th International Invention Innovation Competition, iCAN 2020, at the CANADA
- ☐ Gold medal award and Special Award by the French Federation of Inventors (Fédération Française des Inventeurs France) in the 14th International Invention and Innovation Show, INTARG 2021, at the KATOWICE, POLAND.
- ☐ Gold medal and Special Award: Asia Invention Creativity Association (AICA) in the World Invention Innovation Contest (WIC 2022) at the SEOUL, KOREA

- Gold medal and Three Special Awards at the 15th European Exhibition of Creativity and Innovation, EUROINVENT 2023 in IASI, ROMANIA.
- Gold medal and Special Award at 12th World Invention Creativity Olympic, WICO 2023 – SEOUL, KOREA.



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Rethinking the Artist: Seven Touches on Arnold Schoenberg

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ABSTRACT

This essay offers a somewhat different perspective on the famous 20th-century modernist composer Arnold Schoenberg, featuring his other abilities as an artist and teacher and fragmentarily highlighting those of his personal contacts, which seem to the author important for understanding Schoenberg's personality, his creative ups and downs. The study also calls for a reboot of the knowledge about the Austrian and German intellectuals and artists of Jewish origin who, in the 1930s, after the Nazis came to power, were forced to leave the places where they grew up, acquiring modernist views, and seek a new, safer place by moving to the United States, in particular Los Angeles, which has become home to many of them. Little-known and forgotten facts about Schoenberg's life, presented in the chapter, restore the atmosphere of the cultural life of Vienna in the early 20th century, as well as Los Angeles in the 1930s. Events after the composer's death, related to the preservation of his memory at the academic level in Los Angeles, open a research niche that has not yet been explored or published. The chapter is not just another biography of the composer, but rather "touches" that, based on the latest sources and the memory of the place, give a fairly clear idea of the artist and are aimed at changing the existing paradigm about this outstanding figure.

Keywords: *Schoenberg; Jung-Wien; Alma Mahler; Los Angeles; Gershwin; Schoenberg Institute; Schoenberg Soundways.*

1. INTRODUCTION

Arnold Schoenberg is obviously a special case, as being perhaps the most influential figure in 20th century music, he actually did not leave behind a single

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memorable tune. Or rather, do we like to think of him as someone who did not? Be that as it may, Schoenberg's music is rarely performed, although it is studied.

The idea for this writing arose about ten years ago, when Professor Severine Neff of the University of North Carolina gave a talk on Schoenberg's method of analyzing Bach's Two-Part Inventions at a doctoral seminar in musicology at the Hebrew University of Jerusalem. The very notion of Schoenberg, who is commonly called a modernist and the inventor of the twelve-tone technique of composition, as a teacher of truly classical matters in music, inspired the initial search on this topic. This search over the years allowed the author to reveal entire layers not only of Schoenberg's life and work, but, in addition, the features of his era and the places where he lived and then moved and where many other Austrian and German intellectuals of Jewish origin also found refuge.

This material is not just another biography of the composer, but an essay that fragmentarily highlights the composer's personal contacts, which, in the author's opinion, are important for understanding Schoenberg's personality, his creative ups and downs, and also provides information about the memory of the composer in Los Angeles at the academic level (that is, post-human facts that are unlikely to fall into the category of "biography"). The material, which generally corresponds to Schoenberg's timeline and post-human decades, is in fact "touches," which, however, give a fairly clear idea of the artist and are aimed at forcing the reader to change the existing paradigm about this outstanding figure.

As an ethnomusicologist who studies more the "behind-the-scenes" side of music (be it folk or church tradition or even Western classical music), the author presents the topic of, strictly speaking, historical musicology rather from an anthropological point of view, where the emphasis will be more on the sociocultural context than on the analysis of style, musical language, or a specific work. The focus will be on various aspects of Arnold Schoenberg's early years in Vienna and then his life in Los Angeles, including what happened here after the composer's death...

Since the study covers both historical musicology and the anthropology of music, it follows the methods adopted in each of these fields, namely working with academic sources, including the latest available [1-5], and also with ethnography, which in this case can be defined as "the memory of the place," that is, documents stored in the libraries of those universities that are directly related to the research subject, and articles in local and university newspapers and periodicals on topics for which there are no published academic sources to date.

2. JUNG-WIEN

Arnold Franz Walter Schoenberg was born into a Jewish family in Leopoldstadt, one of the suburbs of Vienna, studied music and painting (both privately) and for some time could not decide who he would be: a musician or an artist.

During his years in Vienna, Schoenberg was associated with several different circles. While the most famous such circle was the Second Viennese School,

whose founding theoretician and central figure was Schoenberg himself and which included at its core such figures as Alban Berg and Anton Webern, the earlier circle remained much less known. It was called *Jung-Wien* (that is, Young-Vienna) or, more broadly, *Jung-Wien Musical Art* or *Jung-Wien School*, arose in the second half of the 1890s, and its central figure was the composer Alexander Zemlinsky (Fig. 1). Towards the end of the first decade of the 20th century, Schoenberg was considered as “captain,” and in any way, both of the composers were called “leaders” of this school.



Fig. 1. Arnold Schoenberg. Portrait of Alexander Zemlinsky, 1907¹

The relations between the two—Zemlinsky and Schoenberg—were much deeper than teacher (of music theory and composition) and his disciple. Schoenberg became a godfather of Zemlinsky at his conversion to Lutheranism to which Schoenberg earlier converted. Moreover, Zemlinsky’s sister became Schoenberg’s wife.

Who else were members of this circle? Among the most notable musicians there was the future renowned conductor Bruno Walter, Mahler’s student who was then at a crossroads between composing and conducting. Little did they know that in about three decades, two of them—Schoenberg and Walter—would find their home in Los Angeles.

Part of Jung-Wien members were of Jewish descent. Some of them, as was common in Europe at the beginning of the 20th century, converted to Christianity, mainly Lutheranism. A decree on tolerance issued by Emperor Joseph II, which allowed a limited number of Jews settling in Vienna starting in 1782, ensured that by the late 19th century people of Jewish origin became an important part of the

¹ All images in this paper are reproduced in accordance with the Code of Best Practices in Fair Use in the Visual Arts [6].

Viennese intellectuals. "It is unlikely that the question of religion and 'nation' would not have been discussed within these circles," states Muxeneder [1, p. 237], citing, in addition, various statements taken from the anti-Semitic propaganda of the period, which was of great concern to young people who felt insecure regardless of their religious status. Conversion to Christianity seemed to many of these people not only as a means of becoming a more legitimate part of society, but also, as Schoenberg pointed out, to better understand European culture.

What was the style of music maintained by the *Jung-Wien* members? The German word *Tonpoeme* (or *Ton-Poeme*) is roughly what is currently considered a symphonic poem, that is, an instrumental work commensurate with a movement of a symphony or even with a whole symphony, which is based on a literary work, most often a poetic, and sometimes an artistic work. A poetic work read with expression is also classified as a *Tonpoeme*. Music written by the composers who were part of Jung-Wien School or its close circles, such as Richard Strauss, greatly followed the idea of *Tonpoeme*. Such is also the early Schoenberg's work *Verklärte Nacht* (Transfigured Night) inspired by the same-name poem by Richard Dehmel, but even more so by the intense emotions of meeting Mathilde, the sister of his teacher, whom he married in 1901. By that period, he started the series of his more than 70 self-portraits, first at quite a realistic manner (Fig. 2).

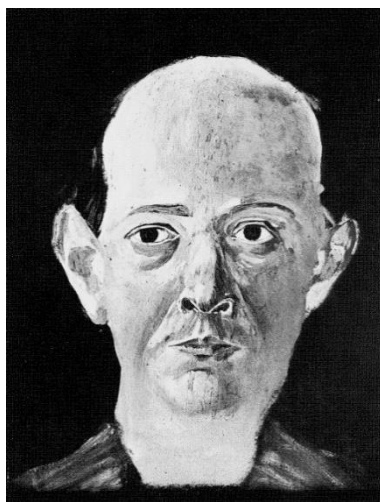


Fig. 2. Arnold Schoenberg. Self-portrait, 1900

3. MATHILDE

The meeting with Matilda Zemlinsky took place at a time when Schoenberg was already emerging as a late Romantic composer adhering to the post-Wagnerian

style. This is exactly how the string sextet *Verklärte Nacht* (1899) is perceived, being, according to many, Schoenberg's best work of the tonal period. Although Mathilde was not particularly beautiful, she was described as a quiet and intelligent woman. The couple had two children—Gertrud (Trudi) and Georg (Görgi). Georg Schoenberg grew up as talented as he was humble; a composer who followed the style of rather his uncle (Zemlinsky), he was eventually overshadowed by his father.

Mathilde Schoenberg (Fig. 3), who bore a significant share in the family's material well-being, also happened to contribute to changing the course of music in the 20th century. If the first hallmark, or rather starting point in this series was that same string sextet, then the second Rubicon came ten years later, when the talented and still unknown artist Richard Gerstl, who lived for some time with the family and with whom Schoenberg was studying the new methods of painting, found himself in an affair with Mathilde, and the most unpleasant thing was that Schoenberg became aware of this connection... It is not among the topics of this paper to present the sequence of events that unfolded, which is studied in detail in a recent Ph.D. dissertation [7], but after Mathilde, on the urgent advice of friends, including Anton Webern, a student of Schoenberg, returned to her husband, the artist was ignored by the circle of mutual friends and eventually committed suicide. Arnold Schoenberg's musical style underwent serious changes: It gradually lost its tonal basis, though retained features of tonal music such as melodic progressions associated with late Romantic harmony. The composer's first work, considered atonal, is his Second String Quartet dated 1908, in the third and fourth movements of which a soprano singer joins the performers, and the final movement has no key to be determined, including the melody of the voice. The work is dedicated "to my wife" and is a purely mirror reflection of the feelings of the composer, who was then losing ground under his feet.



Fig. 3. Richard Gerstl. Portrait of Mathilde Schoenberg, 1907

Looking ahead, we'll note that the next and last fundamental change in the composer's musical language, dodecaphony (that is, the twelve-tone technique), occurred shortly after Mathilde's death in 1923. Piano Suite Op. 25, completed in that year and considered Schoenberg's first dodecaphonic work, can be seen as a structuring of highly emotional loss, when there is no longer any emotion. In Schoenberg's twelve-tone works you'll hardly find intonations commonly associated with crying, questioning, joy, or other states of human feeling. When the composer wanted to clearly express them in music, he then returned to his former, that is, atonal or even tonal style.

4. KANDINSKY

Schoenberg's departure from the tonal framework did not go unnoticed by another outstanding person who was then gaining a reputation in Europe as a revolutionary in painting—Wassily Kandinsky. Kandinsky was born in Moscow (Russian Empire) in 1866. After graduating from Moscow University, where he studied law and economics, and having received an offer to become a professor and head of the department of Roman law at what is now University of Tartu (Estonia), Kandinsky, then 30, gave it all up and began studying painting, moving to Munich and entering the Academy of Fine Arts. At the turn of the second decade of the 20th century, Kandinsky traveled extensively in Central Europe and, while in Vienna, noticed an advertisement for a concert at which an unusual work was to be performed—a string quartet with the participation of a soprano singer. Attending this event was not only a milestone in the friendship that bound Kandinsky with Schoenberg for many years, but also inspired the painting *Impression III (Concert)* (Fig. 4), reflecting the impression it made on the artist, who was still on the move away from realistic painting towards what would lead to abstractionism in a few years.



Fig. 4. Wassily Kandinsky. *Impression III (Concert)*, 1911

What else brought these two individuals together? Perhaps a kind of outsidership: Kandinsky, born Orthodox, became an adherent of Theosophy

according to the teachings of M-me Blavatsky, and Schoenberg, born Jewish, became Lutheran, all in a clearly Catholic Vienna.

Schoenberg's correspondence with Kandinsky reveals an interest that gradually formed during its first years, a search for common points, and simply human rapprochement and trust in each other. All this was put to the test in 1923, when Kandinsky sent Schoenberg an invitation to join the faculty at the prestigious Bauhaus school of design in Weimar, where he was then a professor. Kandinsky noted in his letter that Jews were not normally welcome at the Bauhaus, but an exception would be made for Schoenberg. The composer explained to the artist in a very clear and reasoned form his reluctance to be considered an exception among the [generally bad] Jews [8, pp. 79, 82].

The composer's acute perception of growing anti-Semitic spirit, even among his seemingly like-minded people, was facilitated by the fact that several months before this correspondence, Schoenberg was forced to leave the Mattsee summer resort near Salzburg being affected by an anti-Semitic attack. As the composer wrote to his pupil Alban Berg, "[t]oward the end it got very ugly in Mattsee. The people there seemed to despise me so much, it was as though they knew my music" [9, Section "1920 – 1924"]. And this was long before Hitler came to power in 1933!

Relations with Kandinsky were gradually restored, although the former warmth seemed to be gone forever. Kandinsky was not the only one among the composer's non-Jewish friends with whom Schoenberg shared his vision of the rapidly growing anti-Semitism in his homeland and region. Another such person and lifelong respondent was the wife and then widow of Gustav Mahler, Alma Mahler, with whom correspondence continued for some 50 years.

5. ALMA MAHLER

Schoenberg may have known Alma Schindler (Fig. 5) since 1900, when they both took composition lessons from Alexander Zemlinsky, with whom she was (secretly) romantically involved for several months [2, p. 3]. About a year and a half later, 22-year-old Alma married Gustav Mahler, who was about 20 years older than her, and, as was common at the time, abandoned her own career to support her husband. This view was shared by both Mahler, who was educated in the 19th century, and Alma's parents, who belonged to Mahler's generation.

It so happened that Alma, who was married three times (after Mahler's death—to the architect Walter Gropius and then to the playwright Franz Werfel), felt safe and confident in her correspondence with Schoenberg, sharing the most personal social, professional, and other issues, as he did it too.

The correspondence between them, which began in Vienna, continued across eras and places, including their final home, Los Angeles. During the events of 1923, Alma knew better than anyone the rules established by the Bauhaus leadership in relation to Jews, since her second husband, Walter Gropius, was

the founder and director of this school in Weimar until its closure by the Nazis in 1932. She considered it possible to share with Schoenberg her views on Kandinsky's position, advising him to express forgiveness to he who wrote sincerely about what he saw around him and how he tried to promote and help a deeply respected friend, given the current situation [2, p. 291].



Fig. 5. Alma Schindler. Self-portrait, 1900

Schoenberg and Alma Mahler's circle of mutual friends included both musicians and artists of various styles, from Oskar Kokoschka and Gustav Klimt to Egon Schiele, who painted Schoenberg's most famous portrait in 1917.

Alma and Gustav's daughter, Anna Mahler, who divided her after war time between London and the United States (in the course of her five marriages), maintained relations with both her mother and her family and with the Schoenbergs. Visiting Los Angeles at time when Arnold Schoenberg died in 1951, it was she who made a death masque of the composer.

6. GERSHWIN

Arriving in the United States in 1934 after publicly returning to Judaism in Paris, Schoenberg committed an act that "not only separated his European period from his American period but also had a direct impact on his compositions. In America he hoped to practice his faith as well as compose his music without fear of loss of life or property" [10, p. 307]. From that moment on, Schoenberg began a new chapter of his life, aimed at establishing himself not only (and not so much) as a European modernist composer, but rather as a musician who wanted to join American musical life.

Despite correspondence with many American composers in previous decades, an effort had to be made to maintain contacts once arriving there. Members of the unique interwar German-Austrian-Jewish community of artists, writers, and musicians had to rebuild their relationships. Some contacts were strengthened, others were broken. Thus, the contact with Ernest Bloch, who arrived in the U.S. much earlier than Schoenberg, developed in such a way, as evidenced by their correspondence, that Bloch, who warmly welcomed Schoenberg's arrival, soon felt that he was losing his position as "European composer" here as Schoenberg's popularity grew [3, p. 65-67]. Another obstacle was "resistance to modern music in Los Angeles" [11, p. 7], which required much greater flexibility, which, unlike many other skills and abilities, Schoenberg lacked.

After a year of trying to settle in Boston, Schoenberg with his family came to Los Angeles and there he met George Gershwin, who lived in Hollywood. The composers had known each other for some ten years, from the moment when Gershwin, who was then on a concert tour in Europe, asked Schoenberg to give him composition lessons, and Schoenberg replied: "I would only make you a bad Schoenberg, and you are such a good Gershwin already!" [12, p. 287]. The encounter on the American soil suddenly unveiled a mutual sympathy between the two. The composers communicated, played tennis together, Gershwin painted a portrait of Schoenberg (Fig. 6) and promoted his music. Schoenberg, in turn, at every opportunity expressed his appreciation of the young composer, whom he defined as "a man who lives in music and expresses everything ... by means of music, because it is his native language" [13].



Fig. 6. George Gershwin painting Arnold Schoenberg, 1936

The friendship promised to be strong and faithful, but lasted only a little more than a year, since Gershwin died in 1937 after unsuccessful surgery for a brain tumor. The day after his death, Schoenberg eulogized him on air expressing "the deepest grief for the deplorable loss to music" and adding that he also lost a friend [14].

7. ABANDONED INSTITUTE

Although it was hardly taken for granted that a 60-year-old European modernist composer could find a university job in the traditionalist United States of the 1930s, and especially in Los Angeles, Arnold Schoenberg was nevertheless hired as a professor of music theory and composition at two universities in the city—the University of Southern California (USC) and the University of California, Los Angeles (UCLA), where he worked for a total of eight years.

The memory of Schoenberg at UCLA is fairly quiet and respectful, with a Music School building and concert hall named after the composer, a poster of Schoenberg's portrait by Schiele, an original bust of the composer by Louis Zack in the Music Library, an enlarged facsimile of the *Kol Nidre* score (1938) on the wall, as well as several unique documents stored in the Special Collections Department of the Research Library. These documents shed some light on the composer's reception and work there from 1936 to 1944, when Schoenberg, then 70, retired. Among the documents is Schoenberg's résumé in UCLA format—less than *three* pages in total. (!!) In the "Education" section, Schoenberg writes: "Autodidact as composer." Other documents include meticulously handwritten musical examples for lectures on harmony and counterpoint, as well as sheet music of simple student compositions containing red notes from the Master. With that said, the librarian claims that the box in which the documents were stored was never requested until the summer of 2023, when the author of these lines came to explore the materials.

The University of Southern California, in contrast, has taken on the equally honorable and challenging task of perpetuating Schoenberg's memory through ongoing research and performance of his music. To realize this goal, around 1973, negotiations began with Schoenberg's heirs about the transfer of the composer's archive for preservation and research, subject to the creation of the Schoenberg Institute, to house which a special building would be built.

The Arnold Schoenberg Institute building, designed by Adrian Wilson Associates in the 1960s–1970s Expressionist style (some may recognize elements of the early 1920s Bauhaus style) and completed by Casner Company in 1977 (Fig. 7), began to fulfill its purpose. The project was mainly financed by USC, while furniture and equipment were purchased with the remaining funds allocated by the city of West Berlin. The collaborative efforts of several Los Angeles institutions made the Institute's running possible: the University of Southern California provided the physical site and general operating funds, California State University provided archivist funding, the California Institute of the Arts provided director funding, and the University of California provided funding for publications [15].



Fig. 7. The Arnold Schoenberg Institute on the USC campus, c. 1980

The archives were open to scholars, students, and other interested parties. In addition to the collections, the Institute issued from the very beginning a semi-annual magazine and a newsletter, both published before the opening of the Institute in its own building and continued for a year and a half from January 1975 to June 1976. Programs for concerts held at the Institute's concert hall show that the Institute's management found it difficult to organize and finance concert programs consisting only of the music of Schoenberg and his students, and "diluted" them with other classical music. This did not go unnoticed by the composer's heirs, who already in the mid-1980s tried to take away the archives from the Institute and move them to another school. The conflict was then resolved, but the realities of performing interests and expectations of listeners (and, accordingly, attendance) were fundamentally impossible to change.

As the institute's concert programs show [16], as well as according to the local press [17], the situation repeated itself 10 years later, when a conflict between the university and the family led to mutual lawsuits based on the demand for academic freedom versus an agreement as to what repertoire should be performed. Finally, the claims were withdrawn, the archive was handed back to the family, which in 1998 transferred it to the Schoenberg Center in Vienna, which had been built by that time. From that moment on, the fate of the Institute and its building was sealed. The building stood for another ten years, its interior modified to serve the USC Music Department needs, but then it was torn down giving a space for the new building of the USC School of Cinematic Arts.

8. GHOSTING HISTORY

The next phase of Schoenberg's remembrance on the USC campus came in 2015, when Los Angeles-based artist David Schafer created a sound installation called "Schoenberg Soundways." Five university utility trucks with cab-mounted

speakers played five Schoenberg works from different periods (that is, completely different musical styles) over the course of a week. Each truck had a banner stating which work (including the year it was written) was being reproduced (Fig. 8).

The artist explains that the idea behind this installation follows the concept of indeterminacy invented by John Cage, a student of Schoenberg, who defined it as the ability of a work to be performed in substantially different ways. For Schafer, the trucks crisscrossing the campus at random represent the indeterminacy of the meeting of different musical styles in various unpredictable combinations, all on the campus where the composer once worked and where his archives were once kept. The artist uses the collocation “ghosting history” to describe how this project revives Schoenberg’s presence on campus [18]. Publications on this topic in periodicals of the time refer to another statement by the artist about the role of truck drivers as “educators of that lost history on campus” [19]. The project culminated with a concert in which students from the USC Thornton School of Music performed several works by Schoenberg.



Fig. 8. Utility trucks playing Schoenberg’s music on the USC campus, 2015

Schoenberg Soundways was David Schafer’s second project dedicated to the memory of Schoenberg. Two years earlier, another sound installation, “Four Letters to Mahler,” featured displays with English translations of four letters that Schoenberg wrote to Gustav Mahler. Eight speakers simultaneously played audio-recorded excerpts of these letters in German-accented English [18].

These two projects, which took place in 2013 and 2015 respectively, rank among the most significant artistic developments associated with Schoenberg in Los Angeles since the composer’s tenure here and the Schoenberg Institute on the University of Southern California campus.

9. CONCLUSION

In one of his late letters, Schoenberg writes: “If immigration to America has changed me—I am not aware of it” [11, p. 34]. Schoenberg, as became known to

the public in 2021, was not buried in Los Angeles. As E. Randol Schoenberg, composer's grandson, states, "Arnold Schoenberg died in Los Angeles on July 13, 1951. He was not buried in a cemetery there. His ashes were kept and in 1974, he was interred in an honorary grave in Vienna's Zentralfriedhof" [20]. Technically, the transfer of Schoenberg's ashes to Vienna could not but lead to the fact that in the future his archives would also be transferred there.

Breach of the agreement between the university and the heirs could hardly be a sufficient reason for the demise of the Institute. This was rather one of the possible scenarios (not the worst), since the more likely reason was simply the conflict of the two Western subcultures that turned out to be out of sync: while American modernism (more precisely, the avant-garde) was much more radical in terms of its attitude towards musical form, traditional use of instruments, or even silence instead of music, Austrian-German modernism of the 1910s–1920s, which only challenged the historical pitch system without encroaching on musical form and use of instruments, did not fit into the American soundscape, neither in the 1930s nor at a later stage. Throughout the 20th century, the United States had its own musical developments, primarily jazz, and then country and rock-n-roll, and European-style modernism, as a rule, was not in tune with and incomprehensible to the American listener. Even many decades later, in the 2020s, when you are driving and listening to KUSC, classical music radio station operated by USC, you cannot help but notice that, with the exception of Gershwin and Cage, the entire repertoire falls between the late Baroque and mid-Romantic period, that is, distinctly tonal music with modulations only into close keys and a triple repetition (affirmation) of the tonic triad at the end.

And yet, did Schoenberg's immigration change America in any way? R. Wayne Shoaf, the Institute's former archivist, argues that, one way or another, the Institute accomplished its mission of introducing the American public to the music of the leading European modernist composers of the day in the best performance available [21].

Newly published correspondence of Schoenberg from his early years to his American period [2-4], the history of the Arnold Schoenberg Institute on the USC campus, as well as exposure to materials held in four libraries of the two universities (i.e., the UCLA and USC Music Libraries and Special Collections) suggest further study of how European immigration to Los Angeles in the 1930s, itself a topic of relatively recent research interest [5], became integrated into the musical culture of the city and, more broadly, into American music.

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COMPETING INTERESTS

Author has declared that no competing interests exist.

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Harmony Beyond Boundaries: Exploring Yantras in Indian Art, Quantum Consciousness and Computational Expression

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ABSTRACT

The main purpose of this study was to highlight some historical and cultural perspectives of the essence of the “sacred instrument” designated by Yantra. This is achieved not only by scientific and technological progression, but also through the change of paradigm in the values of human being in order to manifest some Divine qualities on Earth, such as love, abundance, happiness and well-being with others. *Yantra is an Indian Sacred artefact that might help an observer to transcend the dualism of the physical world described both in Indian art through the Rasa and science through the Logic of the Included Third of Transdisciplinarity.* Yantra is considered to have been divinely revealed to Indian sages who have challenged some mathematicians in the building of figures of such complexity. *Thus, the artist and/or engineer and the object created (whether it be a work of art or science) are interconnected through the “conscious mind”.* Nowadays, due to their importance, there is an attempt to draw them through computational art area (contemporary technology), under the “human-centered computing” category with emphasis on “visualization” and “interaction design”. This researcher has suggested that a deeper study of this sacred Indian symbol (consisting of several polygons composed of the intersection of many triangles) is required in the future because it demands the cooperation of experts from different areas of knowledge, such as mathematicians, engineers, historians, psychologists, artists in order to solve a large number of conceptions and calculations that current computers are not able to perform accurately.

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Keywords: *Rasa (contradictory feelings of an aesthetic experience); logic of included third; Yantra (Indian Sacred Artefact); computational art.*

1. INTRODUCTION

India has a very rich cultural and spiritual heritage in the form of art and architecture. These art forms depict the ideology and beliefs of the people who made them. They help us to gain an insight into their lifestyle and learn about their religious beliefs. The uniqueness of Indian art comes from its spiritual inspiration and it continues to inspire the new generation of budding artists. It is universally accepted that art and culture is the mirror of society. Even during stone ages, uncivilized people used cave drawings to express and communicate their experiences and thoughts [1]. The Indian Art [1a] has had several cultural and religious influences with different philosophical perspectives through the ages [2]. In this regard, the concept Rasa (from the sanskrit "essence" or "feeling of an aesthetic experience") proposed by the Indian sage Bharata Muni [3] is described as a mental, emotional and physical state experienced by the subject or observer in the perception of a work of art, such as painting or poetry. This sage proposed eight states of perception, with ever greater refinement, namely Raudram (from sanskrit "fury"), Bhayānakam (from sanskrit "horror"), Bibhatsam (from sanskrit "aversion, repulsion"), Sringara (from sanskrit "love, attraction"), Viram (from sanskrit "courage"), Kārunyam (from Sanskrit "compassion"), Hāsyam (from sanskrit "laughter, joy"), Adbhutam (from sanskrit "wonder"). Subsequently, the philosopher Abhinavagupta [4] complemented this term with other Rasas, namely Vātsalya (from the sanskrit "love of the parents"), Sāntam (from the sanskrit "peace") and Bhakti (from sanskrit "devotion to God"). This Theory of Art and Aesthetics highlights the role of the observer's consciousness in the experience of a work of art. Nowadays, Rasa findings are seen in other fields of knowledge, such as, science [5]. It is known from the Principle of Complementarity of Quantum Mechanics that a quantum particle can be described as a "wave of probability" which is both "wave" and "particle" (in "potentia") that comes true when an observation is made by an observer. The paradox of having two contradictory situations happens, if we consider just a single level of Reality - the physical. In this case, as in the Rasa, the observer can see the "wave" or the "particle" aspect of the "wave of probability" in an exclusively way, like the exclusive states of consciousness of love or repulsion, horror or wonder in Rasas. But, the paradox disappears if we consider a transdisciplinary approach: the various levels of internal perception of the "Subject observer" are interconnected with the different levels of Reality of the "Object observed" and unified through the Included Third [6,7]. There is a zone of non-resistance between the levels of Reality that corresponds to the Sacred and where the "Hidden Third" unifies the Subject and Object (the supreme contradictories) that is not "rationalizable" [8]. This is a multidimensional structure where the knowledge of Reality is open. Indian philosophies also defend the existence of several levels of perception and Reality, described by the Theory of Panchakoshas [9]. These several plans of consciousness in human beings are: Annamaya kosha (physical body), Pranamaya kosha (vital or pranic body), Kamamaya kosha (feelings and desire), Manasmaya kosha (concrete or rational

mind), Vijnanamaya kosha (abstract mind), Anandamaya kosha (intuitive mind or conscious linkage with soul), and Monad (spirit). This perspective agrees with the transdisciplinarity approach proposed in this paper that seeks to highlight the importance of human consciousness in order to unveil the "mystery" of the infinite Creation of the Absolute expressed through images and spiritual symbolism [10]. On the other hand, some epistemological interpretations of Quantum Mechanics also argue that the "conscious mind" of the observer/subject or artist/engineer is interconnected with the observed object (the artistic or scientific work) that triggers the "aesthetic experience", that is, it is the "conscious mind" of the observer who decides the aspect of reality he/she wants to observe. Thus, the observed object is the manifestation of the "conscious mind" of the artist and/or engineer expressed through her/his thoughts, emotions/feelings and words [11]. In fact, before any process of creation, whether it's a scientific theory or an artistic work, its creator abstractly visualizes and imagines its existence. Then, the scientist seeks to express his abstract thinking through mathematical symbols, while the artist seeks to outline his inner visions through primary sketches. In both cases, "self-awareness of the subject" (scientist or artist) is an essential factor for the manifestation of the scientific or artistic work. This is one of the reasons why the study of mind-body relationship has become so important both for quantum physics, psychology and art. In fact, we see things as they appear visually and we express them in the way we feel them by touch and empirical experience (from Sanskrit "Rupa" or Form) [12]. There are many examples of the symbiosis of art and science over time, such as, the contribution of science to the development of architecture and the importance of art to the inner process of cognition during the creative process of creation. Thus, we could say that Indian art and Quantum Mechanics might share a common source of research on physical reality because both of them seek to connect the invisible world (existing in "possibility or potentia") and the visible world [13,14].

2. METHODS

In this essay on Indian sacred artefacts, the main scientific articles and books were collected and analyzed, in this area of research, that are available in libraries. Thus, 40 most important items were selected, based on the "impact factor" of the article and the "reference" books on this issue. This is to make them useful to the reader who wants to have a global idea of this topic, without neglecting its scientific aspects.

3. RESULTS AND DISCUSSION

This section presents the most relevant results obtained from the research work on Indian Sacred artefacts.

3.1 The Indian Sacred Artefacts: An Essay

We create our own reality through our conscious and unconscious sides. Jung named the patterns of our thoughts, feelings and words existing in our psyche as "archetypes" which are "projected" into the physical world through empirical

experiences [15]. In this regard, the sacred artefacts named Yantras have been used in several ways in India since time immemorial [16]. They are a kind of “antenna or command” that allows the connection of the macrocosm (the Universal holographic mind) with the microcosm (the human body) in order to tune in to our deepest potential (our mission or “dharma”) on Earth [16a]. The activation of each Yantra is done through the visualization of these sacred artefacts, which can be used complementarily with the vocalization of some sacred mantra, such as the sacred Gayatri mantra [17]. The Yantra is an Indian sacred symbol that became known in Western culture through the works of Arthur Avalon (pseudonym of Sir John Woodroffe) and Henrich Zimmer [18]. The Yantra (from sanskrit “support” or “instrument”) is a sacred physical instrument with psychosomatic effect [19]. Its main objective is to “tune” the “conscious mind” of the observer (composed by archetypal patterns) with a certain Divine entity 3-D, such as the Divine Mother Durga manifested in some Darshan (from sanskrit “see the Divine”) [20]. Thus, according to the Divine Entity (and the specific Darshan), we could have different kinds of Yantras for different purposes on Earth. In fact, this important Indian sacred symbol is connected with the spiritual archetype (the Indian deities) within us, and is related with mantras and rituals in order to help the individual to return to original wholeness [21]. One of the earliest known pictures is the Sri Yantra [22] that is found in the religious institution named by “Shrungeri Matha”(from sanskrit “shrunga” highest, peak and “geri” hill); it was established by the philosopher Shānkara and is represented in Fig. 1.

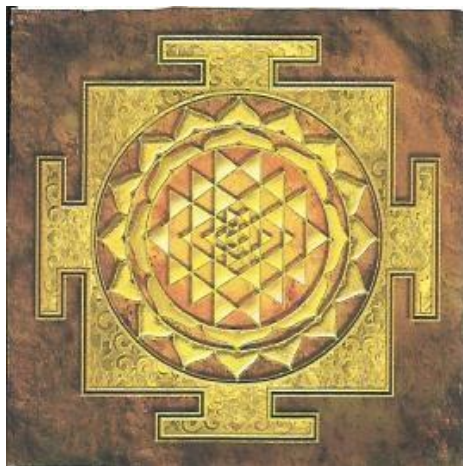


Fig. 1. Sri Yantra golden stone

Photo Source: Courtesy of Lila Sravani (Fine Art America)

This is the most important Yantra [23] and is composed of geometrical shapes, such as dot, lines, triangles, squares, circles and lotus that draw a 2-D fractal pattern of great beauty. For example, the dot (named by bindu) represents the initial sacred Word – the OM –which is the matter in “potentia”. The triangle

(named by *trikona*) could point down (which is a symbol of *Shakti*) and represents the feminine aspect of Creation, while the triangle pointing up (which is a symbol of *Shiva*) represents the masculine aspect of Creation. Then, the six-pointed star (named by *shatkona*) represents the union of feminine/matter and masculine/spirit that leads to the manifestation of all forms of creation. The circle (named by *chakra*) represents the spiritual evolution of the "conscious mind", while the square (named by *bhupura*) represents the physical manifestation of the "conscious mind" on Earth. The lotus (named by *padma*) represents the real Self or soul [24]. In this regard, it should be noted that an in Western and Eastern spirituality, it is admitted that the Divine or God is One entity Who constitutes the base of all beings and the source of their Life. This Entity expresses Himself through three dynamic aspects called "Trimurti", namely the creation aspect (in Sanskrit, *Brahma*), preservation aspect (in Sanskrit, *Vishnu*) and renewal aspect (in Sanskrit, *Shiva*) that are painted according to culture itself. In fact, an important aspect in the process of construction of the Indian Temples involves the union of the male principle of creation - represented by the *lingam* (identical to the male sexual organ) – and the female aspect of creation - represented by the *yoni* (identical to the female sexual organ) - that leads to the union of the *lingam-yoni* described by Tantra philosophy [25]. This process of inner union and balance, between the masculine and feminine side of each human being, has been extensively studied by Western psychology - the "Jungian" archetypes called by "animus" and "anima" [26] - which is the ultimate goal of Darshan: an "inner" marriage with their deity [27] which is experienced by the devotional life of priests and nuns of the various religious -and spiritual traditions [27a].

Furthermore, Sri (*chakra*)Yantra could also contribute to activate the *Sahasrara* chakra related to connection of the soul with the personality (thoughts, feelings, words) of human beings [28]. However, some philosophical and religious perspectives have emphasized that the riches of this world are incompatible with spiritual "treasures". This dualistic conception, between these two ways of life (to life exclusively in the profane world or to be in a total seclusion in a monastery) could be transcended through the help of Yantra [29]. In this regard, it should be mentioned that in Indian sacred art, the word "devotion" (in Sanskrit, *bhakti*) could have several meanings based on the context in which is applied. For example, the sacred Indian art called "Radha and Krishna" describes the conjugal love, in an equity relationship where each person completes the other one [30]; while in the sacred Hindu text called "Bhagavad-Gita", this devotional aspect is expressed between Krishna and the disciple Arjuna, who is encouraged to conquer his soul [31]. Thus, the Hindu god called *Ardhanarishavara*, whose left side is feminine and the right side masculine (also known as the union between *Shakti* and *Shiva* or *Prakriti* and *Purusha*) shows the harmony and balance in human beings [32]. The key to achieving this goal is accomplished through the awakening of Divine power within us (the *Shakti*) that is dormant in the *Muladhara* chakra, as is also described by the philosophical principles of Tantra (from sanskrit "tan" to spread and "tra" instrument) [33-35]. So, one main purpose of Yantra is to transcend the dualism of the physical world described in art, by the *Rasa*, and in science, by the Principle of Complementarity, in order to manifest our soul's mission on Earth [36].

The Yantra has also several other applications in other areas of human life, such as helping to harmonize the home or workplace, through appropriate architectural alignment that might benefit the habitant or worker, as proposed by the VastuYantra [37].

4. CONCLUSIONS

In summary, the main purpose of this essay was to highlight some historical and cultural perspectives of the essence of the “sacred instrument” designated by Yantra that is achieved not only by scientific and technological progression, but also through the change of paradigm in the values of human being in order to manifest some Divine qualities on Earth, such as love, abundance, happiness and well-being with others [38]. Thus, Yantra is considered to have been divinely revealed to Indian sages who have challenged some mathematicians in the building of figures of such complexity. In fact, the research works of Stefan and J. Hollos [39] have tried to generate computational patterns with an infinite variety of images process (dot, lines, triangles, circles, squares) through the ACM Computing Classification System (CCS), in the category “human-centered computing”, and “visualization and interaction design”. Furthermore, the conceptualization, design and computational implementation of Alexey Kulachev work [40] sought to solve Yantras complexity by looking for mathematical models for the design of the “stars” (union of upward and downward triangles) of Sri Yantra. However, this researcher has suggested that a deeper study of this sacred Indian symbol (consisting of several polygons composed of the intersection of many triangles) is required in the future because it demands the cooperation of experts from different areas of knowledge, such as mathematicians, engineers, historians, psychologists, artists in order to solve a large number of conceptions and calculations that current computers are not able to perform accurately [40a].

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Relevance of Humanistic Ideology from Mahabharata: An Analytical Study

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ABSTRACT

Mahabharata is a culmination of human expertise-experience-enlightenment. The epic emphasizes the fact that there is nothing superior to human being and propagates the message "service to man is service to God". The central theme of the study focuses in-depth foundation of truth and reality of the epic Mahabharata which is essentially moral and practical in everyday life. The paper attempts to highlight religious understanding behind human upliftment, impact of karma & fate in human life, performance of dharma, the foundations of lawful behaviour, essentiality of unique human skills, doctrines of self-purification and showcasing life-line of Karna, Bhishma and Yudhisthira all governing to lead a meaningful life. The study is descriptive and analytical in nature. The epic glorifies ethics as an essential appendage of Metaphysics because one can attain truth only by following all ethical rules and precepts prescribed for this purpose. The paper makes a modest attempt to portray the impact of the epic where Mahabharata depicts that a man succeeds who based firmly in the present, faces the future on the foundation of the past acts.

Keywords: Humanistic; ideology; moral; virtues; Mahabharata.

1. INTRODUCTION

The Mahabharata claims itself to be a *purana* (ancient lore), an *itivritta* (past exploits) of kings and of sagas, *akhyana* (fable), *upakhyana* (anecdotes), *itihasa* (legend) of the Bharatas. The Mahabharata is the fifth veda which Vyasa teaches to his students. The epic is called *akhyana* of 100,000 verses. The Mahabharata occupies an outstanding position in Sanskrit literature for variety of its contents and enormous size [1-3]. The authorship has been traditionally ascribed to Vyasa who took three years to compose the epic. No other epic is as comprehensive or as

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conclusive as the Mahabharata. Mahabharata describes the ability to enter but not exit amidst adverse situations [4-7]. The epic epitomizes that the autonomy of being human lies not in recognizing one's unique historicity but in becoming aware of one's inseparable unity with the rest of creation. Mahabharata constitute the solid and enduring foundation of age-long and magnificent edifice of Indian culture and civilization [8-10].

1.1 Objectives of the Study

- To identify the humanistic ideals of Mahabharata.
- To inculcate values like ethics, goodness and spirituality for the future generation.

2. METHODOLOGY OF THE STUDY

The nature of the study is descriptive, conceptual, extensive and analytical in nature.

2.1 Religious Understanding Behind Human Upliftment in Mahabharata

The concept of *dharma*, *artha* and *kama* known as triad (*trivarga*) is most popular belief in hindu rituals. The concept of *caturvarga*, four-fold goals of life which in addition to three goals, includes deliverance by means of renunciation of worldly pleasures. It is believed that the practice of *dharma* is the most important aim of life. *Artha* and *Kama* are inseparable from *dharma* and *dharma* is the means of *trivarga*. Moreover that desire (*kama*) has many forms and considered as the one of the prime driving force of human life It is stated that the king is advised to take a balanced view with regard to *dharma*, *artha* and *kama*. He should cultivate all the three goals of life in proper proportion without neglecting any one of them. The king should enjoy pleasures yet he must not let his judgement to be clouded. He should not keep down *dharma* with *artha* or *artha* with *kama*. It is declared that a wise man is he who cultivates *dharma*, a man of middling disposition pursues *artha* and one who follows a *kama* is a fool. *Artha* and *kama* are inseparable from *dharma* and *dharma* is the means of the *trivarga*. The scripture of *arthasashtra* predicts profit-motive as the very basis *dharma* and *kama*.. During Mahabharata times it was believed that fasting like austerities generate spiritual power. Bhishma however in a colloquy disapproves the practice of fasting. In reply to question whether fasting and austerity have the same status as it was believed by some. Bhishma speaks against fasting. Ashrama life projects life-line of wise men engaged in *nirvana* or self-renunciation regardless of *dharma* *artha* and *kama*. Unconcerned with the worldly objects, he is free from sorrow and happiness. Even who are bereft of the *trivarga* can fulfill their purpose.

2.2 Determinants of Human Life: Pillars of Karma and Fate

Knowing Karma: The Mahabharata has presented various ideas of determinants of human life. In the post vedic period the doctrine of karma is one of the dominant

ideas in Brahmanism. The doctrine of karma acts and their retribution is of great antiquity in India. The doctrine seeks to explain the origin of sufferings and also prosperity of human beings. The theory of karma changed with the passage of time. In early stage it means as a man sows, so he reaps. The nature of the fruit is same as his action. Action cannot be altered and destroyed. The karma theory allows certain freedom of action. In the epic the doctrine of karma is not sole casual determinant that governs human life. The doctrine of karma has often been supplanted or even superseded by other causal determinants. The determinants are intended to give a theoretical explanation of an action or of its outcome. The other casual determinant which is believed to have the controlling power over human destiny is called *Isvara* or Placer who apportions sufferings and happiness, sorrow and pleasure among mankind. The Pandavas vehemently refused to accept the advice to give up all desires and forsake property and to avoid conflict in order to seek salvation. In this issue Krishna points that action itself bears visible fruit. There is nothing higher than action. Only the knowledge that brings about action is fruitful and not any other knowledge. It can be affirmed that those who avoid action never flourish. The implication is that action bears fruit in one's lifetime. Man gets the fruit of action in the same body. Human effort produces result. It is said that one sets his mind on his goal achieves results through action. Man is endowed with reasoning and he is the cause of the fruit of action.

Dimensions of Fate: Fate is variously called as *daiva*, *drista*, *bhagya*, *niyati* etc. Fate independent of all other factors determines the course of human life. It is argued that a believer of fate and chance is a worthless fellow. An individual who completely relies on fate waiting for the fortune to happen by virtue of fate without any action experiences adverse consequences in the course of life. The tendency to hold fate (*daiva*) and time (*kala*) responsible for the consequences of one's misdeeds are reproved. It is asserted that man is not a free agent (*karta*) of his good or evil deeds. Human efforts cannot avert fate. Fate is more powerful and human efforts are useless. But it is also stated that fruits of action influence the present life as well as the life hereafter. It is hard to draw distinction between fate and human effort. It has been found that a well-planned and correctly carried out human action faces fruitful outcome out of one's own work. It is hard to draw distinction between fate and human effort but it is quite evitable that things develop from both chance and fate. A question has been raised whether people can sit idly by clinging to fate or can fate be achieved without doing work. In the Kurukshetra battle a warrior decides to join the kauravas in the belief that the outcome depends on fate although he is aware of the invincibility of the Pandavas. On the contrary warriors who firmly believe that ever the gods cannot defeat them feel humble to the power of fate. All consequences of action are apportioned to fate upon which the actions are observed.

2.3 Performance of Dharma in Mahabharata: The Universal Validity in Mahabharata

The epic Mahabharata showcase an awareness of human attributes with foundations of dharma as its very basis. It is experienced throughout the epic that the dharmic good is quite imperative and necessary to eradicate the inconsistency,

distress, disagreement, hesitation, conflict in the life's journey of an individual. While focusing on dharma it may be witnessed that it is intricately bounded with the behaviour actions within the bounds of *svadharma*. In the scene of *Dyutaparvan* the acceptance of dharma stands as an adjudicating factor whether Draupadi was legitimized won by the Kauravas or she was gambled by Yudhishthira remains a potent question. At this juncture the status of dharma seems most ambiguous as multiplicity of dharmas can be visualized to different identifiable groups. The realistic view of the epic projects that life is complex and the epic mirrors this complexity in many of its situations. For Yudhishthira and Vidura-Dharma exists in totality but universal dharma poses a question what is justice and how it should be assessed. It is declared that dharma has three characteristics. The higher dharma is laid down in the Vedas, the other in the law books. The conduct of the good is the third characteristic. The higher dharma is laid down in Vedas and it is considered as the most admirable action through conduct of good. While understanding the essence of dharma, the roots of morality acts as a very source of justifying the basis of dharma. The epic Mahabharata projects the concept of non-injury viz. ahimsa is held as the highest dharma: "*ahimsa paramodhrama*". The epic illustrates that instruction in dharma is given for survival of people. Dharma should sustain the people and should be harmonious.

2.4 The Foundations of Lawful Behaviour: Glimpses from Mahabharata

According to Mahabharata morality should constitute the keynote of a man's empirical life as nobody can reach transcendental state of moksha without making his empirical life spotlessly pure. The extent of Mahabharata is not only diverse in content but it's a saga of elevated human values, ideas and behaviour. The epic gives an interesting understanding of *vyavahara* or lawful behaviour. During Mahabharata era legal disputes were settled in the sabha. It was declared that principle of law will be coerced if the members of the sabha do not give verdict on legal points raised by a complainant. The members who are versed in law (*dharmadarsin*) must put aside their personal preferences, anger and desire and answer a question according to their wisdom. The king himself should properly examine the law suits and act with strict impartiality. The king should decide who are to be punished and who are to be honoured setting aside his personal likes and dislikes. The king should never get connected from pride, confusion or whim dismiss to litigants who come to him. The king should take care that no honourable and noble man is wrongfully jailed on the charge of theft or put to death by greedy, incompetent persons ignorant of the scripture. The didactic passage from Mahabharata allows the king to put his son in the charge of judiciary. Law is designated as *bhartapratyaya* i.e. dependent upon proof produced by the litigant. The epic redactors often do not differentiate between law (*vyavahara*) and punishment (*danda*). The epic portrays the king as the prime instructor to punish offenders according to the nature of offence. The system of punishment foretells that the rich should be punished only with fines while the poor with imprisonment and wicked with corporal punishment. The epic envisages that punishment should be guided by the principles of justice. Whimsical punishment is harmful. An accused should be set free or imprisoned as laid down in the manuals. The divine

origin of the law of punishment has been formulated not so much for establishment of the authority of the *Śruti*, *Smṛiti* and of the Creator but for preservation of the gains of the propertied class. The king has been given absolute power to punish anybody; he can punish his parents, brother, wife and even the royal chaplain. Generally non-violent methods of punishment such as death sentence were not followed for the welfare of the people.

2.5 Evidences of Unique Human Skills in Mahabharata

The epic portrays that the administration of the state depends largely on an efficient espionage system. The king learns of the State of affairs of country through secret agents. It can be said that the king sees with his spies just as cow see with their noses, the Brahmins with their Vedas and all people with their eyes. The king sets up fairly elaborate espionage system. Groups of spies are engaged, each group consists of three spies. The spies should be unknown to the enemy. Secret agents also operate in the enemy territories but the main emphasis is on internal intelligence. The king is advised to keep watch over his counselors. The spy who reports on the defalcation treasury should be heard in secret secrecy and should be protected from the vengeance of corrupt officials. In the epic Yudisthira eludes Duryodhana's spies by going to Dvaravati. Duryodhan's spies search for them in various places but they fail to trace the Pandavas. From the intelligence reports Duryodhan learns of Kichaka's death. Duryodhana holds a discussion on the intelligence report with his courtiers (*sabhasad*) among whom are Bhishma, Drona and Kṛpa. As per principles laid down in Mahabharata lies spoken in certain circumstances are not sinful. But if a witness called to testify in a lawsuit does not tell the truth, he is regarded a liar. There are however circumstances when falsehood has to be spoken. A witness is held to be the one who sees a misdeed happening in his presence or hears it. A witness who speaks the truth does not lapse from righteousness and profit. On the question of truth and falsehood there is a long discourse in the *Santiparvan* ascribed to Bhishma. It is enjoined that if litigants desirous of gaining a favourable position physically torture (*uparodha*) witnesses and force them to confess (*sampratipatti*) the witnesses should not admit anything and call all of them liars. In legal disputes arising between two litigants the decision should be taken on the basis of evidences of witnesses.

2.6 Doctrines of Self-Purification in Mahabharata

The belief that self-mortification produces power both in body and in the mind is a world-wide phenomenon among ancient people. Almost all primitive people practiced some form of self-mortification in the belief that the self-inflicted torture would earn them a high spiritual power and strength. In the Rīg veda *Samhita* the word *tapas* means both heat or glow as well as austerities. The *Satapatha Brahmana* declares that heaven is established on the air, the air on the earth, the earth on the waters, the waters on truth, the truth on the mystical lore (of the sacrifice) and the lore on the *tapas*. In the Upanishads a greater emphasis has been laid on the *tapas* (austerities). On the advantage of austerities, the Mahabharata asserts that the ascetic gains physical power by practicing self-mortification which makes him lean, wan and his flesh, blood and bones shrivel up. The Mahabharata however does not give any clear idea about the sects and their

practices. The Mahabharata is evidently reluctant to allow women to practice asceticism or to renounce the world to enter the forest. But in the epic narratives depict many instances of women both married and unmarried joining *brahmacharya* or retiring to the forest practice penance. Among them are Satyawati and two daughter-in-law who retire to the forest, so are Gandhari and Kunti who accompany Dhritarashtra to the forest where they die. As a part of self-mortification, a mendicant lies on bare ground or he stands on the tip of his toe. Residence in water is designated as a vow. A piece of wood is stuck into the mouth as self-mortification. A mendicant lives under a tree or in a vacant house. Austerities help to recluse to endure heat and cold, hunger and thirst. As the process of self-mortification becomes more and more intense, the recluse becomes lean in the solitude of the forest, and he waits for the end to come. Vows are regarded holy and related to austerities. In the *Aranyakaparvan* of Mahabharata two types of vows viz. the controlling of one's body (*srairaniyama*) is the human vow and the purification of the spirit with thought (*manovisuddha buddhi*) is the divine vow. Then practice of these vows and self-mortification stand one on the pillar of utmost faith through which one gains mastery over his feelings and senses, he conquers this world and the world thereafter. He attains the position of immortality.

2.7 Karna's Idealistic Character of Courage and Determination

Karna stands as one of the Literature's great tragic figures. He espouses and lives according to the heroic value of valor and courage. Due to his inauspicious birth over which he presumably had no control his fate was marked from the beginning. The generosity first of his adoptive parents and then of Duryodhana who befriended him, equipped Karna with a firm sense of self. When Krishna and Kunti and Sun himself revealed to him his biological origins, Karna suffered humiliations throughout his life. As a great text of literature, the Mahabharata provides models for ethical for ethical decision-making. The Gita in Mahabharata entails encounters with Karna which involves Karna's discovery of his own true identity. In case of Karna, he operates not from a sense of selfishness, not from a sense of principle accepting the inevitably tragic results and ultimately receiving his reward in the afterlife. Karna is the son of a charioteer couple in the social system of the epic, a suta member of one of the lower jatis of society. Crucially Karna a aristocratic warrior *Ksatriya* varna develops incredible military skills. Karna is scorned and taunted by the Pandavas for his low birth in contrast he is befriended and made a king – (a de facto *ksatriya*) by Duryodhana. Karna never forgives the Pandavas for the taunts. In the years that follow Karna's anger and envy at the Pandavas only deepens and grows eventually it becomes his life's goal to defeat Arjuna. This brings to the point where Krishna approaches Karna just before the great war over the kingdom of Bharata. Though in form of man, Krishna an incarnation of Visnu is ostensibly the foremost divine presence in the entire episode of Kurushetra war. Karna is aware that Krishna is a God for Krishna's mortal disguise is a thin veil. Krishna begins by revealing to Karna that he is a brother to the Pandavas. He has been adopted by the suta family but he was born to Kunti the same mother the Pandavas share. He begins by addressing Karna as "Radheya" son of Radha and later switches to "Kaunteya" son of Kunti. Karna's response is that his father Adhiratha took him in out of love and that his mother Radha suckled him out of

affection. Karna feels to abandon a king (Duryodhana) who has given him shelter and privilege for thirteen years. Karna's choice is startling in the context of dharma and the options that dharma provides to an individual. Karna within the epic focuses that any character bases an agreement on sauharda/sneha "affection love". Karna remains loyal to those who have loved him and still love him. Karna chooses to act based upon loyalty to those who have chosen him. He chooses to follow his conscience rather than any form of code. Karna acts in the face of the anxiety of meaninglessness. The human condition is characterized by three basic activities: the anxiety of emptiness and meaninglessness and the anxiety of guilt and condemnation. In Karna's story however a hero represents/seems to be looking for meaning that can be generated by and from human choice.

2.8 Dharmaputra Yudhisthira: Symbolizing Dharma and Morality

It is undoubtedly agreed that the epic Mahabharata has become a veritable encyclopedia of classical learning in the history of mankind. The nucleus of Mahabharata centers on with dharma-the foundation pillar of moral and ethical principles. The story of Dharmaputra evolved through the strategy of the mantra given to Kunti by sage Durvasas. Dharmaputra named as Yudhisthira is the perfect combination of the ethical principles of truth and non-violence- the embodiment of Dharma. Dharmaputra has an edge over adharma. The ethical dilemma encircles Dharmaputra as he soars on humanity and utters the fatal half-lie of the death of the elephant named Asvatthama that resulted in the death of Dronacarya. Vyasa's dharmaputra resembles a tragic discovery of the "revelation of an unsuspected weakness". All these moral lapses by Dharmaputra including utterance of that "fatal half-lie" can be connoted as Apaddharma. At the end of Kurukhetra war, Dharmaputra prepares himself for a difficult task ahead. Dharmaputra refusing to take up the kingship of Hastinapur for he assumes responsibility for the huge killing/massacre of so many people in the kurushetra war. He speculates about all that went morally wrong in the battle like the slaying of Karna, Bhishma, Drona, Jayadratha and others. His betrayal of Drona rankles in his mind and he vividly recall the moment when he betrayed Drona by telling him the half-truth. Dharmaputra resolved to lead a renunciant's life in the forest. His obsession in moksha- the ultimate realization has been considered as supreme law which takes its course and make things happen as they are bound to happen. According to Dharmaputra's saying the only he who withdraw from all the three purusharthas, dharma, artha and kama can attain moksha and therefore is the highest good.

2.9 Ethical Foundation of Bhishma's Life

Bhishma as the crown prince completely dedicated to the happiness of his father, made a solemn vow that he would give up his claim to the throne. He would remain celibate for the remainder of his life and that he would spend the rest of his life as the protector of whoever would sit on the throne of Hastinapur. These three promises inspired such awe that thenceforth he came to be known as Bhishma (awe-inspiring). Bhishma refused on the ground that a vow once made could not be broken. In order to consider the ethical justification for the promises which Bhishma made the aspect of deontological grounding i.e. an account of morality based in

terms of rights and duties. He believed that his promises to Satyabati's father had the effort of forcing him to become aligned with the forces of evil or adharma. In his final discourse to the victorious Pandavas in presence of Krishna, the dying Bhishma said that he had realized that he had been wrong in making three promises. He repeatedly turned away from exercising power which was rightfully his and which he needed to ensure the safety of the kingdom. Bhishma was universally held in the highest esteem and awe for his wisdom, integrity and military prowess always acting for the good of the kingdom. When Krishna came to Hastinapur as a messenger of peace to negotiate on behalf of the Pandavs but Duryodhana closed all avenues of peace knowing that Bhishma would accept the role of commander-in-chief. For victory was guaranteed to be his by virtue of the fact that Bhishma could not be defeated. Bhishma could die only if he had laid down his life of his own accord. Bhishma is revealed to be crucial in the decisions made by the kurus. Bhishma was not a vacillator [11-13]. He made up his mind with surprising speed and then stood by his decision. He never entertained the thought of revoking promise. Bhishma was guided by two central propositions; a promise once made could not be revoked and he could not turn against the people whose salt he had eaten. Bhishma himself comes to this realization quite belatedly. When lord Krishna appeals to Bhishma to release the fearful statements into which the battle had evolved, at the end of the tenth day of fighting, Bhishma understands that it is time to listen to the great Krishna. He understands that his steadfast adherence to his promises and beliefs have not been in the best interests of the country. He friendly surrenders his pure reason. His inability to come to grips with his dilemmas became instrumental in changing the course of history in a manner which was unforeseeable, unintended and unalterable. By examining Bhishma's life-story in its entirety, many new perspectives emerge emphasizing culture and values for coming generations.

2.10 Implications of the Study

A great philosophy like Mahabharata tries to rise above the limits of time and place, in so far as it discusses certain questions and problems which are eternal and universally valid for all time and place. So, the epic has not only the historical value but is related to very being of mankind and relevant to everybody and every age. Mahabharata is a code of life, a philosophy of social and ethical relations. According to Mahabharata morality should constitute the keynote of a man's empirical life as nobody can reach transcendental state of moksha without making his empirical life spotlessly pure. The ethical message as enshrined in Mahabharata is relative, catholic and pragmatic. It is relevant for the present age and for all ages to come. The epic draws our attention to some of the profound questions and lessons to be learned by successive generations.

3. CONCLUDING NOTE

The Mahabharata, an ancient Indian epic, is a treasure tree of profound teachings and timeless wisdom of human encyclopedia of all ages. Its verses carry valuable insights that resonate with the human experience and offer guidance for navigating the complexities of life. Amidst present complex, fluctuating environment with

degradation of human values, the teaching of Mahabharata encourages us to cultivate moral virtues and align our thoughts, actions, and intentions with the principles of truth and purity. The teachings of the epic foster empathy, reminding us to treat all living beings with compassion, recognizing the inherent equality in our vulnerabilities. The epic enlightens the need for kindness and understanding proclaiming humanity as the mother of all humanistic actions.

"All creatures are equal in suffering and death." – Vidura

COMPETING INTERESTS

Author has declared that no competing interests exist.

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Balancing Civil-military Relations for Democratic Development in Malawi: The Rhombus Diamond Framework

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ABSTRACT

This chapter seeks to address the question of how the level of civil-military relations has impacted the extent of democratization in Malawi. In doing so, the discussion has developed a rhombus diamond theory of civil-military relations, which posits that the military is the fulcrum in the relationship that has civilians, elected authorities, civilian authorities and the judiciary on apices. The waning space for the political-military complex as a referent object of security and the advent of human security by the Copenhagen school of thought induced a human-centric approach to security matters. The theory aims at keeping the relations of civil-military entities in equilibrium to develop the country into a consolidated democracy. The central thesis is that community of practice is the key civil-military relations players that include the local population for the direct political power they portray to the matters of security affecting them. The rhombus diamond theory is developed from the antitheses of classical institutional civil-military relations that focused much on the political-military complexes and consolidated democracies. Rhombus diamond theory has taken into historical accounts of Malawi where the local population and the military contributed directly to civil-military relations and safeguarded democratic values. The theory contributes to the body of knowledge by establishing that development and transformation occur through the interaction of the key civil-

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military relations players in a specific time and geographical milieu. The theory applies to transformative civil-military relations community development and supports United Nations Sustainable development Goal Number 16 that promotes peaceful and inclusive societies, justice, accountability and building of effective institutions. The theory implies that the key civil-military relations players will understand their respective roles and be able to comprehend democratic principles through deep interaction and fusion of ideas for peace and security.

Keywords: Rhombus diamond theory; intelligent disobedience; civil-military relations; democracy; each one guards one.

1. INTRODUCTION

Theories of civil-military relations, such as institution, principal-agency, convergence and concordance approaches aim at safeguarding the military, which poses a threat to the polity. Civil-military relations are rooted in constitutional foundations that distribute and check political power, such as civilian control over the military. Preserving democracy requires adherence to these foundational democratic principles [1]. Scholars such as Huntington [2], Feaver [3], Janowitz [4], and Schiff [5] came up with such theories to safeguard against the threat postured by militaries; however, such approaches have failed to protect some situations owing to cultural, historical and geographical nuances. Burk [6] suggested that a new theory of civil-military relations, one that accounts for the circumstances mature democracies presently face and tells how militaries can sustain as they protect democratic values cannot be derived from either liberal or civic republican models of democracy, as Huntington and Janowitz tried to do, but might be derived from federalist models. The end of the bipolar region made security scholars rethink the referent objects of security. The waning space for the political-military complex as a referent object of security and the advent of human security by the Copenhagen school of thought induced a human-centric approach to security matters. A human being became a central organising concept of security and changed the roles of militaries [7]. This book chapter employs the military, the government officials and the citizenry as communities of practice. The discourse presents a civil-military relations rhombus diamond theory (Fig. 1) which assumes that the military is a fulcrum that keeps elected authorities, civil authorities, civilians and the judiciary in balance resulting in a path to nation-building and democratic outcomes. The rhombus diamond theory premises that development and transformation occur through the interaction of the key civil-military relations players in time and space.

2. METHODOLOGY

This was a qualitative cross-sectional study where secondary data from the literature was analysed using critical content analysis. Primary data was collected from in-depth interviews, transcribed, nodes and themes were built and conclusions were drawn to link the study's main objective. Saturation point determined the sample size and data collection cut-off point. This study was also

an action research as the authors are stakeholders of the civil-military relations in their own capacity as citizens of Malawi and global scholars.

To identify the key civil-military relations actors, a stakeholder analysis in the context of Malawi was conducted and came up with five stakeholders namely the military, the judiciary, the elected authorities, civilian authorities and civilians. The military was represented by officers and men and women of the Malawi Defence Force. Judges represented the judiciary and these were drawn from Mzimba, Lilongwe, Zomba and Blantyre as these districts do have judges and military cantonments. Members of Parliament and the parliamentary committee on Defence and Security represented the elected authorities. Civil authorities were represented by the Ministry of Defence personnel and District Security Technical Committee and civilians were drawn from the local population, Civil Society Organisations involved in governance issues and the media practitioners. The stakeholders' identification was based on their needs, effects and key performance indicators on civil-military relations [8].

To demonstrate how the level of civil-military relations has impacted the extent of democratization in Malawi, the elected authorities, civilians, civil authorities, the judiciary personnel and the military personnel were interviewed about their experiences of interacting with the military and vice versa. Adopting a qualitative research approach, the aim was to uncover the lived experiences of these key civil-military relations actors in their localities and work place. The study location was in Malawi, particularly in the districts of Karonga, Mzimba, Kasungu, Lilongwe, Zomba and Blantyre because these districts have military cantonments. The research was conducted between May 2022 and December 2023. To elicit diverse views and perspectives, the study included the local population in the category of civilians that was represented by traders and artisans; public and private sector employees and community leaders as participants. One-on-one qualitative interviews were held with participants on their experiences, attitudes, and perception of the military's conduct in internal and external security operations. The data were analysed using thematic analysis with the aid of NVivo Version 14. All ethics on research with human subjects were complied with to ensure only voluntary informed consent was obtained, and to guarantee the privacy, anonymity, confidentiality, and safety of the participants.

3. THEORETICAL FRAMEWORK

The organising concept of the rhombus diamond theory is civil-military relations. Civil-military relations portray the control of the military and differ according to the type of political systems. In some countries, the political regimes are the military themselves. In a democracy, civil-military relations focus on the civilian control of the military that involves a trinity of democratic civilian control, efficiency and effectiveness of the armed forces [3,9]. Democratic civilian control of the military is afforded through oversight bodies such as the parliamentary committee of defence and security, and the appointment of the Defence Force Commander by the President who is also the Commander-in-Chief of the Defence Force. The

other oversight body is the Ministry of Defence (MOD), in which the Defence Force Commander is accountable to the Minister of Defence. Efficiency calls for the armed forces to use their resources in an accountable manner and effectiveness requires the military to fulfil their assigned roles efficiently.

The question that arises from this setup is how much control the civilians should exert because much control would weaken the armed forces and fail to fulfil their required roles of defending the territorial integrity of a country. In contrast, less control would pose a threat to civilian control through military involvement in politics. Feaver [3] coined this situation a *civil-military problematique*. As a solution to the civil-military problematique, Huntington [10] proposes the subjective and objective civilian control of the armed forces. Subjective control is optimally achieved through the professionalisation of armed forces. Objective control involves placing legal and institutional restrictions on military autonomy.

However, the rhombus diamond theory proposes that the military as a dependent variable is a fulcrum where power concentrates owing to the monopoly of weapons and management of violence. The power is derived from the four stakeholders (independent variables) in the apexes of the diamond namely, civilians, judiciary, elected authorities and civilian authorities (See Fig. 1). The legal basis of this proposition is the Constitution of the Republic of Malawi that mandates the Malawi Defence Force to protect the territorial integrity and sovereignty of the country as well as upholding the constitutional order. Whereas it is recognisable that militaries use orders system to operate, the question comes when the civilian masters issue an illegal order; military commanders will be accountable when they execute such illegal orders. To this extent, the military has continued to develop and evade such situations through the application of *intelligent disobedience*¹ in the interest of serving the nation [11].

The theory has incorporated the local population as having direct powers of influence as opposed to representational powers from the judiciary, elected authorities and civilian authorities. The local population taking to the streets to oppose the regime through continuous demonstrations has shown the weakness of the political elites and reminded formal institutions that power comes from the people. This theory focuses on the local population as a focal point and one of the aetiological forces for attracting the unknown in the academia of civil-military relations. Democratization has been enhanced by the military by not intervening in politics even during the dreaded times of uncertainty when Malawi lost President Bingu Wa Mutharika [12]. The death that created power vacuum but the military upheld the constitution by supporting President Joyce Banda who was an estranged Vice President.

4. THE CENTRAL THESIS OF THE RHOMBUS DIAMOND THEORY

Civil-military relations rhombus diamond theory aims to keep governance of the security sector in equilibrium. The idea is a nexus and has the elected authorities, civil authorities, civilians and the judiciary interacting with the military

¹ *Intelligent disobedience is the act of doing right when you are told to do is wrong, for example, "shoot the demonstrators down."*

and shaping civil-military relations outcomes. The theory posits that any governance tip on the scale towards one element of power brings about a disequilibrium, resulting in security threats in a country. Hence, civil-military relations depend on the relationships between four independent instruments of power and the military in a democracy. It is synthesised that the relationship between the military (dependent variable) and the key civil-military relations players (independent variables) shall shape the outcome of democratic governance. It is theorised that each power has a bearing on the role of the civil-military relations in democratic governance, key civil-military relations players' roles' effectiveness on the path of democratisation, and determinants of civil-military relations equilibrium.

The Rhombus Diamond theory is drawn from the antithesis of the classical theories of civil-military relations. Civil-military relations are traced to the classical military theorists such as Sun Tzu (544 BC - 496 BC) and Carl von Clausewitz (1780 - 1831), who claimed that military institutions were predominantly the servants of the state [13,14,15]. To this end, states controlled the militaries because states and armies were inseparable, and many generals were heads of states. However, as states metamorphosed and delineated between the civilian and military bureaucracies, fault lines emerged over the question of who controls who.

Civil-military relations scholars agree that concerns about a growing militarism in society, mainly coming from the experiences of the first half of the twentieth century, provoked an examination into the impact of militaries. The ramifications of the Cold War, specifically the American decision to maintain a large standing military for the first time in its history, led to concerns about whether a liberal democracy could effectively maintain such a military structure. Samuel Phillips Huntington and Morris Janowitz published seminal books on the subject, effectively bringing civil-military relations into academia [2,4]. Since then, the seminal works of Huntington [2] and Janowitz [4] have been replicated in the developed world, albeit with gaps in the developing world.

In *the Man on Horseback*, Samuel Edward Finer (1915-1993) countered some of Huntington's and Janowitz's arguments and assumptions and offered a look into the civil-military relationships in the underdeveloped world. Finer [16] observed that many governments do not have the administrative skills to govern efficiently, which may open opportunities for military intervention. These options are not as likely in more developed countries. Finer [16] argued that a stage of political development is a measure of civil-military relations. The stage of political development presents an opportunity for the military to intervene in internal politics. A common issue that ruins civil-military relations is when civil political leaders attempt to resume or gain civilian control after a transition, conflict or dictatorship but do not possess the necessary capacities and commitment to handle defence affairs.

The increased incidence of military coups d'état since World War II, particularly in the 1960s and 1970s, brought about a growing interest in the academic domain

in studying the nature of such coups. Political upheavals in Africa and Latin America led to military take-overs in Togo, Congo, Uganda, Ghana, Mali, Burkina Faso, Niger, Bolivia (189 military coups in its first 169 years of existence), Chile, Argentina, Brazil, Paraguay, Peru, and Uruguay, was primarily a result of forces attempting to stem the increasing influence of left-wing and communist-led uprisings [17,18,15,19,9,20,21,22]. During the bipolar region, the military was a closer tool for the state to project power on another state. As such, armies were more concerned with the defence of territorial integrity than internal politics, while political elites were more concerned with the security of the political ideology. However, the winds of change and uncertainty blew when the bipolar region collapsed.

The end of the Cold War led to a new debate about the proper role of the military in society, both in the United States and the former Soviet Union. However, as before, much of the discussion revolved around whether the state's powers were in decline and whether an appropriate level of civilian control was being brought to bear on the military power [23,7,24,25]. Security analysts pondered the military's role in human security as a human being became a referent object to security. Huntington [10] opined that the end of the cold war meant an increase in internal conflicts as people start to align themselves on ethnic lines and predicted that many of the conflicts would be a clash of civilisations. A clash of civilisation is a thesis that people's cultural and religious identities will be the primary source of conflict in the post-cold war world. Huntington's [10] thesis on the clash of the civilisations put the military's role in a dilemma.

The basis of civil-military relations is a dilemma. Feaver [3] has coined this dilemma as the civil-military problematique, which requires a given polity to balance two concerns. On the one hand, it must create a robust military establishment to protect the state. On the other, it must ensure that this same military establishment does not turn on the state that established it. Schiff [5], Owens [26] and Williams [27] argue that the response of a polity to the civil-military problematique in the current world order can be seen as a bargain negotiated among three parties: the citizens, the civilian governmental authorities, and the uniformed military. This bargain aims to allocate prerogatives and responsibilities among the parties to keep civil-military relations in equilibrium and ensure participatory democracy in state affairs. However, the Civil-military relations rhombus diamond theory posits that there should be one strong institution to protect territorial integrity by upholding the constitution. This is the case in Malawi where the MDF is mandated to uphold and protect the constitutional order and assist the civilian authorities in properly managing public affairs.² Conversely, instances of the civilian political elites trying to circumvent the constitution and where the military has protected civilians in maintaining democratic values have not received much scholarly attention, and rhombus diamond theory synthesises this gap.

² Chapter XVI, Section 160 of Malawi Constitution, 2002

5. RHOMBUS DIAMOND THEORY SYNTHESIS

The Rhombus Diamond theory proposes a number of assumptions covering the five key civil-military relations interactions in democratization [10,3,15,9, 28]. The theory proposes that:

- a. The military is a centrifugal force keeping in check the other four key civil-military relations players as it has a monopoly of coercive power.
- b. The military is a balancer in civil-military relations and a precondition to democratisation and a function of merit-based promotions, merit-based appointments, joint training and education between the military, citizenry and government officials, representational recruitment, reforms of the military institution, specialisation of the key civil-military relations players on defence matters, professionalization through professional military education and delivery of public goods and services.
- c. The Judiciary plays a crucial role that involves legal interpretation of the military's role in managing domestic affairs. The judiciary administers justice to keep in check the other civil-military relations actors
- d. The Judiciary enforces the rule of law, fulfils its role in protecting human rights and curbs abuses of military powers as well as validating military interventions.
- e. Civil authorities such as the Ministry of Defence and District Security Committee present the nation with expertise and represent the interests of elected authorities.
- f. Elected authorities such as the executive and the legislature may be a causal factor for unhealthy civil-military relations and present potential security threats.
- g. The role of elected authorities is to carry out the civilian democratic control of the military through shaping and formulation of the national security policy. Elected authorities assume oversight duties on the effectiveness and efficiency of the military.
- h. Civilians, thus the local population, Civil Society Organisations and the media monitor activities of other civil-military relations key players. Civilians offer alternative views on national security policy.

The rhombus diamond answers to the dilemma and the dichotomous nature of the civil-military relations. The dilemma that requires a polity to balance two concerns where the polity must create a military strong enough to protect the state and that the same military should not turn on the state that established it [29,26]. The same dilemma that Bruneau and Tollefson [30] and Houngnikpo [15] questioned, *who guards the guardians?* The rhombus diamond attempts to provide the solution by proposing that *each one guards one*. Each one guards one, is a cliché that means the differentiation of the roles of the key civil-military relations actors are meant to decentralize the centres of power and that each stakeholder checks and balances the power of the other stakeholder thereby ensuring a healthy civil-military relations and a viable path to the development of democracy.

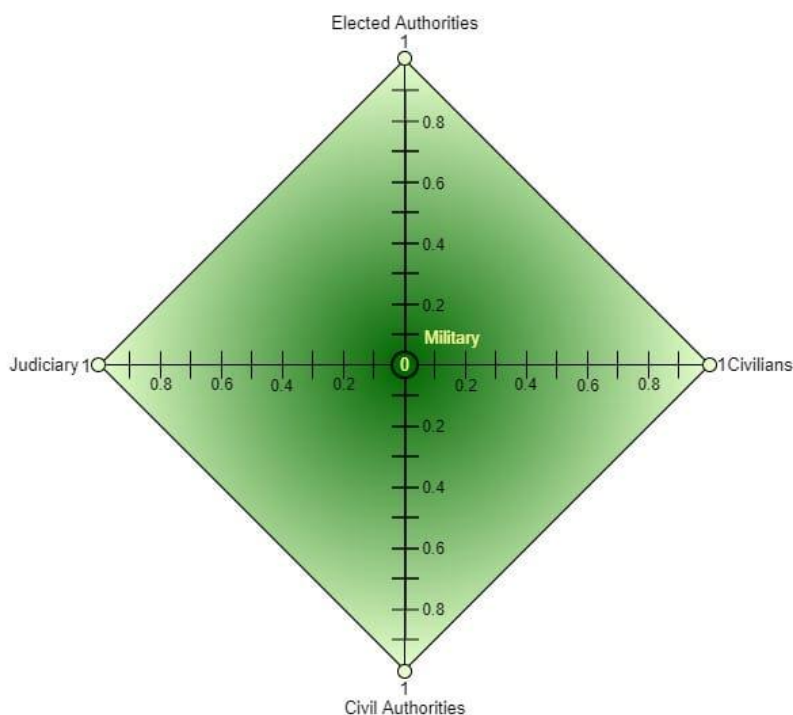


Fig. 1. Rhombus diamond

Source: Chazema et al. [31]

In buttressing the rhombus diamond propositions, Chazema et al., [31] precisely (Fig. 1) argue in other words, that the military to keep the elected authorities, the judiciary, civilians and the civil authorities in balance all need to have an equal power of one (1). The military must always have a value of zero (0) to remain a fulcrum to keep the elected authorities, civil authorities, civilians and the judiciary in equilibrium to remain a safe and secure nation. The theory assumes that the military itself can only be a balancer if it is professional and adhere to the trinity of civil-military relations of civilian democratic control of the armed forces, efficiency and effectiveness when carrying their tasks.

6. RHOMBUS DIAMOND THEORY JUSTIFICATION

This theory is based on the cultural, historical and geographical nuances mainly of Malawi where the country has been saved by other key civil-military relations players than the political elites. Political elites in the past times put the nation on an unhealthy path to nation-building resulting in national security threats. Examples of such an unhealthy path include "Operation BWEZANI" in 1993, a political interregnum of 2012 when President Bingu Wa Mutharika passed on,

and Vice President Joyce Banda was almost burred from taking over power and the contested tripartite elections of 2019 that culminated in political protests and violent demonstrations [32,23,33]. The Malawi's critical political junctures that warranted the rhombus diamond theory are elucidated further in the succeeding paragraphs starting with the transition to democracy.

As the third wave democratisation was sweeping through the other political power systems [2], Malawi was not spared. The transition to democracy was precarious due to the political bottlenecks such as the vestiges of authoritarianism and the Malawi Young Pioneers (MYP), a paramilitary wing of the Malawi Congress Party. The Malawi opposition parties argued that the MYP presented a formidable obstacle to a democratic multiparty election. Under pressure from the international community, the government agreed to gradually demobilize and disarm the MYP, incorporating the armed wing into the police and the military institutions. However, the military declined to incorporate the MYP into the Malawi Army. The democratisation neared a crisis point when the MYP cadres shot four Malawi Army soldiers on 1st December 1993 following a bar brawl in Mzuzu City. What ensued was Operation BWEZANI, a military operation that disarmed the MYP at the height of political transition in December 1993 [34]. The military played a balancer role and levelled the political field for the multipartyism and the 1994 democratic elections.

Further to the latter, Malawi Defence Force played an oversight role during power transition and symbolic transfer of power from one presidency to the next presidency. The power transition is a constitutional matter. Nundwe et al. [34] argued that on 12th April 2012, political tension ensued following the death in office of His Excellency President Bingu wa Mutharika on 5th April 2012. Despite a clear provision of the law under section 83 (4) of the Constitution of Malawi which stipulates the succession guidelines when such occurrence take place, there was an attempt to block the Vice President, Dr Joyce Banda, to take over power until the next elections. It should be noted that by the time the president died the relationship between the two top citizens had gone sour and the Vice President had formed her own party, the People's Progressive Party.

The political tension was very visible and well pronounced and there were political manoeuvres to not let Dr Joyce Banda ascend to presidency. Malawi Defence Force was very crucial again during this time of political uncertainty. The high command deployed troops to protect the Vice President and in default shifting the power from late Bingu wa Mutharika to Joyce Banda. The judiciary was critical in interpreting the law which the media and civil society organisations publicised.

In addition to the latter justification, the civil-military relations stakeholders were at it again post-tripartite elections of 2019. The contested presidential elections of 2019 were a catalyst of insecurity in Malawi as political parties and local population did not agree with the results citing mass electoral irregularities. The civil society organisations had organised demonstrations to show the disagreement. However the government repeatedly tried to stop the

demonstrations through court orders. The government reasoned that protests were destructive and threatened public security. The president of the Republic of Malawi with vested powers under section 160 (2) of the Malawi Constitution ordered the Malawi Defence Force to support the Malawi Police Service. However, Malawi Defence Force understanding its Constitutional role of protecting human rights and protection of citizens applied a human-centric approach to security. Instead, the Malawi Defence Force engaged in intelligent disobedience by deploying soldiers to provide security and ensured law and order during the demonstrations. The Malawi Defence Force further advised the politicians to find a political solution to the political problems that were rocking the country [34].

The three events cited in this book chapter; Operation BWEZANI in 1993, 2012 political interregnum, and the contested tripartite elections of 2019 are a demonstration of how the level of civil-military relations has impacted the extent of democratization in Malawi. Malawi Defence Force has not intervened in domestic politics owing to professionalism and ability to adopt democratic principles where a human-being has become a referent object of security.

The rhombus diamond theory focuses on keeping civil-military relations in equilibrium. The equilibrium can be maintained when the military is stable and without internal divisions. The variable for keeping the military neutral is through having a professional military such as Malawi has demonstrated. The professional military is the one that propagates merit-based promotions, merit-based appointments, joint training and education between the military, citizenry and government officials, representational recruitment, reforms of the military institution, specialisation of the key civil-military relations players on defence matters, professionalisation through professional military education and delivery of public goods and services [35,28]. Whereas the military professionalism is an important ingredient in balancing the civil-military relations, the judiciary is also one paramount branch in the civil-military relations equation.

The Judiciary is justified in nation-building and civil-military relations in enforcing the rule of law and protecting human rights. In this instance, the constitutional judges of Malawi showed courage and independence in defence of democracy, demonstrated in their historic February 2020 ruling to annul the disputed May 2019 presidential elections. The ruling reviewed and suggested that the majority should mean 50+1, not a mere first-past-the-post (FPTP) rule. Fifty plus 1 ensures the President gets a majority and gets accepted country-wide as none of Malawi's political regions can suffice a 50+1 vote hence curbing regionalism and ethnocentrism [36]. The judiciary does not work in unison in balancing the centres of power but civil authorities are involved in the balancing act of the civil-military relations.

Civil authorities such as the Ministry of Defence and District Security Technical Committee present the nation with expertise and represent the interests of elected authorities. If this category of civil-military relations player is not equipped with the required security knowledge, they can be detrimental to national

security. A civil-military relations study in Argentina revealed that expertise in this category was lacking. The study revealed no stability for civilians in positions of authority. Instead, there was a veritable revolving door with all, but very few civilians having any stability, let alone being able to develop their expertise and exercise their authority. The study further argued that the Ministry of Defence, with some 700 employees, is the smallest of the ministries in Argentina, in charge of 75,000 personnel in the armed forces [9]. In the case of Malawi Ministry of Defence, 60 employees in charge of some 12,000 employees is a more critical mishap that needs immediate attention for a healthy civil-military relations' path towards democratisation.

Healthy civil-military relations require a balanced contribution of civilians. Civilians, thus the local population, Civil Society Organisations and the media monitor national security activities and policy. They offer alternative views on national security issues directly affecting them. Williams [27] portends that:

“Although citizens may not be directly involved in creating the civil-military bargains, civil-military relations cannot be sustained without their acquiescence. In order for democracy to continue to thrive, it is pivotal that the public is engaged such that society maintains a healthy balance.”

On the one hand, Williams' [27] claim is true for consolidated democracies like that of the United States of America. On the other hand, Williams' [27] assumption is an understatement taking into account political events that have been ensuing in Malawi. An example is where civilians and the military worked together to protect democracy against a political regime after the 2019 contested presidential elections. This assertion cements the assumption that the military is a balancer and that civilians can be directly involved in power balancing as Malawi has shown, vindicating the claims of the Swiss philosopher, Jean-Jacques Rousseau [37] that power is a contractual social obligation given by the people and that if the contractual obligations are not met, power can be withdrawn. Hence power relations must be managed, and the rhombus diamond theory aims to manage power relations of the polity and the military towards nation-building.

7. RHOMBUS DIAMOND THEORY APPLICABILITY

Rhombus diamond theory can be applied in a number of areas of transformative community development mainly in line with Goal 16 of the United Nations Sustainable Development Goals as well as an enabler to the Malawi Vision 2063, which promotes peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels. The theory recognizes that the five civil-military relations players should remain professional in their assigned roles and avoid having multiple interests aimed at self-aggrandizement. Professionalism should be attained through the specialisation of a particular profession and having a general awareness of the roles of the other civil-military relations players.

The roles of the military should be well known by the polity. The military tend to be rated highly as an effective institution in the country albeit with the civil-military relations key players lacking knowledge of the roles of the military. If the society does not know the roles of the military, how then the same society can rate the military to be highly effective. The knowledge gap of the roles of the military by the society becomes a threat to national security as the military can be wrongly tasked by those who are mandated to control the military; elected civilian authorities. In this case, the military need to continue to receive professional education, its appointments and promotions to be based on seniority and merit and its recruitment to be representational from all the groups of the people for the military to act rationally and where orders from the civilian authorities are deemed illegal, intelligence disobedience can be applied without posing a threat to national security.

The theory aims at keeping the military stable through oversight by the executive, legislature, judiciary and civilians. The theory understands that the military will be stable and professional if there is professional military education, when promotions and appointments are based on merit, when recruitment of soldiers and officers is representational and when resources are available for maintenance and sustainability. Furthermore, joint training among the civil-military relations players to acquaint them with national security issues is also a function towards the transformative development of civil-military relations. The civil-military community needs to transformatively develop from an authoritarian era to a democracy. The path to democracy requires realizing the core democratic values of the right to life, liberty, economic freedom and the pursuit of happiness by all the stakeholders in the rhombus diamond. The rhombus diamond theory realises that the vestiges of colonialism and authoritarianism cripple the progression path to democracy and that the civil-military system needs a transformation through the professionalisation of stakeholders.

The rhombus diamond theory buttresses the role theory that concerns one of the essential features of social life and characteristic behaviour patterns of stakeholders. It explains roles by presuming that stakeholders are members of social positions and hold expectations for their behaviours and those of other stakeholders. Role studies have suggested centrifugal, integrative, and competing forces within the role field [38,39]. The roles of civil-military relations stakeholders influence decision-making. The dynamism of the space of civil-military relations requires the differentiation of roles aimed at curbing competition. Differentiation of roles in civil-military relations is meant to improve the effectiveness of the civil-military relations system. The apparent variation of responsibilities and rights between the centres of political power represents one of the key preconditions for successful democratisation. The constitutional system and judicial definition of the relationship among the various centres of authority have a decisive impact on the character and tempo of democratisation.

In addition to the latter, the military as a centrifugal force in the rhombus diamond must balance security concerns and increase transparency surrounding its operations to drive greater awareness of its roles and missions. The increased

awareness and transparency could arguably create a more knowledgeable public and reduce the shock threshold of breaking military news and lessen sacrosanctity as a measure of effectiveness of the military operations. For the public to rate the military effectiveness properly, the public must have knowledge of the roles and missions that the military conduct. The rhombus diamond theory encourages awareness of the military roles so that the pulse keepers do resource the military appropriately.

8. CONCLUSION

This book chapter has elucidated the creation of a rhombus diamond theory of civil-military relations. Rhombus diamond theory assumes that the military is a fulcrum that keeps elected authorities, civil authorities, civilians and the judiciary in equilibrium hence a safer nation. The military itself can only be a balancer if it is professional. A professional military is one where professional military education, representational recruitment, merit-based promotions and appointments are adhered to. For the civil-military community to safeguard the nation, they must be professional and work together by fusing, centrifuging, integrating, or complementing each other. The rhombus diamond theory grounds that the development and transformation of civil-military relations occur through the interaction of the key civil-military relations players in a particular time and environment.

The theory focuses on the inclusion of the local population. The local population in emerging democracies has exerted direct political power through informal organizations and must be included in the practice of civil-military relations. The theory does not exclude the roles of other key civil-military relations players; however, emphasis is put on joint training to acquaint with each other's roles and complement each other where possible. The theory portends that Judiciary enforces the rule of law, fulfils its role in protecting human rights and curbs abuses of military powers as well as validating military interventions. Civil authorities present the nation with expertise and represent the interests of elected authorities. Elected authorities carry out the civilian democratic control of the military, national security policy formulation and direction and civilians offer alternative views on matters of national security directly affecting them.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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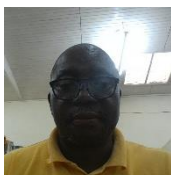
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Values of Portuguese International Development Cooperation: Review and Update after 2013

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ABSTRACT

In recent years, International Development Cooperation has assumed particular importance in scientific research and there are currently several studies of general scope or limited to a smaller geographical or thematic space, such as those that focus on national cooperation policies. In general, these works have sought not only to explain its historical, institutional and strategic evolution, but also to constitute a basis for reflection on a long journey of ideas, values and practices that it has been following and its results with partner countries.

Portuguese Cooperation is no exception and, in general, all the publications that contextualize it refer directly or indirectly to the general values by which it is governed.

However, there aren't studies that identify the individual reference values of the action of the Cooperation actors in their practice of identifying, managing, and evaluating projects. In this article, we intend to identify the values considered as guiding principles of the action that the actors of the Portuguese Cooperation individually consider in the practices they develop. Such an intention constitutes a real innovation, since the only values identified so far are those that governments include in the strategies presented, more or less inspired by the documents of the European Union (EU) and the Development Assistance Committee (DAC) of the Organization for Economic Co-operation and Development (OECD).

Keywords: Portuguese cooperation; actors; general values; individual values.

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1. INTRODUCTION

International Development Cooperation has assumed particular importance on the international agenda, but also in scientific research. If, at the level of this agenda, the decision documents that configure the Cooperation policy denote this importance, in the scientific community the reflection and publication of articles and academic papers/research around international strategies, policies and results demonstrate that International Development Cooperation is no longer just a topic debated by political elites and governments. With the intervention of civil society, in general, and academia in particular [1-4].

Within the Portuguese scientific community, more and more papers have been published. However, and despite the richness of the themes analyzed, the individual values at the level of the actors of the Cooperation continue to be a theme that has been set aside. There is talk of general values of Portuguese Cooperation, but not of the values that those who carry out activities related to Cooperation or have the motivation to do so, consider as guiding principles of individual and collective action [5-9].

Thus, and to address this gap, we tried to construct a list of these individual values. To this end, we developed and presented a questionnaire based on Schwartz's Theory of Human Values, , the questionnaire method developed by Ronald Inglehart, Bilsky and Tamayo, and also based on the Code of Ethics of the former Portuguese Institute for Development Support (IPAD), Camões – Institute for Cooperation and Language, I.P. (Camões-ICL, I.P.) and the Code of Conduct of the European Conference of Urgency and Development NGOs, CONCORD [10].

2. SCHWARTZ'S THEORY OF HUMAN VALUES

Schwartz's Theory of Human Values has been distinguished by its theoretical coherence and by the different instruments it has been developing at the level of individual values (Schwartz Scale of Values (SVS) ¹ and Profile of Personal Values (PVQ)²).

Defining values as *"criteria or goals that transcend specific situations, that are ordered by their importance, and that serve as principles that guide the life of the individual,"* Schwartz understands that the *"sources of values are the universal demands of the human being, which pre-exist in the individual"* and are formed by biological, social needs (which are related to the regulation of one's own *"interpersonal interactions"*).¹), and socio-institutional (inherent not only to the survival but also to the well-being of groups of individuals)] (Schwartz in Ferri et al., n.d., pp. [12,13]).

¹ It is based on Rokeach's theoretical model, more precisely on the RVS instrument. In addition to being based on the SVR, the SVS complements it in the 'understated sectors', and Schwartz 'developed a more differentiated form of response to assess the items of individual values' [11].

² It is characterized by being an instrument where the participant's main task is to compare himself with other individuals of the same sex [11].

Considering that these «*can be interpreted as motivational constructs that transcend specific situations and actions*», Schwartz states that they can be ordered according to their degree of importance in relation to the others [11] and, due to their diversity, should be grouped by specific categories that are distinguished from each other by motivational content.

To this end, he developed a methodology that precisely distinguishes these motivational types in a total of 10 (ten): power ("social status over people and resources"), achievement ("personal success through demonstrating competence according to social criteria"), hedonism ("pleasure and a sense of gratification towards oneself"), stimulation ("enthusiasm, novelty and challenge in life"), self-determination ("independent thinking and choice of action, creativity and exploration"), universalism ("understanding, appreciation, *tolerance and protection of the well-being of all people and nature*"), benevolence ('preservation and enhancement of the well-being of the people with whom they have frequent personal contact'), tradition ('*respect for, commitment to, and acceptance of customs and ideas provided by traditional culture and religion*'), conformity ('*restraint of actions, inclinations, and impulses that may disturb and hurt others or violate social expectations and norms*') and security ('*safety, harmony, and stability, of society, relationships, and oneself*') [11].

These motivational types are grouped into two (2) bipolar dimensions: openness to change Vs conservation; and self-transcendence Vs self-promotion.

Associated with these motivational types is a wide range of values, such as freedom, independence, audacity, curiosity, ... (Appendix 1).

As expected, the evolution of the list is a dynamic process where some are added and others are removed, according to the context (time, societies and social groups, and the objectives of the specific studies – Resende, Fernandes & Cruz, [14].

This fact, led James Clear (s.d.), who created an integrity index, to recommend “ (...) *select less than five core values to focus on - if everything is a core value, then nothing is really a priority* “ (...).

3. PORTUGUESE COOPERATION

After the Revolution on April 25, 1974, the Portuguese Cooperation policy assumed a decentralized organization both in its structure and in its definition of strategy until 1999.

Although its institutional framework dates back to the mid-70s (seventies), it was only in 1985, when the Secretariat of State for Foreign Affairs and Cooperation was created, that the development of an effective Cooperation program began, which was only effectively consolidated when in 1999 the first strategic orientation at the level of approval by the Council of Ministers (RCM n.º 43/99, *Portuguese Cooperation on the Threshold of the XXI Century*). As a clear continuation and

adaptation of the strategic vision, much as a consequence of adaptations and structural changes in the national and international scene, especially the approval by the UN of the Millennium Development Goals, other guiding documents followed in 2005, *A strategic vision for Portuguese Cooperation 2005-2014* - RCM no. 196/2005, of December 22nd, *the Strategic Concept of Portuguese Cooperation (2014-2020)* – RCM no. 17/2014, of march 7th and, more recently, with RCM no. 121/2022, of December 9th, the Portuguese Cooperation Strategy 2030.

These documents consider that the Portuguese Cooperation policy, as an aspect of foreign policy, follows lines of action that aim above all at peace, the spirit of solidarity between peoples, the establishment and consolidation of a democratic political regime in all countries, regardless of their culture, religion, or ethnicity [15-18]. Above all, it seeks respect for Human Rights in all circumstances, gender equality, the empowerment and rights of women and girls, the promotion of the Portuguese language, the protection of the environment and the fight against climate change [19,20]. These guidelines are themselves the general values by which Portuguese Cooperation is governed.

It is important to point out that, since the 1974 Revolution, two characteristics remain in the field of Portuguese Cooperation:

1. The relationship with the Portuguese-speaking African Countries (PALOP) and with Timor-Leste to help them in all sectors essential for economic and social development. It should be noted that these two geographical areas are dominant in relation to Cooperation policy, so that other countries that appear in the Cooperation statistics only reflect the opening of credit lines for companies (Morocco), co-financing of European Union Delegated Cooperation projects (Colombia) or military and police missions (Balkans, Afghanistan, etc.);
2. The decentralized organization, as mentioned.

RCM no. 43/99 established the objective of articulating in the different domains (political-economic and cultural) the dynamics of the formation of an international community, based on the various relationships between Portuguese-speaking countries, and of rapprochement with other regions and populations.

Over the years, a series of instruments have been developed within the scope of Cooperation, such as the Indicative Cooperation Programs (PIC), the Integrated Cooperation Programs, the Technical Cooperation Delegations, and institutions such as the Portuguese Development Support Agency (APAD) or the Society for Development Finance (SOFID).

In structural terms, the Portuguese Cooperation system has undergone some changes, such as in 2002 and 2003, when APAD was extinguished and returned to the model of a single institute to coordinate cooperation (IPAD), resuming the administrative culture of the General Directorate of Public Administration; or as the last one occurred with the merger of IPAD and Instituto Camões, I.P., a public

institute promoting the expansion of the Portuguese language in the world, in the new Camões (Camões – ICL, I.P.) at the beginning of 2012 [21].

Nevertheless, it remains a "(...) *State policy with a character of continuity, based on a broad national consensus between the main actors of the State and civil society*" (...) [21]. In fact, the importance, role and impact of Cooperation actors in general continue to be strengthened in this same strategy and in role and performance of the Portuguese Cooperation. As mentioned by Teresa Ribeiro (2020), Secretary of State for Foreign Affairs and Cooperation "(...) *the participation of the various actors of our civil society (...) is essential for a greater awareness (...) of the challenges and relevance of Cooperation* (...)".

4. THE VALUES OF PORTUGUESE COOPERATION ACCORDING TO THE ACTORS OF COOPERATION

During the literature review within the scope of the research started in 2013, we found that, in general, the literature that refers to Portuguese Cooperation and its system, identifies in a very precise way the so-called general values of Cooperation, to which we have already had the opportunity to refer.

It is a policy that therefore follows the basic principles of equality, impartiality, impartiality, transparency, integrity, and judicious allocation of scarce public resources.

On the other hand, and institutionally analyzed, especially from the point of view of the intervening actors, it is of paramount importance to mention that the extinct IPAD, currently Camões – Institute for Cooperation and Language, I. P., in its Code of Ethics lists a set of values that are based on some basic principles, also adopted, such as "(...) *equality, impartiality, impartiality, transparency, integrity and judicious allocation of scarce public resources*". We are thus referring to the values of: '*excellence based on rigour, quality, efficiency and effectiveness*'; '*truth, integrity and transparency*'; '*fairness, impartiality, impartiality and justice*'; '*quality and productivity of work, equal treatment of persons and opportunities, and non-discrimination*' "(...) [22].

In this same document, it is also clear the opposition and, above all, the prohibition of any practice associated with fraudulent practices such as corruption, bribery and other offences such as using IPAD resources "(...) *for private purposes, for their own benefit or for the benefit of third parties, as well as using for their own benefit or that of third parties information or facts of which they have knowledge by reason of the exercise of their functions* (...)", that extends to your employees [22].

As far as NGOs are concerned, the Portuguese NGDO Platform follows the CONCORD Code of Conduct, which refers to three (3) important principles:

- "(...) *Respect for the dignity of the people concerned*;
- *Belief in the equality of all people*;

- *Acceptance of the need to promote equity, solidarity and justice (...)*(CONCORD, 2006, p. [10]).

In addition to this code, Portuguese NGOs subscribe to the "European Charter for NGOs" where the values indicated as those which these organizations defend are:

- Social justice, equity and respect for human rights;
- Participation of the populations they work for;
- Involvement of civil society in Development Co-operation;
- Service to partners in the South - NGOs do not seek to serve their own interests, but those of their partners.

In 2009, a survey of 23 (twenty-three) NGOs in Portugal on decentralized Cooperation, conducted by the Portuguese NGO Platform, presented 22 (twenty-two) items from which to choose up to 8 (eight) principles. The answers included: empowerment of local organizations, alignment, participation, locally-based processes and transparency. The same survey sought indications for drawing up a Code of Ethics and Conduct and came up with 5 statements (chosen by 61% to 74% of respondents): rejection of various forms of influence peddling and favours; respect for the principles of equal opportunities; social and environmental responsibility; guarantee of information to all partners and public information on the activities of organizations (Garcia in ACEP, 2009).

With regard to norms in the field of International Cooperation, Sangreman [23] states that a different set of authors share the opinion that "(...) *norms configure the preferences of the actors in the "field"* [of International Development Cooperation], *whether individual or collective identity (...)*".

The most up-to-date set of norms that can be found in the literature in the field of International Development Cooperation are, according to the aforementioned author (2009, p. (19)): justice, equity, democracy, accountability, transparency, openness, freedom, peace, security, stability within each State, respect for Human Rights, the rule of law, gender equality, policies developed on the basis of the market economy and the widespread desire to "*create just and democratic societies*".

For the present research we found that, regardless of the values defined as the guidelines for the definition, establishment and implementation of foreign and Cooperation policies, there is no literature that focuses on the values that people who are salaried or voluntary in the actors of Cooperation consider to be guiding principles of individual and collective action in this field. constituting a gap in academic environment and the international scene, by considering International Development Cooperation as an experience based on the exchange and sharing not only of knowledge and knowledge, but also of cultures and practices [24].

Faced with this situation, we developed and applied a questionnaire³ to the different actors of the Portuguese Cooperation. This questionnaire was developed based on Schwartz's Theory of Human Values, the questionnaire model developed by him in partnership with Tamayo [25], Bilsky and the questionnaire method developed by Ronald Inglehart⁴ applied to Portugal (available in *World Values Survey*),⁵ and also based on the Code of IPAD/Camões-ICL [26] and the Code of Conduct of the European Conference of Urgency and Development NGOs, CONCORD [10].

We took as our own Schwartz's hypothesis that values have a continuous qualitative scale. Of the 61 (sixty-one) values identified in Schwartz's Theory, the research team selected 23 (twenty-three) that, in our view, allow the actors to have some positioning within the scope of Portuguese Cooperation.

This questionnaire was available for 4 (four) weeks (January 20th to February 20th, 2013), on a platform *online* – *SurveyMonkey*.

As there was no determined universe other than conceptually, the questionnaire was sent to all the contacts that appear in the files of the platform promoted by the Government to articulate the different actors involved, the Development Cooperation Forum, the Centre for Africa and Development Studies (CEsA), the Centre for African Studies (CEA) and⁶ also, disseminated *online* by these Centre's and by the Portuguese NGDO Platform, in an estimated total of 2500 submissions. It should be noted that such a methodology means having no control over the disclosure that the recipients decide to make themselves.

A total of 422 (four hundred and twenty-two) people responded, mostly female, Portuguese nationality and with academic qualifications at the level of higher education.

Table 1. Answers by education and nationality

Schooling	Portuguese	Portuguese and other	Other	Total
Básic	2	1	0	3
Secondary	17	0	2	19
Superior	376	4	14	394
Total	395	5	16	416

³ See Appendix 2.

⁴ He is the coordinator of one of the world's most important surveys in this field: *World Values Research (WVR)*. This is a worldwide network that is made up of researchers, social scientists who study the change that is observed in values and their impact on social and political life [27].

⁵ Available at:

<http://www.wvsevsdb.com/wvs/WVSDocumentation.jsp?Idioma=I> [Accessed December 28th 2012]. [28]

⁶ These last 2 (two) were complementary files, the main one being that of the Forum since it includes all the contacts of public and private actors.

Table 2. Answers by schooling and gender

Schooling	Male	Female	Total
Basic	0	3	3
Secondary	9	10	19
Superior	182	217	399
Total	191	230	421

Table 3. Age groups by sex

Age groups	Male	Female	Total
Up to 25	14	46	60
Between 26 and 35	38	63	101
Between 36 and 50	52	75	127
Between 51 and 65	53	32	85
More than 65	35	14	49
Total	192	230	422

The data in these Tables 2 to 3 and Appendix 3 and 4 allow us to have several readings, among which we have chosen to highlight the following from the calculations of the absolute data of the answers, considering the thirteen most indicated values⁷ as of exceptional importance: be honest, responsible, open, integrity, be capable, respect, social justice, solidarity, excellence, equality, transparency, peace and liberty.

- (1) If we consider all respondents, we have the standard composed of being honest, responsible, open, capable, supportive, transparent, having integrity, respect, seeking social justice, excellence, freedom, equality and a world at peace.
- (2) If we consider only male respondents, we have a standard composed of being honest, open, responsible, capable, supportive, transparent, striving for excellence, social justice, integrity and respect.
- (3) If we consider only women respondents, we have a standard with having integrity, being honest, being responsible, having respect, being open, creative, seeking social justice and a world at peace, being capable, supportive, seeking equality, freedom, being transparent, being independent.
- (4) Considering the respondents who were 20 years of age or older in 1974⁸, we will have a standard composed of the following values: to seek a world at peace, to be honest, to be responsible, to have integrity, to be open, to be capable, to seek excellence, to be supportive, to seek social justice, to have respect.

⁷ When there are two answers that have the same number, they are assigned the same sorting level. They are marked with (*).

⁸ Year of the revolution that put an end to the previous totalitarian regime, allowing access to independence for the still existing colonies.

- (5) For those who were under the age of 20 in 1974, the standard is to be honest, to be open, to be responsible, to have integrity, to have respect, to be capable, to seek social justice, to be supportive, to strive for excellence, to be equal and to be transparent (Appendix 3).

If we carry out a relative calculation, that is, we take the answers "very important" and "exceptionally important" together and relate them to the total number of respondents of each reading criterion, we will have:

- (1) If we consider all respondents, we have the standard composed of being supportive, responsible, open, honest, capable, transparent, having integrity, seeking social justice, excellence, freedom, equality, a world at peace and being transparent.
- (2) If we consider only male respondents, we have a composite standard: to be supportive, to be responsible, to be honest, to be open, to be capable, to have integrity, to strive for excellence, to seek social justice, to seek freedom, and to be transparent.
- (3) If we consider only female respondents, we have a standard with being supportive, being responsible, seeking social justice (*), having integrity (*), being capable, being open, being honest, having respect, seeking freedom and seeking equality and being transparent.
- (4) Considering respondents who were twenty (20) years of age or older in 1974, we will have a standard composed of the values of solidarity, honesty, responsibility, openness, ability, integrity, creativity, social justice, transparency, and freedom.
- (5) For those who were under twenty (20) years of age in 1974 the standard is composed of solidarity, being responsible, being open, being capable, being honest, having integrity, seeking social justice, seeking a world at peace, seeking excellence, and seeking freedom.

We therefore have a pattern that doesn't vary much between men and women or between generations. In the first case, it can be considered that there is some variation in importance, but only men include "seek excellence" and "transparency" in the top ten, and women replace it with "have respect" and "seek equality", with "transparency" appearing in eleventh.

Between generations, the difference is a little greater, with the older ones including the values "being creative" and "transparency" and the younger ones replacing them with "striving for excellence" and "striving for a world of peace".

We believe that these data also reveal a relatively weak position in the scale of respondents' values of criteria such as transparency, independence or environmental concerns that appear today in all international documents and debates (Annex 4)⁹.

⁹ Of the 422 (four hundred and twenty-two), only 54 (fifty-four) answered the question of what professional activity they exercise, so no calculation is significant.

More recently, and to understand if the perception of the actors of Cooperation (regarding this theme) has changed, before, during and after the pandemic, we analyzed the responses of some of the students who attended, in the years 2016 to 2022, the course Introduction to International Cooperation for Development, taught in conjunction with the University of Aveiro and Camões-ICL.

It should be noted that the mention of some students is because not all of them answered the development question presented about values, by choice (they could choose one of two).

However, those who responded (41 in total) are all Cooperation agents, given their interest in the subject, whether consolidated or not by the professional aspect (higher education students – master's and doctorate; Camões-ICL professionals, professors in national and international cooperation projects and agents of NGOs and associations).

Of the 41 answers obtained, 5 were not considered because they did not identify values, only those identified in the investigation and presented during the course. Of the 34 validated responses, it should be noted that 3 of them identified more than three values, and only the first three were considered.

Thus, and not diverging from those identified in 2013, solidarity (13 responses), responsibility (17), respect (10) and openness (10) continue to be considered as basic principles and guiding values of the activity inherent to Cooperation through its projects, initiatives, and actions.

5. CONCLUSIONS

With the work developed, we are now able to identify these values in a general way. In fact, and considering the totality of the answers obtained not only in the questionnaire developed and applied in 2013, but also those of some of the students who attended the Introduction to International Development Cooperation course, between the years 2016 and 2022, we identified as values of exceptional importance: to be supportive, responsible, open, honest, capable, transparent, to have integrity, to have respect, to seek social justice, excellence, freedom, equality and a world at peace.

Of these, and having to identify only three, there is a consensus, within the scope of the samples, that the actors of Cooperation consider that all practices associated with Cooperation must always bear in mind the commitment of responsibility, solidarity, respect and openness towards the other.

This finding is corroborated when analyzing the results published by the Eurobarometer for the year 2022, with the majority of EU citizens supporting European cooperation with all partner countries, being seen as one of the most positive policies. In the view of the Commissioner for International Partnerships, Jutta Urpilainen [29], this is the "(...) *proof of Europe's strong values and solidarity with our partners around the world* (...)".

The identification of these values is a real added value, as it allows us to understand a whole set of motivations that are behind those who carry out Cooperation actions on the ground. Moreover, it is a real innovation since the only values identified to date have always come from the thinking of government leaders, more or less inspired by the EU and DAC/OECD documents.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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He was born in 1949 in Lisbon, Portugal. He is an economist with a PhD in African studies from ISCTE-University Institute of Lisbon, Portugal. He is a senior Professor at the University of Aveiro, a former government advisor for Development Cooperation, International consultant since 1985 in Portuguese-speaking Africa and Timor. He is a member of the board and researcher at the Centre for African Development Studies of the University of Lisbon, Portugal. He is also a principal investigator of Development Cooperation projects. He has published several books, book chapters and international articles. Since 1986, he has specialized in Guinea-Bissau with publications on well-being and structural adjustment, human rights, women, justice, politics, etc.



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She obtained a Degree in Public Administration (minor in Political Science), a master degree in political science from the University of Aveiro, and a PhD in Higher Studies in History – Contemporary Time, with a thesis in the area of Portuguese Cooperation, from the University of Coimbra. In addition to being a training coordinator and pedagogical advisor at the Talent Training Centers, she is a researcher at the Centre for Studies on Africa and Development (CEsA). With years of experience in cooperation and research projects, including "That Other World that is the World: the World of Media and the World of Development" (since 2014), "Memories of Africa and the East (since 2009)", the "Cluster as a theoretical and practical instrument of International Cooperation for Portuguese Development: the case of Mozambique, Timor-Leste, São Tomé and Príncipe and Angola (2012-2014)", "Alphabet of Development" (2011 –2012) and the Forum on Development Cooperation 8 (2008-2011), she serves as a lecturer and tutor in the distance course "Introduction to International Cooperation". She taught at the UA in conjunction with Camões, ICL. She has several publications in Cooperation, having been participating in national and international conferences. In recent years, she has been sought to dedicate, in parallel the management of projects and their national and international applications.

APPENDIX

Appendix 1. List of values proposed by Schwartz, Tamayo and Rokeach

Motivational type	Values and definition
Self-determination	Curiosity (interested in everything, explorer), Creativity (being unique, imaginative), Freedom (freedom of action and thought), Choice/Self-determined (selecting my purposes), Independent (self-sufficient, self-confident), Self-Respect (belief in your personal worth)
Stimulation	Audacious (looking for adventure, risk), Varied Life (full of challenges, novelties and changes), Exciting Life (stimulating experiences)
Hedonism	Pleasure (satisfaction of desires), Life of Pleasure (enjoyment of food, sex, leisure, etc.)
Accomplishment	Successful (achieve goals), Capable (competent, effective, efficient), Ambitious (hard worker, with aspirations), influential (impacting people and events), intelligent (logical, rational), smart (overcoming obstacles to get what I want)
Power	Social power (control over others, dominance), authority (the right to lead or command), wealth (material possessions, money), public image preserver (protect my reputation), vanity (concern and care for my appearance), social recognition (respect, approval of others)
Safety	Clean (neat, tidy), national security (protection of my Nation against enemies), reciprocation of values (avoiding being indebted to someone), social order (social stability), security of family (security for the people I love), sense of belonging/sense of belonging (feeling that others care about me), healthy (not being sick both physically and mentally)
Accordance	Obedient (follower of my duties, fulfilling obligations), respect for parents and elders (showing respect, honorable), politeness (courtesy, good manners), self-disciplined (self-control, resistance to temptation)
Tradition	Aware of my limits/acceptor of my life (submitting to life's circumstances), devout (dedicated to religious faith and belief), humble (modest, unnoticed), respect for tradition (preservation of long-established customs), moderate (avoids extremes in feelings and actions), privacy (the right to have a personal space)
Benevolence	Helpful/Helpful (working for the well-being of others), honest (sincere, authentic), forgiving/forgiving (excusing others), loyal (faithful to my friends, groups), responsible (trustworthy , trustworthy), work (worthy

Motivational type	Values and definition
	way of earning a living), spiritual life (emphasis on spiritual and non-material things), true friendship (close and supportive friends), mature love (deep emotional and spiritual intimacy), meaning of life (a goal in life)
Universalism	Protector of the environment (preserver of nature), oneness with nature (integration with nature), a world of beauty (beauty of nature and the arts), open-minded /open-minded (tolerant of different ideas and beliefs), social justice (correction of injustice, help to the weakest), wisdom (a mature understanding of life), equality (equal opportunities for all), world at peace (free from war and conflict), dreamer (always having an optimistic vision of the future), inner harmony (at peace with myself)

Source: Pires [30]; Menezes, Costa & Campos (1989, pp. 67-68).

Appendix 2. Values Questionnaire on Portuguese Cooperation

We would like to ask for your collaboration in the scope of a scientific research: Portuguese Cooperation Clusters Project: <https://http://pascal.iseg.utl.pt/~cesa/index.php/menuinvestigacao/projectos-em-curso/140> coordinated by Prof Carlos Sangreman and the ongoing PhD thesis of Master Raquel Faria with the title "The public policies of Portuguese Cooperation (1998 to 2012): a modelling essay" at the University of Coimbra.

We ask you to complete this questionnaire to the end, following and in accordance with the instructions. Please do not leave any questions unanswered. There are no right or wrong answers.

We are particularly interested in your personal opinion. The quality of this investigation depends on the sincerity with which it responds.

Obrigada por colaborar connosco!

Instructions

In this questionnaire you should ask yourself "What values, in my opinion, are considered guiding principles for individual and collective action in Portuguese Cooperation?".

Your task is to assess how important each value is to you as a guiding principle of Portuguese Cooperation. To do this, use the following scale:

Como princípio orientador da Cooperação Portuguesa, esse valor é:						
não importante					importante	
	0	1	2	3	4	5
						6

0 – means that this value is not important at all, it is not relevant as a guiding principle of Portuguese Cooperation;

3- It means that the value is important.

6 – It means that this value is very important. The higher the number, the greater the importance of the value.

ADDITIONAL DATA: (Please do not hesitate to answer)

1. Sex: M () F () 2. Age: ____

3. Nationality : Portuguese ☐ Other ☐ What ? _____

4. Education: Primary () Basic () Secondary () Superior ()

5. What is your professional activity? _____

6. In which type of entity you carries out Cooperation activities? _____

7.. Which countries have you been to other than as a tourist?:

Angola ☐ Brasil ☐ Cape Verde ☐ Guinea Bissau ☐ Mozambique ☐

São Tomé e Príncipe ☐ Timor ☐ European Countries ☐

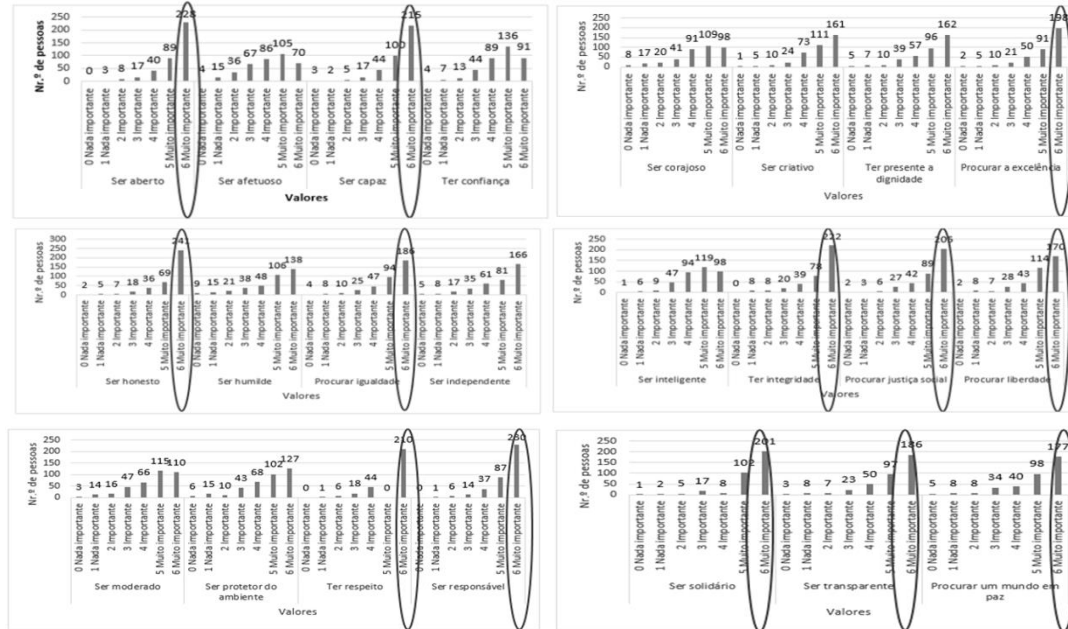
Other countries ☐ What ? _____

Listing Values

Before starting, read the values to the end and evaluate their importance, taking into account the scale mentioned above.

- | Nothing important | 0 -----1-----2-----3-----4-----5-----6 | Very important |
|---|--|----------------|
| 1. BE OPEN (tolerant of different ideas and beliefs) | | |
| 2. BEING AFFECTIONATE (considering affection in personal relationships) | | |
| 3. BE CAPABLE (competent, effective, efficient) | | |
| 4. HAVE CONFIDENCE (be optimistic about people and institutions) | | |
| 1) BE COURAGEOUS (have the ability to face risky situations) | | |
| 1. BE CREATIVE (have imagination for innovation) | | |
| 2. ALWAYS KEEP DIGNITY IN MIND (worrying about "saving face" of others) | | |
| 3. STRIVING FOR EXCELLENCE (accuracy, quality, effectiveness, efficiency) | | |
| 4. BE HONEST (sincere, authentic) | | |
| 5. BE HUMBLE (modest, don't self-promote) | | |
| 6. SEEK EQUALITY (seek equal opportunities for all) | | |
| 7. BE INDEPENDENT (in relation to governments, economic groups and parties) | | |
| 8. BEING INTELLIGENT (being logical, rational) | | |
| 9. HAVE INTEGRITY (do not condone illegal behavior or on the border of the law) | | |
| 10. SEEKING SOCIAL JUSTICE (correction of injustice, care for the weakest) | | |
| 11. SEEK FREEDOM (freedom of action, thought, association, and expression) | | |
| 12. BE MODERATE (avoid extreme feelings, positions, and actions) | | |
| 13. BE PROTECTIVE OF THE ENVIRONMENT (preserve nature) | | |
| 14. HAVE RESPECT (belief in my own worth and that of others) | | |
| 15. BE RESPONSIBLE (be trustworthy, trustworthy) | | |
| 16. BE SUPPORTIVE (seek the well-being of others and oneself) | | |
| 17. BE TRANSPARENT (in behavior, ideas and decisions) | | |
| 18. SEEKING A WORLD AT PEACE (free from wars and conflicts) | | |

Appendix 3. The values of the actors of Portuguese Cooperation, in graphic terms



Appendix 4. Treatment of some data obtained with the implemented questionnaire

Values	Unimportant	Not very important	Some importance	Pretty important	Important	Very important	Excepcional important	Not mentioned
Be open	0	3	8	17	40	89	228	38
Be Honest	2	5	7	18	36	69	241	45
Be responsible	0	1	6	14	37	87	230	48
Have integrity	0	8	8	20	39	78	222	48
Be able to	3	2	5	17	44	100	215	37
Be respectful	0	1	6	18	44	0	210	144
Seeking social justice	2	3	6	27	42	89	205	51
Showing solidarity	1	2	5	17	8	102	201	87
Striving for excellence	2	5	10	21	50	91	198	46
Seeking equality	4	8	10	25	47	94	186	49
Be transparent	3	8	7	23	50	97	186	49
Seeking a world at peace	5	8	8	34	40	98	177	53
Seeking Freedom	2	8	7	28	43	114	170	51

Values	Unimportant	Not very important	Some importance	Pretty important	Important	Very important	Excepcional important	Not mentioned
Be independent	5	8	17	35	61	81	166	50
Keeping dignity in mind	5	7	10	39	57	96	162	47
Be creative	1	5	10	24	73	111	161	38
Be humble	9	15	21	38	48	106	138	48
Be protective of the environment	5	15	10	43	68	102	127	52
Have confidence	4	7	13	44	89	136	91	39
Be smart	1	6	9	47	94	119	98	49
Be moderate	3	14	16	47	66	115	110	52
Be brave	8	17	20	41	91	109	98	39
Be affectionate	4	15	36	67	86	105	70	40

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Conceptual Framework about E-Government: An Overview

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ABSTRACT

This chapter aims to clarify the importance of e-government and its components, and the elements contributing to the success of e-services, as well as an overview of e-government concept, and e-government around the world, also discuss the e-government domains, and e-government development life-cycle, as well as discussing the benefits and the challenges of adopts e-government project. By the future e-government because of the use of ICT networks and applications, interaction and exchange will be possible in any place and at any time. E-government offers new opportunities for more direct and convenient citizen access to government services.

it makes the whole administrative process convenient, efficient, transparent, fully accountable and responsible. Therefore, it is very important to study and review all elements contributing to the success of the e-government services.

The adopting of e-government requires a clear vision, and identifying all factors that contribute to its success.

Keywords: E-government; e-government domains; benefits; challenges.

1. INTRODUCTION

Technology development and its applications increases the desire to use various terms in the re-definition of government, and concepts like the mobile government and pervasive government have been raised. However, the term e-government is considered as a prominent and dominant concept in this area. e-Government in its current mode is still considered a new phenomenon and because of that there's a shortage of knowledge about the social, organizational, administrative effects, and its capabilities [1]. Information and communication technology (ICT) advancements enable the effective resolution of a variety of

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new issues pertaining to assuring the steady growth of businesses [2], the countries [3], their individual regions [4], and also to create electronic information management systems of the state - E-govern-ment [5,6].

To adopt e-government project successfully and achieve its goals, must understand government system in general, and identify the strengths and weaknesses of the government structure. Most governments have engaged into e-government initiatives, having different views of e-government including better public service delivery, better governance and participation as well as better public resources management. These initiatives achieved different levels of success, and only a very limited percentage of the e-government systems in developing countries are successful cases, while the rest are either total or partial failures [7]. Government system in general is mixture of goals, and functions. Understanding the government structure helps in clarifies all the challenges and obstacles that the government may face while implementing e-government project [8,9].

The idea of using ICT to implement e-government is not new, and most nations are now aware of how important it is to deliver government services, interact with citizens, and increase the effectiveness of the administrative system and data collection and storage [10].

E-government is one of the most important projects to achieve greater efficiency in government services by increased productivity of services for the citizens and investors, and provide more accurate, fast and effective services [11].

The adopting of e-government project is not just about building government-s websites and providing e-services. There are many elements must taking into consideration, such as infrastructure, management, digital divide, security, privacy, strategy, culture and funding. All these elements play an important role in the success of e-government, and providing e-services as well as increasing confidence between the government and beneficiaries [12].

2. CONCEPTS OF E-GOVERNMENT

E-government is the use of the tools of information communication technology to improved beneficiaries service, and providing government services anywhere, as well as contribution to reorganization of the administra-tive structure into government institutions. E-government provides communication channels between government institutions which contributes significantly to provide services faster with low cost [13,1].

Authors of [14] are stated that "E-Government or electronic government, also known as e-gov, digital government and online government is a governance method based on use of internet technology as a platform for exchanging information, providing services and transacting with citizens, businesses, and other arms of government.

On the other hand, E-government can be defined as a way to use the ICT tools to providing e-services through web-based Internet, and empowering

organizations, citizens and businesses to convenient access to information and services. E-government play an important role in improve the quality of e-services, as well as increase the strengthening levels of democracy, transparency and beneficiary trust [13,15]. It provides the ability of use the ICT tools into government system to achieve of improvement levels in various areas of government and improved interactions with citizens, and improve efficient government management [16].

The main concept of e-government can be describing in three keys:

- making internal administrative processes more efficient and effective,
- provide a greater access to government information and activities,
- the continuation of the development of e-government services.

3. E-GOVERNMENT DOMAINS

E-government as defined by the World Bank [6] and Ndou [17], it contains several of activities and services to different citizens and organizations in a variety of government services. E-government identified next four main elements for e-government interaction:

1. Government-to-Citizen (G2C) provides convenient online access to government services and retrieve needed information from the government sector from everywhere and at any time. That is what some observers perceive to be the primary goal of e-government to overcome possible time and geographic barriers. G2C provides the citizens the ability to be informed about laws, policies and regulations in e-government services, which contributes to increasing the trust and transparency between the citizens and government.
2. Government-to-Business (G2B) can be described as a non-commercial interaction between the government and business on the high level of efficiency and transparency. The government provides different services exchanged between government and the business such as policies, memos, rules and regulations of government. To business are offered various services, downloading application forms, registering businesses, obtaining permits, payment of taxes and many others.
3. Government-to-Government (G2G) is referring to the communication between the government and its components such as departments and attached agencies, which depend on the shared database. On another hand, G2G can be defined as the online communication and transactions between different levels of government (central, national, local government) to enhance the efficiency and efficacy of government components [11]. G2G make all the government levels working together efficiently and effectively to provide better services to the citizens and businesses, changing the culture of the community service.

4. Government-to-Employees (G2E) can be described as the providing specialized services that cater only for government employees. On another hand, G2E can be defined as the relationship between the government and employees, which would aim to cater employees through e-services, such as the provision of online training, applying online for an annual leave, paying utilities, etc.

Providing e-services environment to the employees contributes to saving time and effort for employees, and thus reflected on providing better services to the citizens.

4. E-GOVERNMENT DEVELOPMENT

4.1 Life-Cycle

E-government development life-cycle is the most important stage to achieve e-government goals and developing e-government services. Many studies noted that there are many differences between models on the perspective concerning the e-government life cycle [18,13,19], as illustrates in the Table 1.

Authors of [20] defined that there are two keys of evolution e-government life-cycle, which are four evaluation aspects and four evaluation levels.

Evaluation aspects include organizational, infrastructural, political-sociological and economic aspects.

Evaluation levels include territorial-administrative unit level, sector policy level, organization level and project level.

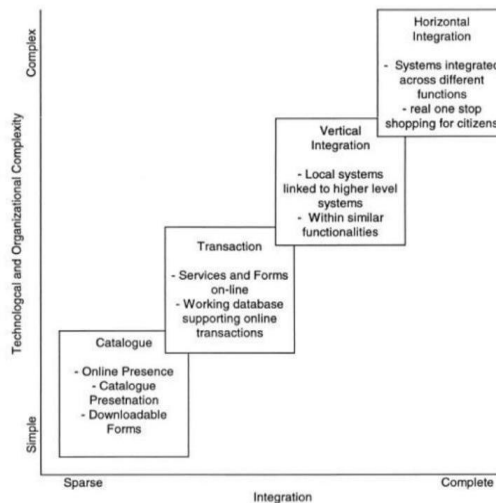
However, each model has different stages and different based. For example, model Layne & Lee suggest that e-government has four stages for the success of e-services, which focus on the availability of the information online, providing online transactions and support, focusing on the integration of different systems and functionalities of government's services for different functions horizontally.

On other hand, model Andersen and Henriksen suggest Public Sector Process Rebuilding (PPR), focusing on the use of government front-end systems on horizontal and vertical integration, and the using of extensive intranet. It has different from Layne and Lee model in activity and is customer centric rather than on technological capability as illustrates in the Fig. 1 [11,21].

Table 1. E-government models

Authors	Stages
Lee (2001)	1. Catalogue. Layne & 2. Transaction.
	3. Vertical integration.
	4. Horizontal integration.

Authors	Stages
Chen (2002)	<ol style="list-style-type: none"> 1. Information. 2. Communication. 3. Transaction. 4. Transformation.
Moon (2002)	<ol style="list-style-type: none"> 1. One way communication. 2. Two-way communication. 3. Transformation. 4. Vertical and horizontal integration. 5. Political participation.
Howard (2001)	<ol style="list-style-type: none"> 1. Publish. 2. Interact. 3. Transact.
West (2004)	<ol style="list-style-type: none"> 1. Billboard. 2. Partial service delivery. 3. Full integrated service delivery. 4. Interactive democracy with public outreach and accountability.
Andersen and Henriksen (2006)	<ol style="list-style-type: none"> 1. Cultivation. 2. Extension. 3. Maturity. 4. Revolution.
Deloitte and Touch (2001)	<ol style="list-style-type: none"> 1. Information publishing. 2. Official-two way transaction. 3. Multipurpose portal. 4. Portal personalization. 5. Clustering of common services. 6. Full integration and enterprise transaction.



a)

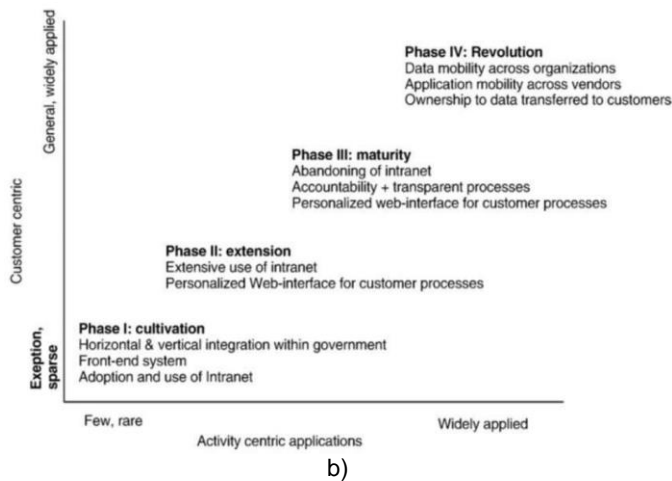


Fig. 1. E-government model development: a) The Layne and Lee model, b) The PPR maturity model

5. AN OVERVIEW OF E-GOVERNMENT AROUND THE WORLD

E-government is providing online services to reducing costs and the time while providing better and more user-friendly services to the beneficiaries [9]. Integrating new technologic tools of ICT into the economic development strategy become an increasingly important tool in many countries around the world to providing public service. According to UN survey 2010 [22], many governments around the world have established websites in public organizations to provide public information to citizens (98% with website 2% without websites).

However, despite the technological development, there are many emerging countries suffer from adopting ICT projects, and provide suitable ICT infrastructure for e-government services [23,24]. Table 2 illustrates the Top 15 countries in e-government development 2016 (UN survey 2016) [5].

UN survey 2016 adopted in classification the previous table on three components:

- Online Service Index (OSI),
- Telecommunication Infrastructure Index (TII),
- Human Capital Index (HCI).

The following Fig. 2 shows the division of these components.

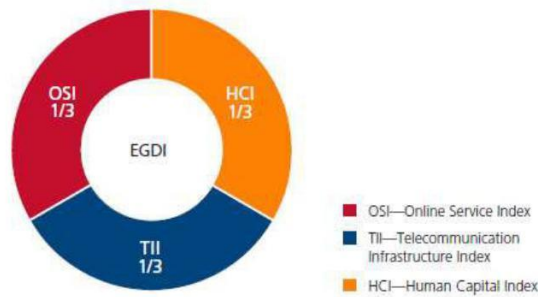


Fig. 2. Components of the E-Government Development Index

In terms of e-government development, many countries believe the importance of e-government to improve the quality of services for citizens, therefore focused on continued developing e-government project.











Ukraine and Poland includes in Europe region. According to UN survey (2014), Ukraine has rank 87 and Poland has rank 42; while in UN survey (2016) Ukraine has rank 62 and Poland has rank 36. According to the results of UN survey (2016) [5] both countries, Ukraine and Poland, progress significantly in e-government development and e-government services.

Most of the Arab countries has less developed economically and ICT Infrastructure, and still face some difficulties in implementing e-government services in the public sectors; these difficulties are presented in technological aspect, environmental aspect and organizational aspect.

Table 2. Top 15 countries in e-government development 2016 [5]

Country	Region	OSI	HCI	TII	EGDI	EGDI Level	2016 Rank	Ranking Trendline (2003 - 2016)
United Kingdom	Europe	1.0000	0.9402	0.8177	0.9193	Very high	1	
Australia	Oceania	0.9783	1.0000	0.7646	0.9143	Very high	2	
Republic of Korea	Asia	0.9420	0.8795	0.8530	0.8915	Very high	3	
Singapore	Asia	0.9710	0.8360	0.8414	0.8828	Very high	4	
Finland	Europe	0.9420	0.9440	0.7590	0.8817	Very high	5	
Sweden	Europe	0.8768	0.9210	0.8134	0.8704	Very high	6	
Netherlands	Europe	0.9275	0.9183	0.7517	0.8659	Very high	7	
New Zealand	Oceania	0.9420	0.9402	0.7136	0.8653	Very high	8	
Denmark	Europe	0.7754	0.9530	0.8247	0.8510	Very high	9	
France	Europe	0.9420	0.8445	0.7502	0.8456	Very high	10	
Japan	Asia	0.8768	0.8274	0.8277	0.8440	Very high	11	
United States of America	Americas	0.9275	0.8815	0.7170	0.8420	Very high	12	
Estonia	Europe	0.8913	0.8761	0.7329	0.8334	Very high	13	
Canada	Americas	0.9565	0.8572	0.6717	0.8285	Very high	14	
Germany	Europe	0.8406	0.8882	0.7342	0.8210	Very high	15	

Table 3. The Arab countries in e-government development 2016 [5]

Country	Region	Sub-Region	OSI	HCI	TII	EGDI	EGDI Level	2016 Rank	
Bahrain	Asia	Western Asia	0.8261	0.7178	0.7762	0.7734	Very High	24	
United Arab Emirates	Asia	Western Asia	0.8913	0.6752	0.6881	0.7515	Very High	29	
Kuwait	Asia	Western Asia	0.6522	0.7287	0.7430	0.7080	High	40	
Saudi Arabia	Asia	Western Asia	0.6739	0.7995	0.5733	0.6822	High	44	
Qatar	Asia	Western Asia	0.6739	0.7317	0.6041	0.6699	High	48	
Mauritius	Africa	Eastern Africa	0.7029	0.7067	0.4596	0.6231	High	58	
Tunisia	Africa	Northern Africa	0.7174	0.6397	0.3476	0.5682	High	72	
Morocco	Africa	Northern Africa	0.7391	0.4737	0.3429	0.5186	High	85	
Egypt	Africa	Northern Africa	0.4710	0.6048	0.3025	0.4594	Medium	108	
Libyan	Africa	Northern Africa	0.1087	0.7588	0.4291	0.4322	Medium	118	

According to the UN survey (2016) [5], the Gulf countries are continuing developing e-government services and aim to increase public sector efficiency, and quick providing e-government services. The Table 3 shows the achievements of Arab countries in e-government development.

According to the ranks scores indexes of e-government development Bahrain, United Arab Emirates, Kuwait, Saudi Arabia, and Qatar ranked in the top of 50th in the terms of readiness of e-government services. The table above illustrates that the Bahrain and UAE has very high levels of ranking according to the EGDI level, and providing a high level of e-government services. The presence of 10 Arab countries among the top 100 countries in terms of the development of e-government give good indications that Arab governments aims to adopt modern ICT and providing e-government services.

6. BENEFITS OF ADOPTING E-GOVERNMENT

The main objective of transition to e-government is to change the traditional work system to be more flexible and providing the government services to beneficiaries at anytime and anywhere. E-government is providing tools of ICT to share information and deliver other services of government to the citizens [23, 10,12]. The transition to e-government are contributing to build more transparency relationships with citizens and increased interaction between beneficiaries and government.

Donnell, Boyle, and Timonen in [10] noted, that e-government is a tools that allow domains of e-govern-ment (citizens, business, employees) to access to the information to complete necessary processes quick and easy, thus reducing time, effort and money. On other hand, Al-Khouri in [25] stated that the e-government is the merging of public and private sector and other organizations in a single web portal to reduce corruption, higher revenue and lower costs.

Many studies, such as [17,26,12], shows that the most common e-government benefits are:

1. Reducing the cost and the time as well as increased efficiency.
2. Increasing the transparency and confidence between the government and beneficiaries.
3. Improving the quality of government services.
4. Contribution to economic development.
5. Accessibility to the information anywhere at anytime.

7. CHALLENGES AND OBSTACLES OF ADOPTING E-GOVERNMENT

The adoption of e-government project and providing e-service through web channel is not easy. The adoption of e-government is difficult task. It requires consideration of technical, social, organizational, and political aspects. The Table 4 illustrates the content each of these aspects.

Adopting e-government is costly and requires consideration the above aspects to overcome the challenges and obstacles. These challenges and obstacles can be related at IT-infrastructure, security, a legal framework, and culture and highly skilled.

Authors of work [27] outlined that there are a number of challenges and obstacles hinder to implementing e-government and providing e-services, they include infrastructure development, digital divide, law and public policy, security, transparency and e-literacy.

Table 4. Challenges of adopting e-government project

Aspects	Challenge
Technical	IT standards Security Privacy Accessibility ICT infrastructure
Social	Awareness E-literacy Trust Authentication Culture Transparency
Organizational	Strategy Change management Resistance to change
Political	Leadership and top management support Legal and regulation issue Funding

Studies [11,28,29,30,17,31-34] identified next barriers and challenges to adopting e-government:

ICT infrastructure	Lack of technology tools
Finance	Management support
Skills and capabilities	Strategy (vision and mission)
Political	Training
Human capital	Digital divide

Only well thought out and consistent work of a team of highly qualified specialists with the support of the current government can lead to overcoming these difficulties and the introduction of an e-government system with all its merits.

8. CONCLUSIONS

1. E-government can be a powerful tool to providing e-services to beneficiaries and improving quality of services, as well as increasing the interaction between the government and its domains (citizen, business and employees). The Main goals of adopting e-government project is reducing cost, time, efforts, increase transparency and improve government efficiency.
2. The article clarify the concept of e-government, as well as identified and discussed all the main aspects of e-government project, such as the domains of e-govern-ment, development life-cycle, benefits and challenges which contribute success e-government project. The study also dealt with overview of e-government level in the world.
3. Adopting e-government needs clear planning and identify all aspect that contribute to the success of e-government, as well as clarify timetable and taking into consideration the rapid developments in the field of information and communication technology and the e-services.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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