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IMAGE: ACROPOLIS OF ATHENS, UNESCO WORLD HERITAGE

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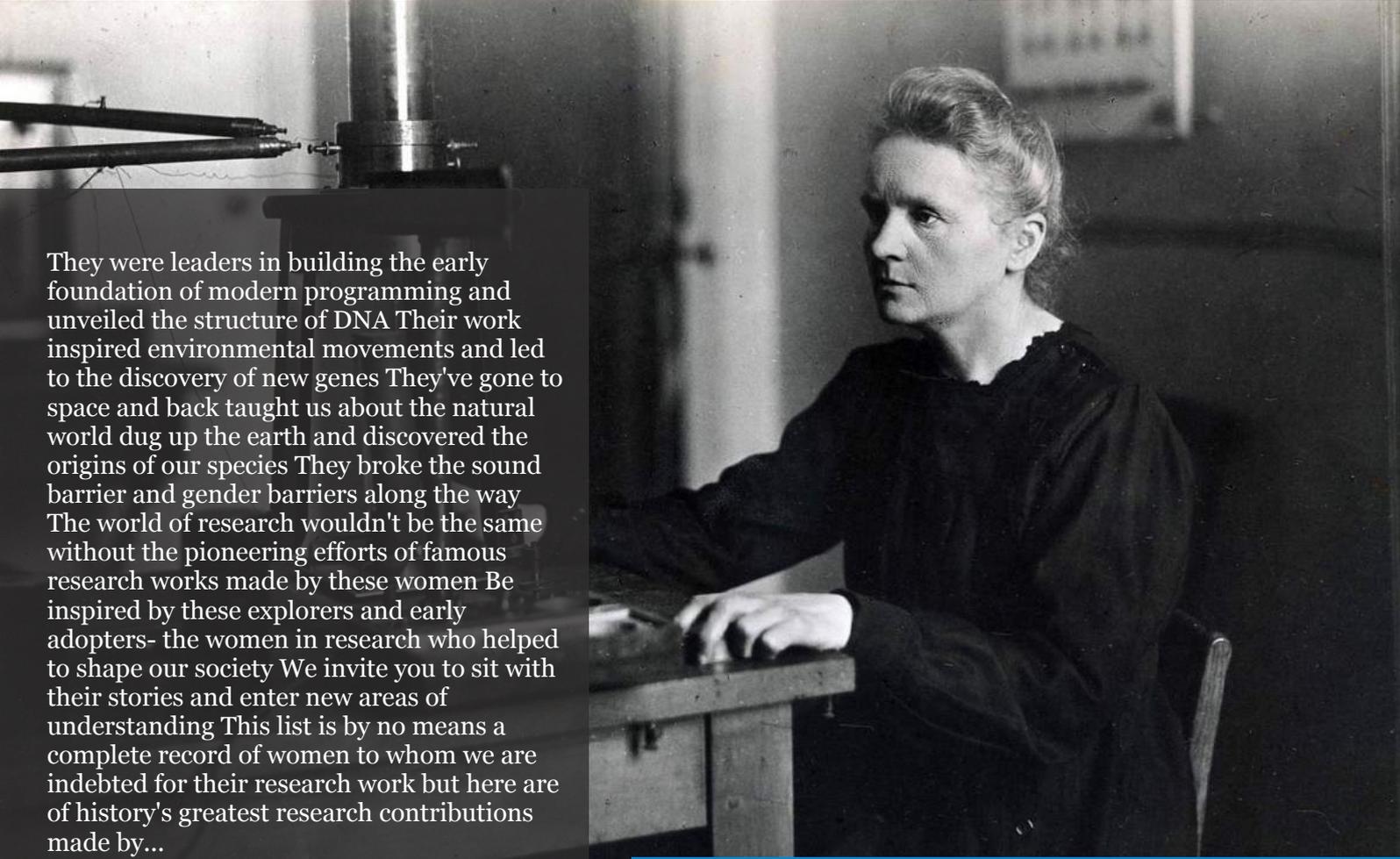
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# An Analysis of Mathematically Gifted Learners' Environmental Perceptions in Alpha Mathematics Centres in One Province of South Africa

*Milne, A.H. & Mhlolo, M.K*

*Central University of Technology*

## ABSTRACT

Ample evidence shows that authorities are now coming to realise that if South Africa were to transform student potential into the skills that are needed in the 21st century, there is need to put well-structured talent development programmes in place for its gifted students. As part of needs analysis, we must start by understanding the perceived realities of gifted students in the inclusive classrooms in which they are currently placed.

*Keywords:* gifted; differentiated; mathematics; curriculum; environmental perceptions.

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# An Analysis of Mathematically Gifted Learners' Environmental Perceptions in Alpha Mathematics Centres in One Province of South Africa.

Milne, A.H.<sup>α</sup> & Mhlolo, M.K.<sup>σ</sup>

## ABSTRACT

*Ample evidence shows that authorities are now coming to realise that if South Africa were to transform student potential into the skills that are needed in the 21st century, there is need to put well-structured talent development programmes in place for its gifted students. As part of needs analysis, we must start by understanding the perceived realities of gifted students in the inclusive classrooms in which they are currently placed. In this paper we report the findings of a qualitative study embedded in Gagne's differentiated model of gifts and talents to determine the perceptions of gifted mathematics learners about the education systems and factors influencing their achievement. A total of 50 Gifted mathematics learners, all taking Alpha mathematics, gave their perceptions about the education system, support from their parents and what they want to see change in the education system. The owners of the Alpha maths centres gave permission that their learners can complete anonymous questionnaires. The analysis of these results clearly indicated that the South African Mathematics Curriculum needs to be differentiated in order to give all learners access to mathematics.*

**Keywords:** gifted; differentiated; mathematics; curriculum; environmental perceptions.

**Author α σ:** Central University of Technology. e-mails: annarimilne@gmail.com, mikemhlolo@icloud.com

## I. INTRODUCTION

Since 1994 South Africa's poor performance in mathematics has prompted studies to determine

the reasons for as well as to propose what needs to be done to improve the situation. To this end many studies as well as ministerial task teams have been set up over the past two decades and their recommendations have had several implications for both policy and implementation. From these efforts, an important observation that we note is the assimilation of Singapore Mathematics Curriculum [SMC] in more than 80 South African schools to improve learners' mathematics learning outcomes. Despite this process of assimilating SMC into the South African Schools having started way back in 2002, none of the task team reports made specific mention of gifted education as a possible strategy for addressing the country's challenges. Yet there is evidence to show that gifted education is what drives Singapore's success given that the country's vision was to build an inclusive society with many peaks of excellence (Lee, 2006). It was only recently that the evidence gathered by the Mathematics & Science Task team, showed that, often, provincial education departments seemed to focus on under-performing schools, while neglecting gifted learners and learners with MST potential (Department of Basic Education, 2013:48). Based on the findings of the investigation, the task team believes that the first and most critical priority to address is to do with teachers and teaching related issues (DBE, 2013). These findings together with other similar studies (Oswald & de Villiers, 2013; Kokot, 2011; Mhlolo, 2017) all suggest that if South Africa were to transform student potential into the skills that are needed in the 21st century, there is need to put well-structured talent development programmes in place for its gifted students.

However, before we can set up well-structured development programs for the gifted or train teachers on how to meet the needs of gifted learners, our view is that in South Africa, we must start by understanding the perceived realities of gifted students in the inclusive classrooms in which they are currently placed. A primary reason for students who are gifted to underachieve is equated to school factors that motivate or demotivate them and previous research has confirmed that the underachievement of cognitively gifted students is closely related to motivational deficits (Barbier, Donche & Verschueren 2019). Their findings suggest that if we aim to shed further light on the role of inhibiting or facilitating factors that influence the motivational development of intellectually gifted students, we need to allow the academically gifted learners a voice in narrating their lived experiences thereby enabling us to identify their support needs in the school context. We need to reveal facilitating or hampering factors for their engagement and achievement as described by the gifted learners themselves. Yet empirical evidence suggests that research in South Africa on giftedness, and specifically on the gifted learners' lived experiences is limited implying that this is a neglected terrain for research (Taylor & Kokot, 2000; Wallace, 2007; Kokot, 2011). So, this paper draws from a study which aimed at understanding the mathematically gifted learners' perceptions of the school environment in terms of how different environmental factors inhibited or supported their academic achievement.

### *1.1 Theoretical framework - Gagné's Differentiated Model of Giftedness and Talent*

The importance of utilizing a theoretical framework in research cannot be stressed enough because it is one of the most important aspects in the research process which must be identified at the inception of the study. Grant & Osanloo (2014) posit that the theoretical framework should resonate with every aspect of the research process from the definition of the problem, literature survey, methodology, presentation, and discussion of the findings as well as the

conclusions that are drawn. So, what theoretical framework guided our study?

Admittedly there are several influential theories and models in the field of gifted education, however, Gagné's model and its theory of development is among the top six that have been considered dominant in affecting international classroom practice. The model has received worldwide recognition because it is generally viewed as resolving the controversies that the gifted field has struggled with for years (Pfeiffer 2013). In 1985 Gagné first conceptualized his theory of talent development which he first named as the Differentiated Model of Giftedness and Talent (DMGT). Although over three decades since its inception Gagné made further refinements to the model resulting in what he now calls the Comprehensive Model of Talent Development (CMTD), our view in this paper is that the DMGT model as depicted in Fig. 1 would suffice.

Briefly the model brings together six components that can be grouped in two trios (Gagne, 2011): the first trio expresses the talent development and consists in gifts (G), talents (T) and talent development processes (D); the second trio expresses the supportive trio and describes interpersonal catalysts (I), environmental catalysts (E) and chance (C). It is the framework that was considered suitable for this study and *Figure 1* illustrates the thinking behind the DMGT.

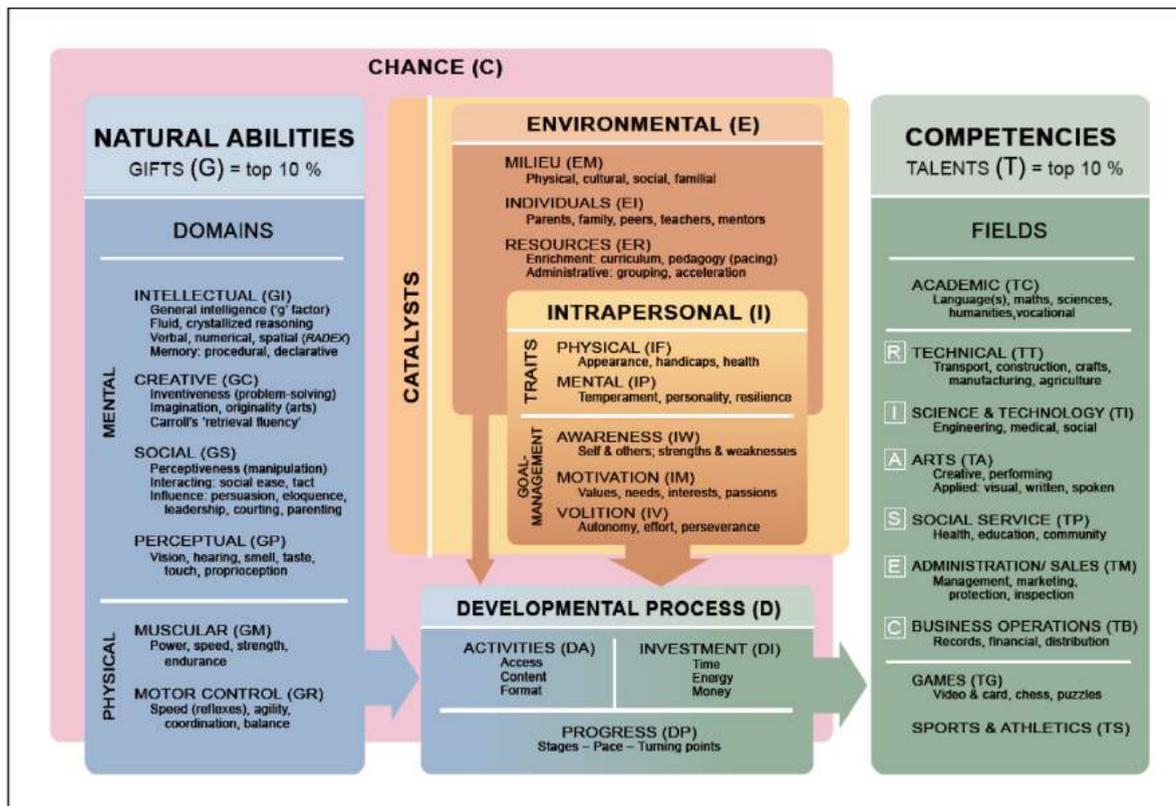


Figure 1: Gagné's Differentiating Model of Giftedness and talent (DMGT) – reproduced with written permission

Essentially, Gagné has been dissatisfied with the frequent, all-encompassing, and interchangeable use of the terms *gifted* and *talented*. He argued that the 'one term fits all' use of gifts and talents was inaccurate, misleading, and detrimental to all efforts to identify and nurture talent, because it suggests that talents are inborn hence there is no place for systematic training, learning, or practicing. Yet there is ample evidence from elite sport and performing arts programs that have combined identification of ability with honing of this potential into talents. Gagné therefore argued that there is, and should be, a clear distinction between these two most basic concepts— 'gifts' and 'talents'. In his model Gagné's (2015) view is that giftedness designates the possession and use of untrained and spontaneously expressed outstanding natural abilities or aptitudes (called gifts), in at least one ability domain, to a degree that places an individual at least among the top 10% of age peers. On the other hand, talent designates the outstanding mastery of systematically developed competencies (knowledge and skills) in at least one field of

human activity to a degree that places an individual at least among the top 10% of 'learning peers' (those who have accumulated a similar amount of learning time from either current or past training). The DMTD model then depicts the progressive development of gifts into talents in a potential-performance continuum where on one end 'gifts/natural abilities' represent the raw material and on the other end 'talents/competencies' represent the outcome of the talent development process. This developmental process is continually modulated by two large sets of catalysts which are critical in activating the translation of giftedness into talent.

Talent development is formally defined as the systematic pursuit by talentees, over a significant and continuous period, of a structured program of activities leading to a specific excellence goal (Gagné 2010). This process is facilitated (or hindered) by the action of two types of catalysts: intrapersonal (IC) and environmental (EC). The intrapersonal catalysts are subdivided into physical and psychological factors, all of them under the partial influence of the genetic

endowment. Among the psychological catalysts, motivation and volition play a crucial role in initiating the process of talent development, guiding it, and sustaining it through obstacles, boredom, and occasional failure. Self-management gives structure and efficiency to the talent development process, and to other daily activities. Hereditary predispositions to behave in certain ways (temperament), as well as acquired styles of behaviour (e.g., traits and disorders), also contribute significantly to support and stimulate, or slow down and even block, talent development.

The concept of environmental input brings to mind spontaneously significant *persons*, be they parents, siblings, the extended family, friends, educators, mentors, idols and so on. The significant impact of persons on other persons is probably easier to imagine than that of any other source of influence within the environment. Many different persons, not only parents and teachers but also siblings and peers, may exert positive or negative influence on the process of talent development. Thus, it is not surprising that a good percentage of the professional literature on talent development, not only in academia, but also in arts, business, or sports, examines the potential influence of significant individuals in the immediate environment of gifted or talented youngsters.

### 1.2 Relevance of the DMGT to our study

It is one thing to identify an appropriate theoretical framework for a study, but it is another thing to show the connections between the theory and the study. Given that a theoretical framework is the researcher's lens with which to view the world, the researcher has the responsibility to show the criteria for selecting and applying the theory to a study and that criteria must be appropriate, logically interpreted, well understood, and align with the question at hand.

The DMGT model adds coherence to our paper in many ways. An underlying principle of Gagné's view is that while high ability (talent) has some genetic basis (giftedness), learning, practice, and environmental factors are necessary for the

emergence and development of such talent. The developmental process can be influenced through the way catalysts are managed either directly or indirectly implying that a student's potential can either be developed or hindered by environmental and intrapersonal catalysts. This conceptualisation of the gifts-talent continuum through the catalysts enables any interested research to investigate (1) the physical, cultural, or social environment, (2) the teachers, parents, peers as individuals who manage the other non-human catalysts and then (3) the gifted students themselves in terms of their temperament, personality and motivation. This framework therefore enabled us to argue that learners' perceptions of their own experiences of school, their parents' influence, their teachers' practices and what they want to see change, can positively contribute to the enhancement of the gifted education in South Africa. Consistent with this view we then raised the following three research questions:

- What are learner perceptions about their general mathematics curriculum as well as the Alpha Mathematics curriculum?
- How do gifted learners perceive the teachers who teach them?
- To what extent do gifted learners perceive their parents as supportive?

## II. METHODOLOGY

### 2.1 Context of the research sites

Alpha Mathematics centres extend math beyond the walls of the classroom. The work done here provides a real-world context that engages the mind of the global learner while fulfilling international educational standards. The benefits are long term. The investment in these sites is primarily in the intellect and the thinking ability of the students, while it cultivates independence. The students attending these centres are performing mathematics students that want to enrich their knowledge and grow in their abilities to tackle mathematics in their further studies and careers.

## 2.2 Research Design

The definition of gifted learners by the National Association for Gifted Children (NAGC, 2010) reads as follows: "Gifted *individuals are those who demonstrate outstanding levels of aptitude (defined as an exceptional ability to reason and learn) or competence (documented performance or achievement in top 10% or rarer) in one or more domains.*"

Because there is no formal identification method of gifted learners used in South Africa, the researcher, in line with the above definition, made use of the performance of these learners on a level 7 in both mathematics and alpha maths. The level 7 national code from the CAPS document (2013) relates to performance at a level of 80 - 100% and is described as outstanding. Alpha mathematics is an extra-curricular subject based on problem-solving in a comprehensive calculus and algebraic curriculum. The curriculum draws upon Singapore Maths, which aims to develop mathematical concepts of mastery. The curriculum also look at matrices, vectors, and complex numbers and power sequences among others. It is giving learners access to advanced maths and help them develop higher order thinking and reasoning skills in preparation for further studies.

This was a qualitative descriptive study in which we used open ended questionnaires to capture learners' perceptions.

## 2.3 Participants

Gifted maths learners from Gr 10– 12 took part in this study.

All 50 participating learners also take ALPHA maths as an extra subject at two Alpha Maths centres in the Free State, one in the Northern Free State and one in the Eastern Free State.

The subject is offered as an extra subject (after hours), implying extra effort from the students' side. The choice of taking it, is thus purely that of the high performing student who are willing to walk the extra mile to enhance his/her opportunities for further studies. In this regard these learners are seen as being gifted because their performance in both Mathematics and Alpha Mathematics are on level 7.

The distribution of learners as well as the average performance in both mathematics and alpha mathematics is as follows:

*Table 1:* Distribution of participants ( $n = 50$ )

	Grade 12	Grade 11	Grade 10
Number of participants	20	16	14
Average % in NCS	91.4	86.4	85
Average % in Alpha Mathematics	88.87	83	80

## 2.4 Data collection procedures

Data were collected using open ended questionnaires which were filled by participants anonymously. The questionnaires measured learners' perceptions of their own experiences of the NCS as well as the Alpha Mathematics, their parents influence, their teachers' practices and what they wanted to see change.

## 2.5 Ethical Statement

Approval to carry out this study was obtained from the authors' institution, from the Department of Basic Education in the Free State as well as from the Alpha Mathematics Centers in the Free State province. Participants' parents signed consent forms before taking part on this study. All the ethics clearance certificates were uploaded with this submission.

## 2.6 Data Analysis procedure

Consistent with the qualitative approach, the questions in the questionnaire had a certain degree of embedded openness. The learners were not limited to only a single answer, thus scores per sub-question will not necessarily add up to only 50. Results with a choice bigger than 10 out of 50 was recorded and taken as significant contributors.

## III. RESULTS

### Research Question 1

In the first part of our first research question, we wanted learners to describe their experiences of the NCS meant for all learners. Table 2 summarises their responses.

*Table 2: Learner experiences of the NCS (n = 50)*

Comment	Boring	Repetitive	Very easy
Freq.	19	19	20

#### Specific learner responses included:

Learner 15: “boring, no challenges”,

Learner 24: “every time just more of the same”,

Learner 32: “the work could be finished in a short time and then we had to sit and wait for everyone”,

Learner 37: “I always finished the work fast and then I had to wait.”

In the second part of our first research question our interest was in capturing learner perceptions about Alpha Mathematics.

*Table 3: Perceptions of learners about taking Alpha Mathematics (n = 50)*

Comment	Making way forward easier	Doing a variety of methods	Develop problem solving skills	Challenging questions developing my mind	Enriching knowledge
Freq.	23	15	36	24	18

#### Here are some selected learner responses to the question:

Learner 5: “I like the challenge of Alpha maths. It forces me to think out of the box.”

Learner 30: “Quick, fast thinking. I was able to think of more than one possible way to tackle a problem.”

Learner 39: “My knowledge is growing so my future studies as an engineer will become easier.”

Besides this general description of their experiences of the Alpha Mathematics and the NCS, we wanted learners to specifically describe the influence of Alpha Mathematics on their understanding of the NCS. Table 4 summarises the responses.

*Table 4: Influence of Alpha Mathematics on the NCS (n = 50)*

Comment	Answering higher order questions easier	Read maths with better understanding	Improved ability to immediately start with questions	Understanding faster and better	Ability to see different solutions
Freq.	15	26	19	36	34

*Some of the learner responses included:*

Learner 12: “The level 4 questions in school maths was easy now, because in alpha maths we are learning to combine different skills in order to solve a problem.”

Learner 36: “We are constantly challenged, so you learn to read faster with understanding and to look at problems from different points, thus one learned to work faster and more effectively,”

*Research Question 2*

In the second research question, our interest was in learner perceptions about their teachers. This research question was broken down into learners’ experiences of their teachers when teaching the NCS as well as when they are teaching Alpha Mathematics. Table 5 summarises the responses when teachers are teaching the NCS.

*Table 5:* Perceptions of learners as teachers teach the NCS ( $n = 50$ )

Comment	Sitting in a class > 40	Pace of slower learners followed	Not being challenged	Textbooks and papers on different levels	Not enough time for maths	No real applications in textbooks
Freq	35	38	25	19	20	33

*Some of the learners’ actual statements included:*

Learner 7: “Teachers do not give us enough time to do Mathematics”

Learner 37: “Maths time is not enough, there are too many other irrelevant things taking time”

Learner 41: “Always following routine procedures for doing maths”

Learner 42: “Why we can’t work at our own pace or get more challenging questions, I do not understand”

Learner 48: “Long methods taking for ever doing Maths stuff that is simple”

Learner 50: “Over and over the same silly things instead of interesting new questions”

*Table 6:* Perceptions of learners about teachers when teaching Alpha Mathematics ( $n = 50$ )

Comment	Sitting in small class < 15	Individual pace of learners followed	Different Representations helping to overcome maths anxiety	Passionate teachers demonstrating good content understanding	Teachers allow learners to explore different approaches
Freq	43	38	29	40	39

Learner 24: “Because my teacher cared, she helped me not to be scared anymore. So, I started to enjoy Mathematics.”

Learner 45: “My teacher loves Mathematics, and she tries to make it fun for us.”

Learner 33: “My teacher is passionate and knowledgeable about Mathematics.”

Besides these descriptions of their perceptions about teachers, we were also interested to know

what changes learners would like to see. Table 7 summarises the responses.

*Table 7: Learner suggested changes (n = 50)*

Comment	Combine same ability for better pace	Real maths topics must grow over the years	Levels of textbooks and papers must correspond	Overload of same things	More time allocated for maths
Freq.	38	15	19	25	26

*Some of the learners' suggestions are given below:*

Learner 14: "I believe it will be better if the stronger students are together in class because then we can work together and move at a faster pace and not wait for slower students to finish first"

Learner 26: "Give us real problems, like the ones in papers, not the straightforward textbook ones."

Learner 35: "We have so many subjects with lots of repeating homework, so I want to see more time given to maths."

Learner 39: "Give us challenging sums, not the same thing over and over again."

*Research Question 3*

In the third research question, we were interested in understanding the extent to which learners perceived their parents as supportive. Table 8 summarises the responses

*Table 8: Learner perceptions about parental support (n = 50)*

Comments	Nothing	Motivated	Freedom of choice	Supportive	Doing maths challenges with me
Freq.	11	30	12	34	14

*Some of the learner responses include:*

Learner 19: "My parents say that it is my choice to work extra, they will support me."

Learner 23: "We are always doing soduko together and once a week we give each other a mathematical challenge to answer."

Learner 34: "We have logic problem books in the car, so when we travel, we can keep busy with this,"

Learner 41: "My parents both love maths, so they keep on motivating me and helping me. They will never give me the answers, just help me to figure it out."

Learner 49: "My mom told me it is my choice if I want to take extra maths, she will drive me,"

**IV. DISCUSSION**

In the first part of research question 1, we were interested in learner perceptions about the National Curriculum Statement (NCS) which is the standard curriculum meant for all learners in South Africa.

The results show that learners generally perceived this curriculum as boring, lacking challenge and repetitive. Respondents complained about lessons which were too slow for them and that they preferred to work independently. Respondents preferred to research things for themselves and preferred tasks which required them to think, something which is rare in the standard curriculum that is followed in inclusive classrooms. These results are similar to those from a study done by Barbier et al (2019) where the majority of the respondents spoke about the hampering effect of the lack of challenge and the

lack of interesting tasks at school. In a similar study Csikszentmihalyi (1993) also found out that when tasks were too simple the students disengaged because tasks that are too easy cause boredom. Similarly, Chessman (2007) noted that an important consideration in the process of teaching and learning is the match between task complexity and the level of student skill – a concept referred to as “flow” or optimal engagement.

In their Achievement Orientation Model (AOM), Siegle & McCoach (2005) also point to the importance of task complexity under goal valuation – which refers to the extent to which students consider certain tasks as worthwhile. This aspect of goal valuation is divided into three factors: the intrinsic value (student’s interest in a task), the utility value (the meaningfulness of a task) and the attainment value (the importance students attach to the task as it relates to their conception of their identity and ideals). According to the AOM, students can be motivated by one or more of these factors. In Barbier et al. (2019) study, both well and underperforming students spoke of the hampering effect of the lack of interesting tasks at school. The respondents defined interesting tasks as those that address higher order thinking skills and those that allow students to learn.

In the second part of the first research question, we were interested in learners’ perceptions about the Alpha Mathematics – a curriculum meant for the students who want to enrich their knowledge.

Respondents described this curriculum as challenging, as enabling them to think out of the box and prepared them well for problem solving as well as for careers in science such as engineering. Another respondent in this study noted: *I believe it will be better if the stronger students are together in class because then we can work together and move at a faster pace and not wait for slower students to finish first.* In a similar study, Prior (2011) noted that students who are intellectually gifted say they need independent learning and time with like-minded peers. This preference for gifted students to work with like-minded peers is closely associated with a

practice where in mixed ability grouping, they are usually used as tutors for the less able students. There is a myth that gifted students can be viewed according to the harmony hypothesis in which they are seen as leaders, role models, and humanitarians which in turn is closely related to the belief that gifted students will succeed on their own, regardless of their school experiences. The danger with this misconception is that it might increase the use of gifted students as teachers’ assistants, viewing them as a teacher’s helping resource [Laine & Tirri, 2016]. Similar studies have shown that highly able students may suffer from this “sucker effect”, where they feel exploited as tutors of the less able, held back and less productive (Robison, 1990).

In the second research question, our interest was in learner perceptions about their teachers when teaching the standard curriculum as well as the Alpha Mathematics.

With reference to teachers practices when teaching the standard curriculum, a common theme that runs through learners’ responses was that teachers provided teacher-directed teaching which emphasised routine procedures which offered learners neither challenge nor a chance to move at their own pace. Participants complained about teachers: “Always following routine procedures for doing maths, not being allowed to work at their own pace, not getting more challenging tasks, long methods doing simple stuff.” In similar studies, challenge and choice were concerns listed by students in the Gentry et al., (2002) study. Our view in this paper is that such practices cannot be attributed to teachers not having been trained in gifted education. We argue that a standard curriculum comes with its own pressures on teachers which inhibit differentiation and flexibility.

There is a good deal of evidence that high stakes summative assessment, which is a common feature of the standard curriculum, makes demands on teachers and students that conflict with the goals and practice of assessment for learning. Teachers under pressure to reach goals expressed in terms of increase in test scores tend to focus their teaching on what is required in the

tests, spend time on practice tests and, often unconsciously, value test performance rather than genuine learning. Thus, curriculum and percentage achievement is at the centre and not learners; consequently individual differences are ignored and every learner is treated as exactly the same. According to Carroll (2000) this is a huge contributing factor to gifted learners' feelings of alienation' in the regular classroom. The needs of individual gifted learners are often downplayed in the implementation of standard programs resulting in gifted learners complaining that school is boring and irrelevant.

With reference to teacher practices when teaching the Alpha Mathematics we note learners responses describing their teachers as "*passionate and knowledgeable about Mathematics*", teachers who "*love Mathematics and who try to make it fun for us*," teachers who cared and helped learners not to be scared anymore. Let us remember that these are the very same teachers who taught these learners in the regular classroom following the standard curriculum - the very same teachers who were blamed for being insensitive to the needs of gifted students. This dichotomy where on one hand teachers are said to be insensitive to the needs of learners (when following the standard curriculum) while on the other hand they are passionate about teaching (when following the Alpha Mathematics program), confirms two important observations in gifted education i.e. (i) an assessment driven curriculum such as the NCS does not allow teacher flexibility or differentiation in their teaching no matter how good they may be and (ii) highly qualified ordinary teachers are capable of teaching all children including gifted children suggesting that gifted children require 'just' good all-round teaching (Mitchell 2014).

Let us remember that the teachers at the Alpha Mathematics Centres never received any special training in gifted education but they are being described as passionate and knowledgeable because Alpha Mathematics Centres select the best students as well as the best teachers. The question that has always been posed is: What kind of teaching is best for gifted students? Research found that gifted students believe that the ideal

teacher will possess broad knowledge in their area of expertise, a love for their chosen field, and a great enjoyment of teaching. They will be able to adjust the curriculum and instructional methods to meet the unique needs of their students' diverse learning and thinking styles as a result of having a deep understanding of the cognitive, social, and emotional psychology and development of their students. These are the same qualities that the general student population perceives as being necessary in a "good" teacher, confirming observations that the general teaching strategies in widespread use in mainstream education can well be adapted to support gifted students' needs with good results. Haug (2017) concluded that the notion about a dichotomy in teaching between ordinary education and special education (e.g., gifted education) seems not to be relevant for most students. Instead, there is a continuum where the common general strategies in teaching are dominant but adapted to the students' abilities.

Our third research question was interested in understanding students' perceptions about parental support.

The responses from the participating gifted students are unanimous in that parents care for and support their gifted students. In a similar study Al-Shabatat, Abbas, & Ismail (2011) investigated how giftedness is nurtured in children in Malaysia, with a special focus on the effect of environmental factors such as family, peers, resources, teachers, schools, and society on gifted and talented students. The researchers found that parents significantly affect the intellectual giftedness of their children as student participants reported that their parents paid a lot of attention to supporting the development of their talents. In fact, these parents were described as willing to work extra hours to earn more money to pay for lessons related to supporting their children's talents or to allowing their children to live closer to places that offered better training and support activities. In a similar study, Vialle (2017) also reported on several types of engagement parents use to support their gifted children.

Economic resources were one such factor influencing the level of support parents could provide to their gifted children. Such economic-related support included paying for private schools or extracurricular activities that might support their children's giftedness. Another important role that parents play in terms of supporting their gifted students is the identification of such gifted students. For example when studies that compare the effectiveness of preschool children's parents and teachers in identifying gifted students are analyzed, teachers' effectiveness was found to be lower than that of parents' (Louis & Lewis, 1992). Results from these studies indicate that teachers can make healthy selections 40-73% of the time, while it has been found that parents are better observers of their children's talents and can make accurate decisions 50-90% of the time (Smuthy, 2000) confirming that parents are more successful than teachers in identifying gifted children. These researchers concluded that the role of parents is critical, along with other factors such as school and teacher, in developing talents and nurturing giftedness in these students.

## V. CONCLUSION

This paper analysed gifted students' perceptions about the National Curriculum Statement for Mathematics, the Alpha Mathematics curriculum as well as teachers and parents for these students. Our view was that before we can set up appropriate schools for the gifted or train teachers on how to meet the needs of gifted learners, we must start by understanding school factors that motivate or demotivate them. Results show that the standard curriculum inhibits growth of gifted students because it does not promote individual growth. Implication for practice is that there is need for a more challenging curriculum that would meet the needs of gifted students.

Singapore would be a good example to emulate. Their system has a curriculum for learners falling behind, a curriculum for the average and a curriculum for the gifted. Although teachers might not have been trained specifically in gifted education, results show that gifted students still perceived them as passionate and knowledgeable

when teaching Alpha Mathematics. This suggests that a good teacher generally will be considered good by gifted students. In terms of parental support, gifted students perceived them as supportive suggesting to us that in setting up schools for the gifted students, parents have a critical role to play.

Going forward we recommend further studies on factors that motivate or demotivate gifted students so that results can feed into the planning and implementation of gifted education in South Africa.

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# Psycholinguistic Analysis of the Structure of the Stimulus 'Competitiveness'

*Nataliia Syzonenko, Ph.D. in Philology, Associate Professor & Yanina Tahiltseva, Ph.D. in Philology, Associate Professor*

*Poltava State Agrarian University*

## ABSTRACT

The article deals with the research of the structure of associative fields of the stimulus 'competitiveness' for heterogeneous groups of informants – future specialists, specialists in economics and economy and specialists of other professions using a system of research procedures. At the first stage, a free association experiment was carried out, based on the results of which associative fields are constructed and the core, near periphery and far periphery are identified. To clarify the stability/dynamics of the respondents' idea of the stimulus word, the degree of stereotyped reactions is determined.

**Keywords:** free associative experiment, associative gestalt zones, competitiveness, professional linguistic consciousness.

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# Psycholinguistic Analysis of the Structure of the Stimulus 'Competitiveness'

Nataliia Syzonenko, Ph.D. in Philology, Associate Professor<sup>α</sup> & Yanina Tahiltseva, Ph.D. in Philology, Associate Professor<sup>σ</sup>

## ABSTRACT

*The article deals with the research of the structure of associative fields of the stimulus 'competitiveness' for heterogeneous groups of informants – future specialists, specialists in economics and economy and specialists of other professions using a system of research procedures. At the first stage, a free association experiment was carried out, based on the results of which associative fields are constructed and the core, near periphery and far periphery are identified. To clarify the stability/dynamics of the respondents' idea of the stimulus word, the degree of stereotyped reactions is determined. At the third stage of the research, the general and terminological meanings of the lexeme 'competitiveness' are found out and the level of closeness of lexical and associative meanings is determined. The fourth stage is the analysis of the associative gestalt of associative fields in the three samples, identifying common and distinctive features.*

*According to the results of the research, it was found out that the core responses of specialists in economics and economy are associates in the form of economic categories; for the samples of specialists in economics and economy and specialists of other professions the associates 'quality' and 'professionalism' are common; in the sample of future specialists the associates 'competition', 'power', 'business' are actualised. Respondents in the three samples reproduce a wider range of components of the general-linguistic meaning. Specialists in other professions verbalise the basic components of the term 'competitiveness' and certain components of the term 'personnel competitiveness', while specialists in economics and economy verbalise both the hyperonym and the hyponyms*

*'competitiveness of goods' and 'personnel competitiveness'. These findings are confirmed by the associative gestalt of the associative fields in the three samples: differences in the way of associating and the quantitative and qualitative characteristics of the 10 associative gestalt zones.*

**Keywords:** free associative experiment, associative gestalt zones, competitiveness, professional linguistic consciousness.

**Authors α:** Poltava State Agrarian University, Ukraine.  
**σ:** Poltava State Agrarian University, Ukraine.

## I. INTRODUCTION

At present, we are witnessing a unique situation of the large-scale, intensive impact of globalisation processes on various sectors of national and world economy, which demands quick adaptation to changes and adequate respond to the demands of the times, development of skills of professional mobility and reorientation from both specific institutions, economic entities, business structures and participants in various professional teams. Socio-political shifts, scientific and technological progress and integration of related fields of scientific knowledge entail changes in the linguistic picture of the world: the emergence of innovations, semantic reinterpretation of terms and the use of terminological units in everyday discourse. As a consequence, there are dynamic changes in the system of modern vocabulary, in particular, the individual vocabulary of the speaker.

In order to carry out successful communicative activities, a native speaker seeks to identify and verbally fix the dominant components of a lexical unit that is new to him or her. The notion of

*competitiveness* is no exception, which in the minds of speakers of the national language is no longer correlated with a purely economic branch of scientific knowledge, but has expanded the sphere of its functioning – education, pedagogy, psychology, management, marketing, public administration and management, etc. It should be noted that some scholars, given the multiple representations of the notion and its application to illustrate the interests of different social and institutional groups, consider *competitiveness* as a discourse (Stuart D. Green, Chris Harty, Abbas Ali Elmualim, Graeme D. Larsen & Chung Chin Kao, 2008).

The lexeme *competitiveness* as a term is part of the active vocabulary of professionals; it is also used by ordinary speakers, who, despite their lack of knowledge of the terminological meaning of a language unit, use it in everyday non-professional discourse, thereby certifying a certain level of orientation in the modern world and interpretation of phenomena of reality.

A person's involvement in a particular professional activity implies not only acquiring professional experience, but also forming a certain way of perceiving and organising professional consciousness – integrating professional knowledge, skills, meanings, motives, interests and goals (Drobot, 2016, 2019; Shevchenko, 2005). Professional linguistic consciousness, unlike ordinary consciousness, is formed and manifested by professionally marked linguistic means (Antonova, 2010), in particular the conceptual and categorical framework of a specific sphere of knowledge, which are one of the ways of verbal representation of special knowledge (Bakirova, 2021: 849). This thesis is proved by some empirical studies (Vasylenko, Demenko, 2017; Yefimova, 2012; Nedashkivska, 2019), the results of which show that future professionals – lawyers, computer science and robotics specialists, representatives of musical professions, civil servants – are already at the initial stage of professional genesis, respond to stimulus language units of a professional nature (terms and professional concepts) with professionally oriented associates and sometimes verbalise the broader semantic context of the terminological meaning of a professional notion.

Since a specialist's professional genesis is a dynamic phenomenon (future specialist → specialist → experienced specialist), and a specialist can simultaneously/alternatively be the bearer of several professional consciousnesses, comparative studies within an associative experiment, in particular with heterogeneous groups of respondents: future specialists (students), bearers of professional consciousnesses of a specific field of science, bearers of professional consciousnesses of different fields of scientific knowledge, seem to be relevant.

A comparative analysis of the general-linguistic, terminological and associative meanings of terms allows us to identify the actual meaning of the term for a particular person and to find out the difference between real semantics and the semantics recorded in lexicographic works. In this perspective, in the studies by T. Nedashkivska (Nedashkivska, 2019), L. Kushmar (Kushmar, 2012, 2019), I. Markovina (Markovina, 2015) the lexical and associative meaning of economic terms (bank, premium, sanction, bond, bankruptcy, account, aviso, quality, tender, devaluation, client, profit) are compared and the structure of their associative fields is analyzed.

The content of the associative field in psycholinguistics can be interpreted in different ways: using the method of cognitive interpretation, semantic spheres, vectors and clusters of association, and associative gestalt. In this study, we use such a tool of associative field structuring as an associative gestalt – a whole image of a phenomenon or object being represented by a language unit (Lakoff, 1987; Sternin and Bykova, 1998), which is a fragment of a conceptual part of the world (Didur, 2015: 122). An associative gestalt is manifested “when associates semantically tend towards certain characteristics, naturally grouped around a few (usually frequent in the associative article) responses denoting (naming) a particular set of speech image- concepts” (Markovina, Danilova, 2000: 119). We understand an associate as a

component of the associative field—the respondent’s verbal or non-verbal response to a stimulus word during an experiment.

In spite of solid current research works on the associative meaning and structure of associative fields of quite a number of economic terms, the lexeme *competitiveness*, which is actively used by bearers of both professional and everyday consciousness, remains unexplored in this aspect. This is the aim of the research, which is to use an associative experiment to find out the structure of the associative fields of the stimulus of competitiveness in three samples – future specialists, specialists in economics and economy and representatives of other professions, and to identify the common and specific features in their linguistic consciousness.

To ensure the reliability and objectivity of the results of the scientific analysis, a set of research tasks was used: 1) to carry out an associative experiment; 2) to construct associative fields in three samples, to characterise their structure; 3) to determine the level of closeness of general linguistic, terminological and associative meanings in each sample; 4) to compare the structure of associative fields in three samples.

## II. METHODS AND TECHNIQUES OF THE RESEARCH

For the psycholinguistic experiment, we chose the stimulus word *competitiveness*, which is a professional term for specialists in the economic sector, but relevant for representatives of other professions, as well as future non-economic specialists.

During the study, both general scientific and linguistic and psycholinguistic methods were used: *analysis, synthesis and observation* – to provide the study with empirical material, clarification of lexical and terminological meanings of the lexical unit *competitiveness*, *free association experiment* (discrete response) with heterogeneous groups of informants (age, gender, affiliation/non-affiliation to professional group/professional groups) as a “tool for measuring the components of the semantic space of the

recipients” (Zasiekina, Zasiokin, 2008: 55); *the associative gestalt technique* (Terekhova, 2000; Markovina, 2000), which made it possible to structure the associative material and identify the thinking components (associative gestalt zones) that form a complete image of competitiveness in different groups of informants; *matching* – for visibility of the quantitative and qualitative analysis of representative material, the structure of associative fields in three samples.

### 2.1 Sample

In order to identify quantitative and qualitative changes in the linguistic consciousness of respondents with different statuses – higher education seekers (future specialists), specialists in economics and economy, experts in other fields of scientific knowledge – a free association experiment was conducted on the basis of Poltava State Agrarian Academy, and also respondents from Poltava, who are specialists in education, engineering, technology, maintenance, etc., were involved.

In choosing the stimulus word – *competitiveness*—we considered the following parameters:

- the word must be polysemantic, its meaning is recorded in explanatory and special dictionaries;
- the word must be understood both by a person who does not yet identify himself/herself with a professional (corporate) group and by a person belonging to different professional groups (specialists who do not deal with economics or economy). For persons belonging to a homogeneous professional group (specialists in economics and economy), the stimulus word should be key in the professional lexicon and have the status of a term.

Before the pilot experiment, respondents were asked to fill in a questionnaire with the following data: gender, age (completed years), education and qualifications (for specialists)/training year (for higher education seekers), subjects that were taught/ are being taught (for academic staff whose professional activity involves economic knowledge), position/s held (for specialists in

economics and economy and representatives of other scientific fields), the total length of work (for specialists in economics and economy and other specialists), mother tongue (the language of everyday and family communication). Any association that came to mind within two to five seconds had to be given for the stimulus word in writing. It is the first association that is the strongest compared to the second or next association (Nelson, Mcevoy, Dennis, 2000).

The free association experiment involved 327 participants, who were divided into three groups:

- first sample – 1st-year agronomy and veterinary medicine students of Poltava State Agrarian Academy, future specialists (hereinafter – FS), age– 17 – 18 years old, 160 respondents;
- second sample – predominantly teachers of economic disciplines of the faculties of economics and management, accounting and finance at Poltava State Agrarian Academy, as well as economists of enterprises (hereinafter – specialists in economics and economy (SEE)); age – 25 – 67 years old; professional experience – 3–50 years; education – higher; 94 respondents;
- third sample – specialists in other professions (hereinafter – SOP); age–23 to 40 years old; professional experience – from 3 to 30 years; education – specialised secondary, higher; 116 respondents.

All respondents are native speakers of Ukrainian, which is important to establish the national specificity of the association of the stimulus word. The conducted free association experiment is valid because each of the samples meets the requirements for the lower limit of the number of respondents (Palkin, 2010: 69). Both quantitative measures of the frequency of responses and the percentage of responses were taken into account. Response refusals available in all samples (in the first sample – 6, in the second – 1, in the third – 4) were not considered for quantitative estimation. Respondents provided word-form responses, word-combination responses and sentence responses (definitions).

### III. RESULTS AND DISCUSSIONS

Based on the results of the free association experiment we created associative fields of the first, second and third samples. We consider the most frequent response to be the core of the associative structure; if the gap between the first and second, second and third frequency responses does not exceed 2%, we assign them to the core; single responses are assigned to the far periphery; others – to the near periphery.

Let us analyse the structures of associative fields on the stimulus of *competitiveness* for the first (future specialists), second (specialists in economics and economy) and third samples (specialists of other professions) (Table 1). The associates are tabulated according to descending frequency and percentages since the samples have different volumes of associative fields on stimulus.

Table 1: Core, near and far peripheries of the first, second and third samples

Samples	First sample (FS), 154 responses	Second sample (SEE), 93 responses	Third sample (SOP), 112 responses
<b>Core</b>	<p>competition + 8 (5,2 %), power + 5 (3,2 %), business + 4 (2,6 %) = 17 (11 %)</p>	<p>quality + 5 (4,7 %), enterprise + 4 (3,7 %), market + 4 (3,7 %), profit + 4 (3,7 %), rentabelnist (profitability) + 4 (3,7 %), professionalism + 3 (2,8 %), effectiveness + 3 (2,8 %), rivalry + 3 (2,8 %), winning ability + 3 (2,8 %) = 33 (35,5 %)</p>	<p>ability + 6 (5,3 %), professionalism + 4 (3,6 %), quality + 4 (3,6 %), = 14 (12,5 %)</p>
<b>Near periphery</b>	<p>victory + 3 (1,9 %), ekonomika (economy or economics) + 3 (1,9 %), struggle + 3 (1,9 %), rivalry + 3 (1,9 %), money + 2 (1,3%), development + 2 (1,3 %), leader + 2 (1,3 %), professionalism + 2 (1,3 %), ability to compete + 2 (1,3 %), competitiveness + 2 (1,3 %), worker + 2 (1,3 %), skill + 2 (1,3 %), quality + 2 (1,3 %), ability to stand up for yourself + 2 (1,3 %) = 32 (20,8 %)</p>	<p>prybutkovist (profitability) + 2 (1,9 %), price + 2 (1,9 %), confidence + 2 (1,9 %), victory + 2 (1,9%) = 8 (8,6 %).</p>	<p>market + 2 (1,8 %), to be the best + 2 (1,8 %), struggle + 2 (1,8 %), rivalry + 2 (1,8 %), activity + 2 (1,8 %), a professional + 2 (1,8 %), success + 2 (1,8 %), demand + 2 (1,8 %), high level + 2 (1,8 %) = 18 (16,2 %)</p>
<b>Far periphery</b>	<p>single responses: competition with someone else, creating and selling products at an enterprise, being able to show your professional qualities; products, people, modernisation, high level of achievement, I can defend it among colleagues; anger, fear, etc. = 105 (68,2 %).</p>	<p>single responses: opportunity to sell profitably; to represent oneself, something (product); strengths; specialist; market; business; productivity; growth; leadership; plan; SWOT analysis, etc. = 52 (55,9 %).</p>	<p>single responses: comparison, power, create, produce and sell goods and services, office, entrepreneur, enemy, demand, achievement, salary, aware, etc. = 80 (71,3 %)</p>

The core responses demonstrate the disagreement in the perception of the stimulus word by representatives of different groups of respondents. Future specialists associate the notion of competitiveness primarily with

competition and power, which is obvious for competition, in particular in the field of business. Specialists in economics and economy associate competitiveness with some economic categories, notably quality, enterprise, market, profit,

profitability and effectiveness, as well as with such key components of the concept as rivalry, ability to win, and professionalism. The core associates 'quality' and 'professionalism' are common for both specialists in economics and economy and specialists in other professions but are used with different frequencies. In addition, the latter group of respondents reproduces the key component of the meaning of competitiveness – ability.

As we can see, the largest percentage is accounted for by single responses; the core of the SEE and SOP samples are represented by infrequent responses reflecting the connotative properties of the object necessary for its recognition, which is obviously related to the stereotype of the respondents' speech consciousness. This indicator for the three samples is calculated using the formula proposed and tested by N. Yufimtseva (2011: 128):  $R = N/S$ ,  $0 \leq R \leq 1$ , where N is the number of different responses to the stimulus, S is the total number of responses to the stimulus; the lower the value of R, the higher the level of stereotyped reactions to the stimulus. The indicator of stereotyped responses for the first sample (FS) is 0.79 ( $R = 122/154$ ,  $R < 1$ ), for the second sample (SEE) it is 0.7 ( $R = 65/93$ ,  $R < 1$ ), for the third sample (SOP) – 0.82 ( $R = 92/112$ ,  $R < 1$ ). Although the stereotype indicator does not differ significantly in the three samples, it is the lowest for the group of respondents who are specialists in economics and economy, which may indicate certain stability, typicality of associations and, consequently, stabilisation of ideas about the notion of *competitiveness*. The fact that respondents reacted to the stimulus word with a significant number of diverse (individual) responses, in particular in the FS sample – 105, SOP – 80, may indicate “dynamism of speech consciousness” (Horoshko 2003: 114), i.e. the incomplete assimilation by native speakers of the fundamental components of the semantics of the notion, the potential for change.

It is known that the associative and semantic fields rarely coincide. As a rule, the linguistic picture of the world is reflected in the lexical meaning of this or that linguistic unit, and the conceptual picture of the world, represented in

the form of associative fields, is richer and wider than the linguistic one.

The criterion for identifying coincidences and differences in the structure of linguistic and conceptual pictures of the world is the lexical meaning recorded in lexicographical works, and the associative meaning revealed in the associative experiment. We will compare the level of closeness of lexical and associative meanings of the notion of *competitiveness* in two directions according to the following algorithm: 1) to find out the lexical meaning of the word-stimulus in explanatory and special (terminological) dictionaries, scientific articles and monographs; 2) to identify the key components of the semantics of a stimulus word that form the core of meaning by analysing lexicographical and terminological dictionaries and scientific publications; 3) to calculate the general-linguistic lexicographic and special meaning of the stimulus word using the formula  $A/B = C$ , where A is the total number of core responses, B is the number of core responses of the dictionary meaning; 4) to formulate a conclusion about the coincidence/divergence of lexical and associative meanings along the two lines of the research procedure according to the formula: if  $C = 1$ , then the stimulus lexeme belongs to the first level of closeness; if  $C < 2$ , then the stimulus lexeme belongs to the second level of closeness; if  $C > 2$ ,  $B = 0$ , then the stimulus lexeme belongs to the third level of closeness (Kushmar, 2019).

*The general-linguistic meaning* of the notion 'competitiveness' in the Big Explanatory Dictionary of the Ukrainian Language (BED) is as follows: “*ability to compete*” (Busel, 2005: 448) (hereinafter emphasis ours – S. N. M., T. Ya. M.), in the Dictionary of the Ukrainian Language in 20 volumes – property with the meaning competitive – “endowed with *properties, qualities* which make it possible to successfully *compete* with someone or something” (Dictionary, 2010). The Dictionary of the Ukrainian Language in 11 volumes does not contain the notion of competitiveness; instead, the lexemes 'male competitor', 'female competitor', 'competitive' and 'competition' are interpreted; the dictionary entry on the notion of competitiveness is not

presented in the Universal Encyclopaedia Dictionary either. Based on the above, the key components of the general-linguistic meaning of competitiveness are ability, properties, qualities,

competition and compete. The closeness calculations of the general-linguistic and associative meanings are shown in Table 2.

*Table 2:* Closeness of general-linguistic and associative meanings of the notion ‘competitiveness’

	FS	SEE	SOP
C= A/B	$8+5+4/8=2,1$	$5+4+4+4+4+3+3+3+3/5+3+3= 3$	$6+4+4/6+4= 1,4$

Consequently, the associative and general-linguistic meaning in the sample of future specialists and specialists in economics and economy refers to the third level of closeness (C=2,1, C=3, C>2). The statistical information on the sample of specialists of other professions refers to the second level of closeness (C=1,4, C<2). Hence, respondents demonstrate a broader scope of the associative meaning of competitiveness as compared to its general-linguistic meaning, which is probably due to the fact that respondents verbalise the key components of the terminological meaning of the notion.

The Economic Dictionary defines *the terminological meaning of competitiveness* as “*the ability to conduct activities in an open market environment and to remain profitable for a long time. Four main factors determine the level of competitiveness: technology, availability of capital, competitiveness of products, competitiveness of human resources, state of foreign economic activity*” (Zavadskyi, Osovska, Yushkevych, 2006: 139), in the Explanatory English-Ukrainian Dictionary of Economic Terms – as “*capable of existing in a competitive environment*” (Yakovenko, 2015: 19), in the Financial and Economic Dictionary – as “*the ability of subjects to conduct their activities in market conditions and at the same time to make a profit sufficient for scientific and technological improvement of production, encouraging workers and the production of high-quality products*” (Financial and Economic Dictionary, 2018: 69).

It is important to take into account that the notion of competitiveness in the national economic theory was primarily applied to goods

and later – to enterprises: “during the period of dominance of the administrative-command management system, there was no open competition between enterprises and there was no need to talk about their ability to compete (Upravlinnia konkurentospromozhnistiu pidpriemstva, 2010: 34). Currently, economic science assigns a leading role in shaping enterprise competitiveness to product competitiveness (Zos-Kior, 2020: 26), but stresses the interdependence of these categories. Therefore, the definitions of competitiveness of goods and enterprise competitiveness should be involved in the analysis. The first notion is defined as “the totality of its *characteristics* that ensure the *maximum level* of satisfaction of a certain *consumer need* compared to *competing goods* in a certain period of time in a particular market segment” (Kurbak, Krykavskiy, Kosar, 2013: 17); “the aggregate *ability of goods* to withstand competition compared to other goods in a particular regional or commodity *market*, to be in *demand* and sold and make a *profit*. The aggregate ability of goods is determined by the *properties of the product* to satisfy *consumer needs* (quality, technical parameters, taste, conformity to fashion, traditions, etc.)” (Yakovenko, 2015: 166). Scientists’ views on the semantic structure of the term ‘enterprise competitiveness’ are summarised in a study by T. Shtal, M. Belikova (Shtal, Belikova, 2019): the *ability to withstand competition* compared to similar objects; the *ability to withstand competitors*, the *ability to operate in a relevant external environment*, the *ability to realize competitive advantages*; the *possibility to produce, market more attractive products to consumers*, the *possibility to operate effectively*

under conditions of *risk* and *uncertainty*; the *difference* in the development process from a *competitor's* producer in terms of satisfaction with its *products* and the *efficiency of production activities*; a *state* of better use of *key competencies* compared to *competitors*, the *ability* to maintain this state for some time; the *characteristic* reflects *differences* in the development process, the *characteristic* specifies the potential ability to *function effectively*.

A number of other notions have emerged on the basis of 'competitiveness of goods', they say about the competitiveness of such objects as manufacturing, information systems, technology, firm, enterprise securities, state, country, as well as subjects – personnel manager, professional, specialist, individual and so on. Obviously, the term 'competitiveness' expands the scope of its functioning depending on what it is thought in the "object – activity – subject" paradigm: enterprise (organisation) personnel is seen by modern economic science as an important prerequisite for its development. Therefore we are also considering the notion of personnel

competitiveness (competitiveness of workers/specialists is used as a synonym), which currently is not yet fixed in economic terminology dictionaries, but is actively being used for analysis in scientific surveys. Here are a few definitions: "personnel competitiveness is the ability to realise the *competitive advantages* available to it in such a way so that to promote the *enterprise* to a better competitive position compared to other subjects of *competition* in a given *market*" (Slavhorodska, 2005: 94); "competitiveness of a worker is the compliance of the *quality of labour force* with *market* needs, the possibility to win in the labour market *competition*, i.e. to satisfy *employers' requirements* in terms of knowledge, skills, abilities, personal traits more completely than other candidates" (Grishnova, 2005: 99); "personnel competitiveness is the *ability of labour force* to realise a set of personal, professional and business *qualities* and to satisfy *employers' requirements*" (Hrosheleva, 2006: 75).

The dominant components of the terminological meaning of competitiveness are shown in Table 3.

**Table 3:** Dominant components of the terminological meaning of competitiveness, competitiveness of goods, competitiveness of enterprise, personnel competitiveness

Competitiveness	Competitiveness of goods	Competitiveness of enterprise	Personnel competitiveness
possibility/ability, market, profit, competition	capacity/ability, characteristic, competition, goods/properties of goods, market, demand, maximum level, profit, consumer needs/consumptive needs	ability/possibility, competition, competitors, relevant external environment, competitive advantages, goods, risk, uncertainty, difference, effectiveness of production activity, condition, core competencies, characteristic, efficient operation	ability, competitive advantages, enterprise, competition, quality of labour force, employers' requirements

Since competitiveness is a multidimensional notion, we take into account the totality of the above-mentioned components of the terminological meaning of the notion.

The results of the divergence between the terminological and associative meanings according to the three samples are presented in Table 4.

Table 4

	FS	SEE	SOP
C = A/B	$8+5+4/8+4=1,4$	$5+4+4+4+4+3+3+3+3/5+4+4+4+4+3+3+3+3= 1$	$6+4+4/6+4+4=1$

Based on the data shown in Table 4, in the sample of future specialists the associative meaning belongs to the second level of closeness to the terminological meaning ( $C=1.4$ ,  $C>2$ ), that is, the respondents actualise the dominant components of the terminological meaning of the stimulus lexeme – ‘competition’, as well as the lexemes ‘competitiveness of goods’, ‘competitiveness of enterprise’ in the associate ‘business’ (an enterprise (firm) that sells goods or delivers services to consumers; an activity aimed at making a profit).

In the samples of specialists in economics and economy and other professions, we observe the first level of closeness of the associative and terminological meaning of the word ( $C=1$ ). Consequently, the dominant components of the terminological meaning are actualised in the linguistic consciousness of the respondents of these samples, as they probably actively use the stimulus word and its equivalents in practice, are well aware of its definition and reproduce the cognitive images associated with the professional activity. However, with identical statistical results—the coincidence of associative and terminological meanings in the samples of specialists in economics and economy and specialists in other professions – we observe the verbalisation of properties of the denotation ‘competitiveness’ that are different in their importance for the linguistic consciousness of the respondents. Specialists in other professions actualise, in addition to the general-linguistic and terminological components of ‘ability’, the components of ‘quality’ and ‘professionalism’ which certify the associative link with the notion of personnel competitiveness. Instead, specialists in economics and economy reflect a wide range of basic components for understanding the essence of the notions of competitiveness, competitiveness of goods, personnel competitiveness: quality,

enterprise, market, profit, profitability, effectiveness, professionalism, rivalry, ability to win.

To find out the structure of the associative fields of the three samples that form the complete image of the stimulus word, let us identify the associative gestalt zones for each of the samples and calculate the volume of associates in each of them.

Taking into account the specificity of semantic features of the stimulus word ‘competitiveness’, we have singled out the following zones of associative gestalt: 1) object/subject; 2) properties; 3) functions, actions; 4) qualitative parameters of activity; 5) quantitative parameters of activity; 6) results of activity; 7) methods and forms of activity; 8) assessment; 9) personal responses; 10) emotions. Table 5 shows the structure of associative gestalts for the three samples, Table 6 – the frequencies and ranks for the three samples, and Figure 1 presents the frequencies for the three samples.

*Table 5:* Structure of the associative gestalt of the stimulus of competitiveness in the first, second and third samples

Gestalt zones	Examples of FS	Examples of SEE	Examples of SOP
Object/subject	business, economy, employee, market, profession, clinic, goods, team, competitor	enterprise, market, specialist, products, business	a professional, market, office, own business, fighter, competitor
Properties	competition, power, struggle, rivalry, competitiveness, ability to compete	ability to win, rivalry, keeping up with the necessities of the times, power, social responsibility, ability to win, competition	ability, struggle, activity, rivalry, opportunity, choice, battle, ability to compete with others
Functions, actions	can compete, be independent of competitors, be able to stand up for his/her business, create and sell products	outperform the competitor, represent his/herself, something (product), always be up-to-date, meet international standards	be better, create, produce and sell goods and services
Qualitative parameters of activity	professionalism, skill, endurance	quality, professionalism, product quality	professionalism, quality, competence
Quantitative parameters of activity	quality, money, level of a person, enterprise, efficiency, profit	profit, rentabelnist (profitability), efficiency, price, prybutkovist (profitability), high quality	high level, money, productivity
Results of activity	victory, leader, development	victory, growth, development, leader, leadership, demand	success, demand, achievement, self-sufficiency, advantage
Methods and forms of activity	–	plan, SWOT-analysis	
Assessment	high level of achievements, indomitable, the best of the best, businesslike, worthy	confidence, best of breed, adequacy, modernity	one of the best, endurance, confidence, adequacy
Personal responses	for position, self-belief, nature, interest, games	“find my place under the Sun”	I can
Emotions	anger, fear	–	–

*Table 6:* Structure of the associative gestalt of the stimulus ‘competitiveness’, frequency of responses and ranks in the first, second and third samples

Gestalt zones	FS: number, frequency of responses, %	Rank, FS	SEE: number, frequency of responses, %	Rank, SEE	SOP: number, frequency of responses, %	Rank, SOP
Object/subject	28/18,2 %	2	13/14 %	3	15/13,4 %	<b>3</b>
Properties	40/26 %	1	23/24,7 %	1	39/34,8 %	<b>1</b>
Functions, actions	12/ 7,8 %	5	5/5,4 %	7	6/5,4 %	<b>7</b>
Qualitative parameters of activity	20/ 13 %	4	9/,7 %	5	14/12,5 %	<b>4</b>
Quantitative parameters of activity	10/6,5 %	7	21/22,6 %	2	10/8,9 %	<b>6</b>
Results of activity	10/6,5 %	7	11/11,8 %	4	16/14,3 %	<b>2</b>
Methods and forms of activity	–	–	2/2,2 %	8	–	–
Assessment	21/13,6 %	3	8/8,6 %	6	11/9,8 %	<b>5</b>
Personal responses	11/7,1 %	6	1/1,1 %	9	1/0,9 %	<b>8</b>
Emotions	2/1,3 %	8	–	–	–	–

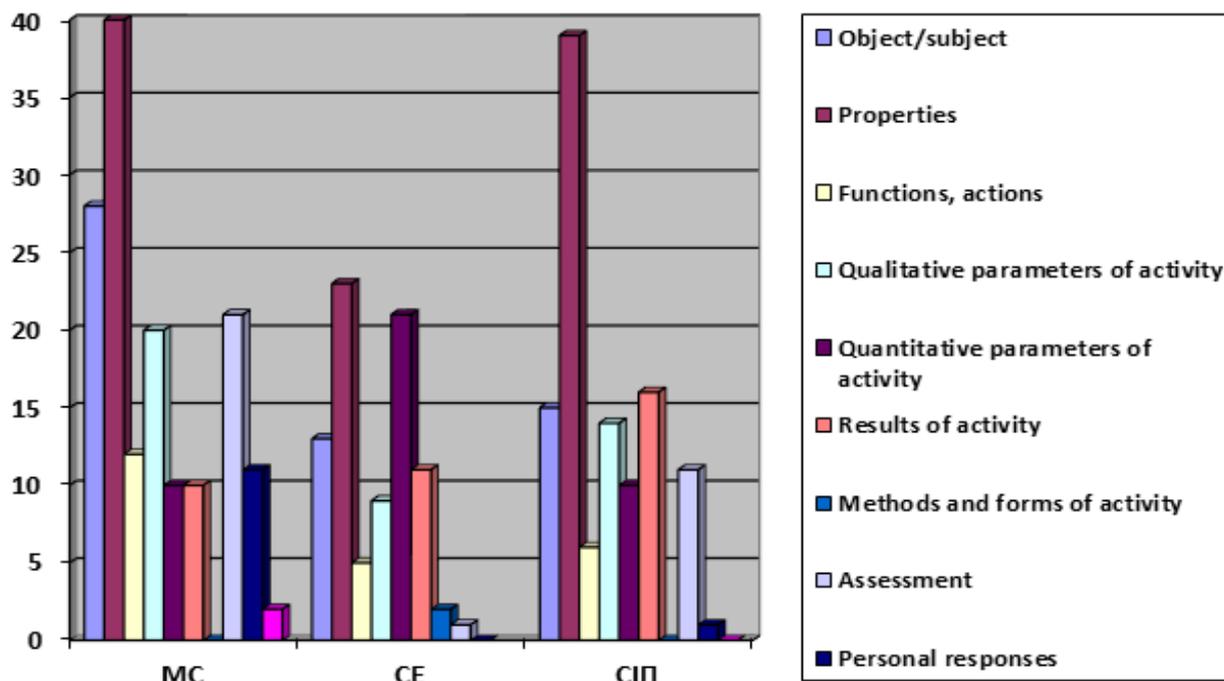


Figure 1: Frequency of the associative gestalt of the stimulus ‘competitiveness’ in the three samples

Characterising the associative gestalts of the first, second and third samples we can state, firstly, that most zones are represented qualitatively and quantitatively, except for the absence of associates in the zone “Methods and forms of activity” in the samples of future specialists and specialists of other professions and “Emotions” in the samples of specialists in economics and economy and specialists of other professions.

Secondly, if we compare gestalt zones according to quantitative indicators, particularly according to the rank assigned, we observe the highest rank – 1 – in all samples of the “Properties” zone; rank 3 in the “Object/subject” zone in the samples of economists and specialists of other professions; rank 4 in the “Qualitative parameters of activity” zone in the samples of future specialists and specialists of other professions.

Thirdly, there is a different volume of zones. For example, in the FS sample the “Quantitative parameters of activity” zone accounts for 6.5%, in the SOP sample – 8.9%, and in the SEE sample – 22.6%, almost 3.5% more than in the former, which results in a different rank in the hierarchy of associative gestalts: ranks 7, 6, and 2 respectively.

Fourthly, the difference between the three samples is not so much in quantitative terms but rather in the qualitative content of the gestalt zones. For example, the zone “Qualitative parameters” in the FS sample is represented by the following associates: *professionalism (2), skill (2), ability to stand up for oneself (1), ability to work hard (1), ability to prove oneself (1), ability to take risks (1), ability to prove oneself in something (1), ability to sell one’s goods better than others (1); ability to stand up for oneself and protect the business (1); ability to prove oneself in a certain business (1), experience (1), knowledge (1), capabilities (1), modernisation (1), uniqueness (1), endurance (1), skilled (1), experience (1)*. The above associates allow us to draw a conclusion about the actualisation (in the linguistic consciousness of different categories of respondents) of those or other aspects of the semantics of the stimulus word: future specialists verbalise the components of the meaning of personnel competitiveness, specialists in economics and economy and other specialities – competitiveness of enterprise, competitiveness of goods, personnel competitiveness.

## IV. CONCLUSIONS

Based on the results of a free association experiment with heterogeneous groups of respondents – future specialists (FS), specialists in economics and economy (SEE) and specialists in other professions (SOP) – associative fields on the stimulus of *competitiveness* are constructed. The core responses in the three samples are different: SEE gave associates in the form of economic categories; for the SEE and SOP samples the associates of quality and professionalism are common; in the FS sample the associates of competition, power and businesses are actualised.

Other research procedures were carried out to ensure the relevance of the results. Respondents in the FS and SEE samples show the third and SOP the second level of closeness of the general-linguistic and associative meanings. In the FS sample, we observe the second level of closeness of the terminological and associative meanings of the stimulus lexeme, and in the SOP and SEE sample – the first level, but SOP verbalise the basic components of the term *competitiveness* and certain components of the term *personnel competitiveness*, while SEE verbalise the basic components of the stimulus word (hyperonym) and the basic components of the lexical units of *competitiveness of goods* and *personnel competitiveness* (hyponyms).

The next stage was to study the structure of the associative fields in the three samples. Among the selected 10 zones of the associative gestalt in the FS and SOP sample, the zone “Methods and forms of activity” and in the SEE and SOP sample the zone “Emotions” do not have a verbal representation; the other zones for the three samples are represented by verbal responses. Quantitatively, common to the three samples is the associative gestalt zone “Properties” (rank 1), for the SEE and SOP samples – “Object/subject” (rank 3), for the FS and SOP samples – “Qualitative indicators” (rank 4); the other associative gestalt zones have distinctive features. Quantitatively and qualitatively the volume of associative gestalt zones of associative fields of three samples has many specific features.

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# Emerging World Structure: Polarization Driven by Washington as well as Beijing

*Shi Yinhong*

*Renmin University of China*

## ABSTRACT

Primarily because of the China-US interactive rivalries defined both structurally and situationally, together with the enormous stimulating impacts imposed by the global coronavirus pandemic, a structure of the confrontation and rivalry between two coalitions headed respectively by China and the United States has begun to surface with its initial symptoms, promoted first of all by the Biden Administration. In other words, a bipolarization of the world power politics has started its evolution process, which probably would be aggravated and increasingly intensified in short and mid-terms.

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# Emerging World Structure: Polarization Driven by Washington as well as Beijing

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## ABSTRACT

*Primarily because of the China-US interactive rivalries defined both structurally and situationally, together with the enormous stimulating impacts imposed by the global coronavirus pandemic, a structure of the confrontation and rivalry between two coalitions headed respectively by China and the United States has begun to surface with its initial symptoms, promoted first of all by the Biden Administration. In other words, a bipolarization of the world power politics has started its evolution process, which probably would be aggravated and increasingly intensified in short and mid-terms.*

*Author:* Professor of International Relations, Renmin University of China.

## I. THE US AND JAPAN AND OTHER QUAD PARTNERS

As the confrontation and rivalry between China and US rapidly intensifying, Japan has become the ally in chief in the American strategic camp in world political structure. Especially closely connected with the severe military and political tensions over Taiwan, Tokyo remarkably strengthens strategic association with Washington, critically impacting and even devastating the bottom line on Taiwan which had for many years constituted the political base as Beijing strongly asserted and Tokyo implicitly agreed for China-Japan relations. Moreover, the massive joint military intervention with the United States, in the scenario of war breaking out across the Taiwan Strait, is becoming a fundamental Japanese national policy.

The joint statement issued by the Japan-US “2+2” conference of March 16, 2021 declared in

particular the importance of the peace and stability across the Taiwan Strait. Explicitly based on the sources of the Japanese government, Kyodo News reported that Nobou Kishi, the Minister of Defense of Japan, and Lloyd Austin, his US counterpart, agreed in the conference that when military conflict breaking out across the Taiwan Strait the armed forces of the two countries would closely cooperated with each other, and Japan would probably sent its Self-Defense forces to protect US warships and aircrafts engaging in military intervention.<sup>1</sup> On April 4, the Japanese Prime Minister Yoshihide Suga delivered a national television speech, saying that the peace and stability of Taiwan is a key of the region, “It is important for Japan and the United States to cooperate and use deterrence to create an environment where Taiwan and China can find a peaceful solution”.<sup>2</sup> On April 15, Suga arrived in Washington D.C. to have a Japan-US summit with Joe Biden, with the joint statement of them issued after the summit declaring they “underscore the importance of peace and stability across the Taiwan Strait and encourage the peaceful resolution of cross-Strait issues.”<sup>3</sup> This is the first time to refer to Taiwan issue in any joint statement by the US President and the Japanese Prime Minister since that by Richard Nixon and Eisaku Sato in 1969.

<sup>1</sup> “US, Japan Agree to Work Together in Event of Beijing-Taiwan Military Clash, Sources Say”, *South China Morning Post*, March 31, 2021.

<sup>2</sup> Japan’s PM Aims to Calm China-Taiwan Tension on US Visit, Associate Press, April 4, 2021. <https://abcnews.go.com/US/wireStory/japans-pm-aims-calm-china-taiwan-tension-us-76863596>

<sup>3</sup> U.S.-Japan Joint Leaders’ Statement, April 16, 2021, <https://www.whitehouse.gov/briefing-room/statements-releases/2021/04/16/u-s-japan-joint-leaders-statement-u-s-japan-global-partnership-for-a-new-era/>

Based explicitly on Japanese government sources, Kyodo News reported on April 24 that the Japanese Cabinet was studying the ways of possible responses by Japan's Self-Defense Forces in the situation of military conflict breaking out between the United States and China, responses within the limits of existing national security laws. The study focused on three kinds of the situation: when a security crisis emerges with the potential to affect its security if left unchecked, when a close partner is attacked and threatens Japan's own survival or when Japan is under a direct attack.<sup>4</sup> Probably, the speech delivered by Yasuhide Nakayama, Japan's deputy defense minister, at the Hudson Institute reflected most Suga Cabinet's true intention or even position: it was necessary to "wake up" to China's pressure on Taiwan and protect the island "as a democratic country."<sup>5</sup> More than that, Aso Taro, Japan's Deputy Prime Minister and Minister of Finance, said one day before in a public speech that Japan country needed to defend Taiwan with the United States if the island was invaded, because "If a major problem took place in Taiwan, it would not be too much to say that it could relate

<sup>4</sup> Japan Gov't Studies SDF Response in Event of Taiwan Strait Conflict, Kyodo, April 24, 2021. <https://english.kyodonews.net/news/2021/04/983deef11264-japan-govt-studies-sdf-response-in-event-of-taiwan-strait-conflict.html>. "A close partner" here in fact means Taiwan in the first place. See footnote 35 below. Up to now, there may be possible indication of the direct military cooperation between Japan and Taiwan. Satellite images dated May 1 revealed a Taiwanese destroyer appeared to be in the vicinity of the Japanese warships seemingly monitoring PLAN destroyer *Binzhou* as it returned to the East China Sea, at the narrow waters between Taiwan and Yonaguni, Japan's westernmost inhabited island. Taiwan and Japan Track China Warship Together in Apparent Team-up at Sea, Newsweek, May 4, 2021. <https://www.newsweek.com/taiwan-japan-track-china-warship-together-apparent-team-sea-1588410>

<sup>5</sup> Japan Minister Says necessary to "Wake Up" to Protect Taiwan. Reuters, June 29, 2021. <https://www.usnews.com/news/world/articles/2021-06-28/japan-minister-says-necessary-to-wake-up-to-protect-taiwan>. Yasuhide Nakayama even questioned in this speech the correctness of maintaining "one China" policy and its sustainability over time. Ibid.

to a survival-threatening situation (for Japan)", and "We need to think hard that Okinawa could be the next".<sup>6</sup>

The Biden Administration has made Indo-Pacific as the most critical concept for its strategy toward China and even for that of whole US foreign policy, conforming and declaring the Quad coalition composed of US, Japan, Australia and India plays the essential and cornerstone role in US Indo-Pacific policy.<sup>7</sup> Quad, together with Great Britain and Canada, two major maritime advanced industrial nations beside US, Japan, and Australia, have constituted the primary hard core of the US strategic camp.

Foreign Ministers of the four Quad members held a meeting online on February 18. After the meeting, the Japanese Foreign Minister Toshimitsu Motegi told reporters that the four Foreign Ministers unanimously opposed strongly any attempt of China to change the status quo in Indo-Pacific by force.<sup>8</sup> On March 12, a Quad summit proposed by the Biden Administration was held online. Its joint statement claimed that Quad would facilitate cooperation "to meet challenges to the rules-based maritime order in the East and South China Seas". It also targeted China in the case of COVID-19 "vaccine diplomacy" to promise help India to greatly increase its capacity of production for delivering enormous amounts of vaccine to Southeast Asia and the developing countries in other areas of the world.<sup>9</sup>

<sup>6</sup> Japan Deputy PM Says Need to Defend Taiwan with U.S. If Invaded-Media. Reuters, July 6, 2021. <https://www.metro.us/japan-deputy-pm-says/>

<sup>7</sup>Biden Security Adviser: US Must Be Prepared to Impose Costs for What China Is Doing, Newsmax.com, January 29, 2021. <https://www.newsmax.com/politics/biden-jake-sullivan-us-china/2021/01/29/id/1007817/>

<sup>8</sup> Secretary Blinken's Call with Quad Ministers, Readout, <https://www.state.gov/secretary-blinkens-call-with-quad-ministers/>; US, Japan, Australia, India Foreign Ministers Meet Online, <https://mainichi.jp/english/articles/20210218/p2g/oom/ona/040000c>

<sup>9</sup> Quad Leader's Joint Statement, <https://www.whitehouse.gov/briefing-room/statements-releases/2021/03/12/quad-leaders-joint-statement-the-spiri>

A very significant concept of “economic coercion”, for condemning China and adjusting global supply chains first of all targeting China, has been launched initially for Quad member Australia. On March 16, Kurt Campbell, US National Security Council’s Indo-Pacific Coordinator, received an Australian newspaper interview and declared that the United States would not improve relations with China if China had not stop economic coercion against US close ally Australia.<sup>10</sup> Since then, economic coercion has become one of the major attacks against China. On May 5, G7 Foreign Ministers Meeting issued a communique, declaring “We will work collectively to foster global economic resilience in the face of arbitrary, coercive economic policies and practices. We urge China to assume and fulfil obligations and responsibilities commensurate with its global economic role.”<sup>11</sup> After the Chinese government declared on May 6 to suspend indefinitely the

t-of-the-quad/

<sup>10</sup> U.S. Tells China to Improve Ties with Australia: U.S. Official, <https://www.usnews.com/news/world/articles/2021-03-16/us-tells-china-to-improve-ties-with-australia-us-official> For the emergence of economic coercion as a major instrument of China’s foreign policy, the chief expert on Japan affairs at Council of Foreign Relations wrote: “Today, Tokyo and Washington must also consider how their trade with and investment in China increasingly feels like a vulnerability rather than a benefit. China has not hesitated to use its considerable economic clout either, turning what was once seen as a ‘win-win’ economic interdependence with the advanced industrial economies into a more coercive instrument of leverage. For the smaller economies in the region, this reality has been difficult to avoid, but increasingly Chinese leaders have chosen to demonstrate their pique with Japan, Australia and potentially the European nations by withholding trade and other economic benefits.” Sheila A. Smith, “The Biden-Suga Summit: A Full Agenda for An Uneasy Era,” Kyodo, April 17, 2021. <https://english.kyodonews.net/news/2021/04/590711831e0f-opinion-the-biden-suga-summit-a-full-agenda-for-an-uneasy-era.html>

<sup>11</sup> G7 Foreign and Development Ministers Meeting: Communique, London, 5 May 2021. <https://www.gov.uk/government/publications/g7-foreign-and-development-ministers-meeting-may-2021-communicue/g7-foreign-and-development-ministers-meeting-c-ommuniquelondon-5-may-2021>

Strategic Economic Dialogue with Australia, US Secretary of State Antony Blinken repeated on May 13 what Campbell said two months ago: “I reiterated that the United States will not leave Australia alone on the field”, “we’ve made clear to the PRC how such actions targeting our closest partners and allies will hinder improvements in our own relationship with China.”<sup>12</sup> By the way it can be noted that for persuading New Zealand, which has a relatively moderate attitude toward China for maintaining and developing its free trade relations with the latter, Australian Prime Minister Scott Morrison fled to Queenstown to meet New Zealand’s counterpart Jacinda Ardern, perhaps with Washington’s encouragement or support. Ardern after the meeting claimed that her country kept a strong and principled position toward China on human rights and trade, very similar with that held by Australia.<sup>13</sup>

The most important function of Quad is strategic military one, against China, with increasing, deepening and more prominent military cooperative activities. On April 28, Morrison declared that the Australian government would spend USD 580 million for completing before 2026 rebuilding and upgrading four military bases in the northern part of the country, and for expanding joint drills with US marines.<sup>14</sup> Much more important, President Biden declared on September 15 that the United State is developing a new security partnership with Australia and Great

<sup>12</sup> U.S. Will Not Leave Australia Alone to Face China Coercion—Blinken, Reuters, May 14, 2021. <https://www.reuters.com/world/asia-pacific/us-will-not-leave-australia-alone-face-china-coercion-blinken-2021-05-13/>

<sup>13</sup> Down Under Leaders Minimize China Split, Urge Virus Probe. Associate Press, May 31, 2021. <https://www.msn.com/en-us/news/world/down-under-leaders-minimize-china-split-urge-virus-probe/ar-AAKYmuV> Ardern claimed also that New Zealand remained a committed member of Five Eyes intelligence-sharing alliance with Australia, US, Britain and Canada, “That is not in question, not in doubt.” Ibid.

<sup>14</sup> Australia to Upgrade Military Bases, Expand Wargames with U.S., Reuters, April 28, 2021, <https://news.yahoo.com/australia-upgrade-military-bases-expand-233448046.html>

Britain (AUKUS), permitting the latter two to share US's advanced military technologies, including those in AI intelligence, cyber security, submarine capability and long range strike weaponry. The most prominent is US and UK will help Australian construct nuclear-powered attack submarines.<sup>15</sup> Immediately after, the Australian Defense Minister Peter Dutton who visited Washington announced on September 16 that more US marine troops will rotate through the nation's Darwin port base and that the two allies will cooperate on development of missiles and explosive ordnance, amid shared concerns about China's increasing assertiveness in the region.<sup>16</sup>

India is increasingly valued by the United States, first for strategic military function. In mid-March, US Secretary of Defense Austin visited India and reached a consensus with his Indian counterpart Raj Nath Singh to deepen US-India "strategic partnership" and cooperation in defense, intelligence and logistics, for the purpose of being "able to offer credible deterrence to China or anybody else who would want to take on the U.S." as Austin said.<sup>17</sup> On February 3, a B-1B strategic bomber accompanied by an Indian fighter arrived at Bangalore International Airport, the first of American bombers arriving at the Indian sub-continent since 1945.<sup>18</sup> On July 28, Blinken

<sup>15</sup> U.S. to Form Security Partnership with Australia, U.K., Including Australia Developing Nuclear Submarine. USA Today, September 16, 2021. <https://www.usatoday.com/story/news/politics/2021/09/15/national-security-u-s-australia-u-k-form-security-partnership/8349082002/https://www.sfgate.com/news/article/Australian-PM-rejects-Chinese-criticism-of-16466041.php>

<sup>16</sup> Australia Says More US Troops to Come, Plans Missile Project. News Daylight, September 17, 2021. <https://newsdaylight.com/2021/09/17/australia-says-more-us-troops-to-come-plans-missile-project/>

<sup>17</sup> Austin, Blinken Trip All About Partnership with Asian Allies, <https://www.defense.gov/Explore/News/Article/Article/2536551/austin-blinken-trip-all-about-partnerships-with-asian-allies/>

<sup>18</sup> B-1B Makes First US Bomber Visit to India since 1945. Air Force Magazine, February 8, 2021. <https://www.airforcemag.com/b-1b-makes-first-us-bomber-visit-to-india-since-1945/#:~:text=The%20bomber%20landed%20and%20went%20on%20static%20d>

meet India's top diplomat Subrahmanyam Jaishankar in New Delhi. According to Associate Press' report of the meeting, "Washington has made no secret of the U.S. desire for India's help in isolating China. The two countries have steadily ramped up their military relationship and signed a string of defense deals"; "The meeting sought to strengthen a regional front against Beijing's assertiveness in the Indo-Pacific and their cooperation in Afghanistan."<sup>19</sup> As a major mark of India's military role in Indo-Pacific, Ministry of Defense in New Delhi declared on August 2 to deploy four warships within a week in South China Sea for two months, and they would engage in joint drills with US, Japanese and Australian navies, besides with those of Singapore, Vietnam and the Philippines. This was called by a naval expert as "India's most visible 'show of flag' naval presence east of the Malacca Strait."<sup>20</sup> Between October 12 to 14, four Quad navies conducted the above-mentioned joint drills Malabar, with US nuclear-powered aircraft carrier Carl Vinson and several other warships from Japan, Australia and India.<sup>21</sup>

US Indo-Pacific Command in March was requesting US Congress to authorize USD 27.3 billion to fund a new program the Pacific Deterrence Initiative, spending this huge amount of money to (1) strengthen missile defense in Guam, (2) fund joint drills between US Indo-Pacific forces and those of other Quad members, (3) upgrading information technology for preventing China block allies' communication

isplay%2C,highlight%20growing%20ties%20between%20the%20U.S.%20and%20India.

<sup>19</sup> U.S., India Reach Agreement to Expand Multilateral Security Partnership. Associate Press, July 28, 2021. <https://www.marketwatch.com/story/u-s-india-reach-agreement-to-expand-multilateral-security-partnership-01627487131#>

<sup>20</sup> India to Deploy Naval Task Force into South China Sea and Beyond. CNN, August 3, 2021. <https://edition.cnn.com/2021/08/03/asia/india-warships-south-china-sea-intl-hnk-ml/index.html>

<sup>21</sup> U.S., Japan, Australia, India Begin Joint Naval Drill Amid China Rise. Kyodo, October 13, 2021. <https://english.kyodonews.net/news/2021/10/4a33ffe422fe-u-s-japan-australia-india-begin-joint-naval-drill-amid-china-rise.html>

in Indo-Pacific after breaking out of conflict.<sup>22</sup> By the time of Pentagon's formal request for Congressional authorization in early June, the amount of money requested has surpassed USD 50 billion, the proposed items to be funded added with new radar defense system in Hawaii, increase of naval, air force and marine troops in the Pacific, and more assets of intelligence and reconnaissance.<sup>23</sup>

## II. QUAD'S FLEXIBLE EXPANSION TO UK, EU POWERS, NATO, AND ROK

Quad is promoting its expansion, with a rapid effectiveness. It is striving to include directly or indirectly Great Britain and EU major powers, to connected closely with NATO, and even to have a partially participation in it of Republic of Korea. It is demonstrating that it is expanding the coverage of its flexible functional areas, making them include various non-strategic military and para-strategic military aspects. If one would like to use a concept shaped by the Obama Administration, one might define that as Quad's "smart power".

It is obviously a Biden Administration's objective to increase Quad's major power members and expand its connection with at least some other Western major ones. As to this *The Times* reported as early as January 29 that the British government under Boris Johnson responded very positively, making that as a major part of the British post-Brexit strategic foreign policy.<sup>24</sup> On March 16, the Cabinet presented to the Parliament a planning document on foreign policy orientation

<sup>22</sup> U.S. Commander Seeks \$27 Billion Master Plan to Hold Back PLA in Indo-Pacific, *South China Morning Post*, March 3, 2021; U.S. Admiral Calls for Ground-based Offensive Weaponry in Western Pacific, <https://wtaq.com/2021/03/09/u-s-admiral-calls-for-ground-based-offensive-weaponry-in-western-pacific/>

<sup>23</sup> US Military Gets "Laser Focused" on Keeping Up with China. CNN, June 11, 2021. <https://edition.cnn.com/2021/06/11/asia/us-military-focus-china-intl-hnk/index.html>

<sup>24</sup> Boris Johnson Considers Join "Asia Nato" to Resist China, *The Times*, January 29, 2021. <https://www.thetimes.co.uk/article/boris-johnson-considers-joining-asian-nato-to-resist-china>

after Brexit, defining two foreign policy priorities: working with the United States and deploying the British strategic military forces to Indo-Pacific, a region becoming "increasingly the geopolitical centre of the world"<sup>25</sup> Six months later Biden announced as mentioned above that the United States is developing a new sort of security partnership AUKUS, sharing advanced military tech, and helping Australia to develop a fleet of nuclear-powered attack submarine. Moreover, before the emergence of Australian nuclear submarine which must be many years later, AUKUS would probably promote the operational combination of the three navies in various ways. This was declared as an envisaged principle by Campbell, the Indo-Pacific Coordinator of the US National Security Council, at the US Peace Institute on November 10. "I would think, in the next little while, we will have more British sailors serving on our naval vessels, Australians and the like, more of our forward-deployed assets in Australia" ; "This leads to a deeper interconnection and almost a melding, in many respects, of our services and working together on (a) common purpose that we couldn't have dreamed about five, 10 years ago."<sup>26</sup>

More or less resulted from coordination with Quad, Britain, France and Germany have declared to demonstrate their military power in South China Sea and even beyond within 2021. France is the most active therein. A French nuclear-powered attack submarine has already

<sup>25</sup> U.K. Seeks to "Moderate" China with Push for More Influence in Indo-Pacific, Reuters, March 16, 2021, <https://www.gdnonline.com/Details/939271/UK-seek-s-more-influence-in-Indo-Pacific-as-moderating-impact-on-China>

<sup>26</sup> US Navy "Melting" with United Kingdom and Australia in Race to Counter China Threat. *Washington Examiner*, November 19, 2021. <https://www.msn.com/en-us/news/world/us-navy-melding-with-united-kingdom-and-australia-in-race-to-counter-china-threat/ar-AAQV6KX>. Campbell said also that "Each of our countries has certain areas of deep innovation — whether it's in cyber, whether it's in undersea capabilities, whether it's military AI" , "And so I think there's a desire to engage to see what we can learn from each other, to see what can be harvested from that in applicable ways that will help engender a more effective security and deterrent approach." Ibid.

gone across South China Sea in early February, while an amphibious assault ship and a frigate of France would go across twice the water claimed by Beijing there;<sup>27</sup> As part of the annual mission of Jeanne d'Arc, French warships will participate in the massive joint drill conducted by the navies of all Quad members. Moreover, France associated with Japan and US conducted a ground operation exercise named ARC 21 in Japan's southwest prefectures Nagasaki, Miyazaki and Kagoshima, with 100 Japanese soldiers of the Ground Self-Defense Force, 60 of the French Army, and 60 of US marines engaged, as well as relating warships and military aircrafts. The Japanese Defense Minister Kishi claimed on the eve of the exercise that France France "is the only European country with a permanent military presence in the Indo-Pacific region. It is also a like-minded country that shares with Japan the vision of a free and open Indo-Pacific."<sup>28</sup>

The Royal Navy's action is featured by supermassive scale, allied-collecting, and extra-pompous. On May 22, the most advanced aircraft carrier Queen Elizabeth, electronic powered with tonnage of 65000 tons, led its massive strike group set sail from Portsmouth to Indo-Pacific, a strategic journey including sailing across South China Sea and visiting Singapore, ROK, Japan and India, conducting several joint exercises with fleets from allies and partners, marked by British Defense Secretary Ben Wallace as "the most significant Royal Navy deployment in

a generation".<sup>29</sup> Toward the end of May, this strike group reached Portuguese coast and started joint drill with a NATO naval force including 18 warships and 5000 soldiers. NATO Secretary-General Jens Stoltenberg, an ardent and persistent advocate of NATO's strategic involvement in Indo-Pacific, came on deck of Queen Elizabeth and declared "We face global threats and challenges, including the shifting balance of power with the rise of China," adding that the joint drill "sends a message of NATO's resolve".<sup>30</sup> Around June 21, several US Marine F-35B fighters took off Queen Elizabeth accompanied by that of the British to strike over the Middle East Islamic State (IS)'s targets, as the first launching of American aircrafts for a combat mission from foreign warship since 1943.<sup>31</sup> On July 27, as soon as Queen Elizabeth entered into South China Sea via Singapore strait, it at one rallied with two British warships and one for US and the Netherlands each within its strike group

<sup>29</sup> HMS Queen Elizabeth's Indo-Pacific Deployment to Boost U.K.-Japan Cooperation, February 4, 2021. <https://www.navalnews.com/naval-news/2021/02/hms-queen-elizabeths-indo-pacific-deployment-to-boost-uk-japan-cooperation/> Besides Queen Elizabeth, this strike group composed of two guided missile destroyers, two frigates, two supply ships and one submarine, all British, together with one US guided missile destroyer of US navy and one Dutch frigate. Queen Elizabeth was armed with 18 F35B fighters, among which 10 coming from US Marine conducted by about 100 American soldiers on board of that aircraft carrier. US Marine Corps F35B Flew over 5000miles for A Deployment Aboard UK Aircraft Carrier HMS Queen Elizabeth. April 28, 2021. <https://news.yahoo.com/us-marine-corps-f-35s-182643750.html>

<sup>30</sup> Battleship Diplomacy: Britain's New Aircraft Carrier Joins NATO, Has Messages for China. Reuters, May 28, 2021. <https://www.usnews.com/news/world/articles/2021-05-28/battleship-diplomacy-britains-new-aircraft-carrier-joins-nato-has-message-for-china>

<sup>31</sup> HMS Queen Elizabeth: US F-35B Fighter Jets Fly First Combat Missions off Foreign Aircraft Carrier Since World War II. CNN, June 23, 2021. <https://www.msn.com/en-us/news/world/hms-queen-elizabeth-us-f-35b-fighter-jets-fly-first-combat-missions-off-foreign-aircraft-carrier-since-world-war-ii/ar-AALkDz1>

<sup>27</sup> France Sends Navy Mission to South China Sea As Tensions Build in Beijing's Back Yard, *The Telegraph*, March 7, 2021; France Wades into South China Sea with A Nuclear Attack Submarine, <https://uk.news.yahoo.com/france-wades-south-china-sea-155309089>

<sup>28</sup> Japan Ground Troops Begin Joint Military with U.S., France, Kyodo, May 11, 2021. <https://english.kyodonews.net/news/2021/05/51e31fa1344b-japan-us-french-troops-begin-joint-military-drill-in-japan.html>

to conduct a joint drill with three warships of Singapore.<sup>32</sup>

It would be too lengthy to list all the other exercises this strike group engaged with other national naval forces in its first transoceanic journey but only two the most significant. On October 2 and 3, Queen Elizabeth rallied with two US nuclear-powered aircraft carriers Ronald Reagan and Carl Vinson and the Japanese helicopter carriers capable of launching F-35B, as well as warships of the Netherlands, Canada and New Zealand, conducted a massive drill southwest to Okinawa, adjacent to both Taiwan and East China Sea.<sup>33</sup> During November, before or after China-US visual summit, USS Ronald Reagan and Carl Vinson, HMS Queen Elizabeth, and JMSDF Kaga and Ise capable of F-35B launching conducted several joint exercises in Indo-Pacific including the western Pacific, surely relating to Taiwan in the first place.<sup>34</sup>

There are also other major player in Europe and elsewhere engaging in the same sort of activity. The German government announced in early March that a German frigate would sail to Asia in August, sailing through South China Sea without touching 12 nautical mile water around isles

controlled by China.<sup>35</sup> On August 2 this German frigate Bayern sailed from Wilhelmshaven off North Sea, with a statement from German Defense Minister Annegret Kramp-Karrenbauer that the first such deployment in almost 20 years was meant to uphold freedom of navigation in international waters, protect “open societies” and express support for regional partners sharing Germany’s values.<sup>36</sup> EU as a collectivity has also launched diplomatic interference over South China Sea. It issued a statement on April 24 to condemn China’s behavior, including the protracted staying of a Chinese fishing fleet composed of about 200 vessels at Whitson Reef, had hurt peace and stability of South China Sea, and to urge all disputing parties to abide by the ruling of the Hague Tribunal on the Philippines’ lawsuit, which denies all claims of China on its maritime rights and sovereignty in South China Sea.<sup>37</sup> Pleasure to US Chief of Naval Operations Admiral Michael Gilday, allied navies expressed great interest to him for spending more time and resources to joint training with US navy, especially for hunting Russian and Chinese submarines. In fact, during 2021 Canadian, Australian, Japanese and India navies have practiced that, and Australia, India, ROK and New Zealand bought Boeing P-8 Poseidon anti-submarine patrol aircraft.<sup>38</sup>

At the present and in the predictable future, in most of the major issue areas they concern, EU and its major powers adopt and will continue to adopt positions same or similar with the United

<sup>32</sup> China Media Says U.K. Still in “Colonial Days” as Navy Enters Contested Waters. Newsweek, July 28, 2021. <https://www.newsweek.com/china-says-uk-still-colonial-days-navy-enters-contested-waters-1613549>

<sup>33</sup> China Mounts Largest Incursion Yet Near Taiwan, Blames U.S. for Tensions. Reuters, October 4, 2021. <https://news.trust.org/item/20211004144313-afbyb; Taiwan Says China Military Plane Incursions Hit Record 56 on Mon. Kyodo, October 4, 2021. https://english.kyodonews.net/news/2021/10/8acc90e70e5b-taiwan-says-china-military-plane-incursions-hit-record-56-on-mon.html#>. 参见 China’s Xi Instructs Army to Increase Military Pressure Near Taiwan. Kyodo, October 5, 2021. <https://english.kyodonews.net/news/2021/10/6786aa355c92-chinas-xi-instructs-army-to-increase-military-pressure-near-taiwan.html#>

<sup>34</sup> US, UK, and Japanese Aircraft Carriers Are Training Together in the Pacific. Here’s How Their “Big Decks” Stack Up. Insider Asia, November 29, 2021. <https://visionnewspapers.com/us-uk-and-japanese-aircraft-carriers-are-training-together-in-the-pacific-here-s-how-their-big-decks-stack-up/>

<sup>35</sup> Beijing to Berlin: Respect South China Sea Sovereignty during Frigate Visit, *South China Morning Post*, March 3, 2021.

<sup>36</sup> German Warship “Bayern” Heads to the Indo-Pacific. DefenseNews, August 3, 2021. <https://www.defensenews.com/global/europe/2021/08/02/german-warship-bayern-heads-to-the-indo-pacific/>

<sup>37</sup> EU Blames China for Endangering Peace in South China Sea, Reuters, April 25, 2021, <https://www.reuters.com/world/china/eu-blames-china-endangering-peace-south-china-sea-2021-04-25/>

<sup>38</sup> US Allies Want to Spend More Time Practicing to Hunt Russian and Chinese Subs, Top Navy Admiral Says. Insider Asia, July 1, 2021. <https://www.businessinsider.com/allies-want-more-training-with-us-navy-top-admiral-says-2021-6>

States and its maritime allies, or in other words having more agreements than disagreements. This results from their independent decisions, American influences, and the interactions between either. What are these issue areas or “big spots” or structural confrontation or rivalry? They are Taiwan, South China Sea, US-Japan military alliance and East China Sea, Quad as well as its connection with NATO, arms race, Xinjiang, Hong Kong, trade disputes and industrial policy, high tech decoupling and containment, realignment of supply chains, ideological competition, claimed cyber attack and disinformation, international independent investigation on the origins of COVID-19 pandemic, as well as Belt and Road Initiative.<sup>39</sup> On these, the position and behavior taken by EU and its major powers are criticizing, confronting or competing China, only somewhat milder than US and its maritime allies. Let alone that they have been quite pleased to see a Washington under Biden much valuing, respecting and “hooking in” them, so it is inevitable for them to be more susceptible to its influence.

Indeed, EU and its major powers has adopted positions similar with those of China and engaged in cooperation with China on a few issue areas, i.e., trade, investment to China, committing in principle to multilateralism and global governance, and Iranian nuclear problem. These

<sup>39</sup> On BRI, EU Foreign Ministers Conference on July 12 passed an infrastructure construction principle plan titled “A Globally Connected Europe”. According to Reuters’ report of that, “The EU has already signed partnerships with Japan and India to coordinate transport, energy and digital projects linking Europe and Asia. Both Tokyo and Delhi are worried about Chinese largesse that officials say makes poorer countries beholden to Beijing because they are forced to take on such large debts.” German Foreign Minister Heiko Maas told reporters on that in Brussels: “We see China using economic and financial means to increase its political influence everywhere in the world. It’s useless moaning about this, we must offer alternatives.” “It is important that the European Union... coordinates them very closely with the United States,” he said. After G7 Pledge, EU Seeks to Rival China’s “Belt and Road” with Own Infrastructure Plan. Reuters, July 12, 2021. <https://www.reuters.com/article/us-eu-china-idUSKBN2EI0XY>

are of course important to both China and Europe. However, they will not have, or at least not be likely to have, a decisive and sustainable role in China-Europe relations, and remarkably block Europe’s approaching to US in attitude toward China.

The Biden Administration pushes NATO to connect with Quad or its members beside the United States, with a paramount associate in NATO Secretary-General Stoltenberg who has persistently promote NATO’s military involvement in Indo-Pacific.<sup>40</sup> At NATO Foreign Ministers Meeting online on June 1, Blinken put much emphasis on NATO’s requirement to strengthen ties with Japan, Australia, ROK and New Zealand, and supported Stoltenberg’s efforts to make NATO more resilient and more capable to deal with comprehensive challenges from China and Russia.<sup>41</sup> On the even of Biden’s visit to Europe in mid-June, Amada Sloat, the senior director on European affairs at National Security Council, said that it was important for Nato “to take action to ensure that it is appropriately postured to deal with newer threats”, “China is one of those, and I think leaders (of NATO members) are going to be taking stock of the need to adapt to the strategic challenge that Beijing poses to our collective security, prosperity and values.”<sup>42</sup>

<sup>40</sup> The most loud cry of Stoltenberg on this is his public appealing to liberal democracies in Europe, Asia and Oceania on June 8, 2020. He called them to unite to “to defend the global rules and institutions that have kept us safe for decades”, to “stand up for a world built on freedom and democracy. Not on bullying and coercion.” He particularly emphasized that looking forward the next decade “we need to work even more closely with like-minded countries, like Australia, Japan, New Zealand, South Korea”. NATO Chief Urges Allies Not to Go It Alone. Associate Press, June 8, 2020. <https://apnews.com/article/fdc9b798df5559d1c22b5662bo096dde>

<sup>41</sup> U.S. Calls on NATO to Deepen Ties with Japan Amid China’s Rise. Koyodo, June 2, 2021. <https://english.kyodonews.net/news/2021/06/bdf40f7c1c09-u-s-calls-on-nato-to-deepen-ties-with-japan-amid-chinas-rise.html>

<sup>42</sup> China the Spectre at the Feast As Biden Aims to Rally Democracies on Europe Trip. *The Guardian*, June 10, 2021.

On June 14 in Brussels, NATO members summit was held in which President Biden himself participated. The communique of the summit claimed that “China’s stated ambitions and assertive behavior present systemic challenges to the rules-based international order and to areas relevant to alliance security”, declared that NATO planned to strengthen “political dialogue and practical cooperation” with Japan and Australia, as well as New Zealand and ROK to promote cooperative security and support the rules-based international order. Jack Sullivan, Biden’s National Security Advisor said that the United States had made other NATO members at the summit to agree to revise NATO’s “Strategic Concept” or its strategic general principles in the next year’s summit, incorporating in it meeting challenges posed by China.<sup>43</sup>

Washington has also looked to Seoul in striving to integrate various alliances working together against China. It has two leverages to force ROK to move in this direction: the uncertainty to provide COVID vaccines and the uncertainty to continue to permit the use of high tech for production of semiconductor chips. By April, American efforts at last achieved significant effect. *Chosun Ilbo*, the biggest ROK newspaper reported on April 30 that, according to the presidential Blue House sources, President Moon Jae-in had decided to formally inform President Biden during his forthcoming visit to Washington a “partial participation” in Quad by ROK, in the aspects of high tech, especially that for semiconductor products, delivery of COVID-19 vaccines and addressing of climate change.<sup>44</sup> On May 21, in press conference after the summit with Moon, Biden said “This is what I like about this

<sup>43</sup> NATO Says China Poses “Systemic” Challenges, to Enhance Japan Ties. Kyodo, June 15, 2021. <https://english.kyodonews.net/news/2021/06/1bda276ef812-urgent-nato-says-china-poses-challenges-to-cooperate-with-japan-s-korea.html>. NATO’s existing “Strategic Concept” issued in 2010, in which Stoltenberg said “China is not mentioned with a single word.”

<sup>44</sup> Korea to Support U.S.-Led Anti-China Alliance, *Chosun Ilbo*, April 30, 2021. <https://english.kyodonews.net/news/2021/05/4c29d1355688-japans-suga-holds-talks-with-eu-leaders-on-vaccines-indo-pacific.html>

President: He’s not just talking about any more than I’m just talking about the United States or just Korea, he’s talking about the Indo-Pacific. He’s talking about the world”.<sup>45</sup> Meanwhile, Moon declared that ROK and US agreed to working together to constitute stable supply chains of semiconductor, electric vehicle (EV) batteries and pharmaceuticals.<sup>46</sup> On the same date, four Korean mega-businesses including Samsung Electronics and LG declared US-directed investment plan in amount of USD 39.4 billion, in which Samsung Electronic would spend 17 billion for constructing a foundry plant, LG Energy Solutions and SK spend 14 billion for innovations, and Hyundai Motor spend 7.4 billion for EV production and charging infrastructures.<sup>47</sup>

Surprisingly and possibly ominous, President Moon said in the joint statement with Biden that South Korea would work with the United States on “peace and stability in the Taiwan Strait”.<sup>48</sup> Also quite worthy to be noted that according to the continuing reports since October 2019, Moon’s government has been engaging in the largest strategic buildup South Korea ever has for many years, for constructing one aircraft carrier capable of launching F-35B and two nuclear-power attack submarines. The purpose is claimed to increase the capability of long-range power projection to participating in protection of the Middle East sea lanes which is vital for oil

<sup>45</sup> Biden Announces US to Vaccinate 550,000 South Korean Service Members against Covid-19. CNN, May 22, 2021. <https://www.msn.com/en-us/news/world/biden-announces-us-to-vaccinate-550-000-south-korean-service-members-against-covid-19/ar-AAKeP4W>

<sup>46</sup> Moon Jae-in: ROK and US Will Constitute Together Supply Chains of Semiconductor, Batteries, and pharmaceuticals (in Chinese). YNA, May 22, 2021. <https://cn.yna.co.kr/view/ACK20210522001200881?section=politics/index>

<sup>47</sup> Four Korean Mega-business Groups Announced Plan of USD 39.4 Billion Investment in US (in Chinese). YNA, May 22. <https://cn.yna.co.kr/view/ACK20210522000200881?section=economy/index>

<sup>48</sup> S. Korea’s Moon Heads for G7 Summit Overshadowed by China. Reuters, June 11, 2021. <https://www.reuters.com/world/asia-pacific/skoreas-moon-heads-g7-summit-overshadowed-by-china-2021-06-11/>

supply.<sup>49</sup> Perhaps in the future, the similar vital sea lanes to be participated by ROK in protection protected might be also in South China Sea. Moreover, Moon declared at the press conference on May 21 that the United States agreed to abolish the limitations imposed on ROK-made missiles (Prohibiting more than 800 kilometers in range and 500 kilograms in weight of warhead). So ROK is believed to prioritize the development of intermediate missiles with 1000 to 5000 kilometers in range, enabling it to strike target far beyond the Peninsular; It is also possible that ROK may try to develop longer range submarine missiles and hypersonic weaponry.<sup>50</sup> In fact, immediately after that abolition, ROK's high tech strategic buildup at one trends to in full swing. Defense Acquisition Program Administration (DAPA) announced on August 19 to establish a task force to further develop space capabilities for military, aimed at launching 110 dual-use satellites, while endorsed to invest nearly \$13 billion over the next decade for that.<sup>51</sup> *DongA Ilbo*, the second biggest ROK newspaper, reported on September 7 that Agency for Defense Development recently conducted successful two test launches of an submarine-launched ballistic missile (SLBM) from Dosan Anchangho, the first 3000-ton submarine commissioned in August. On September 15, with the President Moons attending, SLBM was again launched successfully from that

<sup>49</sup> As Tension Rise in Asia Pacific, South Korea Is Building Its First Aircraft Carrier...Complete with US-Made Fighter Jets. CNN, August 12, 2020. <https://edition.cnn.com/2020/08/12/asia/south-korea-aircraft-carrier-intl-hnk-scli/index.html>; South Korea Navy to Acquire Two Nuclear Power Submarine, Navy Recognition, October 14, 2019. <https://www.navyrecognition.com/index.php/news/defence-news/2019/october/7585-south-korea-navy-to-acquire-two-nuclear-power-submarine.html>

<sup>50</sup> US Lifts Missile Restrictions on South Korea, Ending Range and Warhead Limits. DefenseNews, May 25, 2021. <https://www.defensenews.com/global/asia-pacific/2021/05/25/us-lifts-missile-restrictions-on-south-korea-ending-range-and-warhead-limits/>

<sup>51</sup> With Restrictions Lifted, South Korea Launches \$13B Space Power Scheme. DefenseNews, September 7, 2021. <https://www.defensenews.com/space/2021/09/06/with-restrictions-lifted-south-korea-launches-13b-space-power-scheme/>

submarine. The large scale production and deployment is expected to start soon.<sup>52</sup>

What South Korea has done demonstrates that “partial participation” in Quad is an important way to expand that strategic coalition pushed by the Biden Administration, enabling it to expand the functional fields it covers, covering in addition various non-military or para-military ones. Campbell on May 26 in effect announced it as a principle in an event at Stanford University. He said the “operating system” the United States had helped build in Asia remained intact but was “under substantial strain” in the face of China's rise. “It's going to need to be reinvigorated in a number of ways”, he said, “not just by the United States, but other countries that use the operating system and that means Japan, that means South Korea, Australia, countries in Europe that want to do more in Asia and across the board.”<sup>53</sup>

### III. TEAMING UP WITH ALLIES OR PARTNERS ON THE PART OF CHINA

Starting from the Trump Administration, then continuing and much aggravating by the Biden one, the United States almost constantly strengthens and upgrades its precaution, threats, containment, isolating and rollback against China. Though international politics has been so often interactive in intensifying its dynamics for confrontation, rivalry and conflict, it is indeed that those US behavior has forced China to team up with allies or partners. So has been emerging there a structure of confrontation and rivalry between two coalitions, at least since late March 2021.

Russia, just because its raw strength, especially military, as well as its extra-hardline posture

<sup>52</sup> South Korea Virtually Completes the Development of SLBM. *DongA Ilbo*, September 7, 2021; S. Korea Successfully Tests Submarine-launched Ballistic Missile. Kyodo, September 15, 2021. <https://english.kyodonews.net/news/2021/09/15...submarine-launched-ballistic-missile.html>

<sup>53</sup> U.S. Says Looking at Quad Meeting in Fall Focused on Infrastructure. Reuters, May 26, 2021. <https://www.usnews.com/news/world/articles/2021-05-26/us-says-looking-at-quad-meeting-in-fall-focused-on-infrastructure>

toward the West, is overwhelmingly important to China's external strategy, far surpassing the values other allies and partners combined. The foreign ministers of the two countries met on March 22 to 23 in China's southwest city Guilin, with the Russian minister appealed for reduction of the reliance of both on US Dollars and the western payments institutions, as well as for joint counterattack against the western ideological condemnation and for cooperation against American hegemony, while the Chinese Foreign Ministry announced that the both sides by their joint statement resulted from the meeting "expounded the correct inner contents of the concepts of human rights, democracy, international order and multilateralism, demonstrated the firm will of both China and Russia to defend the international fairness and justice."<sup>54</sup> After three summits in Europe attended by Biden himself, Russia conducted the largest naval drill in Pacific ever since the end of the Cold War, away from Hawaii only a few hundred miles in distance, while the Chinese Foreign Ministry declared significantly that there would be no ceiling imposed on China-Russia strategic partnership.<sup>55</sup> On June 28, Presidents Xi and Putin held a virtual summit, resulting a joint statement to declare a renewal of China-Russia Good Neighborly Treaty of Friendship and Cooperation and mutual support of each other's domestic and international policies without reservation. Russian state's Novosti (RIA) claimed at the same day that US's behavior could lead to

<sup>54</sup> Russia, China Push for U.N. Security Council Summit, Lash Out at West. Reuters, March 22, 2021. <https://www.reuters.com/article/us-russia-china-un-idUSKBN2BF0GO>; Foreign Ministry's response to the Chinese and Russian Foreign Ministers' Meeting in Guilin (in Chinese), People's Daily's Client, March 23, 2021. <https://baijiahao.baidu.com/s?id=1695010133231417174&wfr=spider&for=pc>

<sup>55</sup> Russia Conducts largest Pacific Naval Exercise Since Cold War. CBS NEWS, June 16, 2021. <https://news.yahoo.com/russia-conducts-largest-pacific-naval-193100111.html>; Foreign Ministry spokesperson: China-Russian Cooperation Has no ceiling and practical (in Chinese), International Online, June 15, 2021. <https://baijiahao.baidu.com/s?id=1702640139140172801&wfr=spider&for=pc>

the creation of Russia-China military alliance.<sup>56</sup> It is really what seems to be: The Foreign Ministers of the two countries met in Tashkent, then the Russian Foreign Ministry announced that both Ministers "stated that the existing bilateral ties surpass such a form of interstate interaction as military-political alliances of the Cold War era." This definition of the relationship was repeatedly emphasized by Russian Foreign Minister and Russian embassy in Beijing.<sup>57</sup>

In early and mid-August, China-Russia joint military exercise began to escalate to a new level: establishing joint command of joint drill, co-operability of each other's military equipment in the drill, and conducting it for the first time within the Chinese mainland.<sup>58</sup> From October 14 to 17 the Chinese and Russian navies conducted a joint exercise in Sea of Japan, during which for the first time their warships (10 on the occasion) sailed through Tsugaru Strait, an international waterway between Sea of Japan and the Pacific (also between Honshu and Hokkaido).<sup>59</sup> For the first time too, about October 23 the same Chinese and Russian warships sailed through Osumi Kaikyo, an international waterway south of Kagoshima, to enter into East China Sea.<sup>60</sup> Then,

<sup>56</sup> Russia-China Military Alliance Talk Grows to Counter U.S. Pacific Plans. Newsweek, June 28, 2021. <https://www.newsweek.com/russia-china-military-alliance-talk-grows-counter-us-pacific-plans-1604604>

<sup>57</sup> Russia Says Its Ties to China Are Now Closer Than Any Cold War Military Alliance. Newsweek, July 16, 2021. <https://www.tasnimnews.com/en/news/2021/07/16/2538923/russia-says-its-ties-to-china-are-now-closer-than-any-cold-war-military-alliance>

<sup>58</sup> Cf. Chinese and Russian Militaries Link Up, But Analysts Say Both Sides Have Differing Objectives. CNN, August 16, 2021. <https://edition.cnn.com/2021/08/16/asia/chinese-russian-military-ties-in-tl-hnk-ml/index.html>

<sup>59</sup> Chinese, Russian Warships Pass Through Tsugaru Straits 1<sup>st</sup> Time. Kyodo, October 19, 2021. <https://english.kyodonews.net/news/2021/10/b22862b9c8c8-chinese-russian-warships-pass-through-tsugaru-strait-for-1st-time.html>

<sup>60</sup> Chinese, Russian Warships Pass Through Osumi Strait for 1<sup>st</sup> Time. Koyodo, October 23, 2021. <https://english.kyodonews.net/news/2021/10/9f5893987869-chinese-russian-warships-pass-through-osumi-strait-for-1st-time.html>

on November 19, four nuclear-capable strategic bombers of China and Russia (two of each) conducted “joint patrol” in Sea of Japan for longer than 10 hours, resulting in emergent alert flights of the Japanese and ROK fighters.<sup>61</sup> On November 23, the Chinese and Russian Defense Ministers signed online a bilateral “roadmap of military cooperation” for the period to 2025. The Russian signer emphasized that the interaction between the two countries was particularly relevant today in increasing tumultuous geopolitics and aggravating potential for conflict in various parts of the world.<sup>62</sup>

However, delicate or making one have a queer feeling, when China’s military aircrafts drastically made the highest record in entering adjacent airspace over Taiwan in early October, and when the Chinese military deterrence and squeeze have had overwhelming priority in policy system toward Taiwan, President Putin received an interview of American media CNBC on October 13 and said “China does not need to use force (to realize reunification across the Taiwan Strait). “China is a huge powerful economy, and in terms of purchasing parity, China is the economy number one in the world ahead of the United States now” ; So “China, with its growing economic potential, was capable of implementing its national objectives.” Does this mean that as there is a really severe military tension, Putin would not agree with using force as the last resort for solving the Taiwan problem as the Chinese government has repeatedly declared for decades? At the same time Putin said something on South China Sea disputes which does not shown full agreement with China’s fundamental position.<sup>63</sup>

<sup>61</sup> Defense Chief reports to Putin on Successful Patrol of Russian, Chinese Strategic Bombers. Tass, November 19, 2021. <https://tass.com/defense/1363797> ; China and Russia Vow Not to Let West Divide Them. Washington Examiner, November 20, 2021. <https://www.msn.com/en-us/news/world/china-and-russia-vow-not-to-let-west-divide-them/ar-AAQVaj4>

<sup>62</sup> Ibid.

<sup>63</sup> President Putin on Taiwan: “China Does not Need to Use Force”. CNBC, October 14, 2021. <https://www.cnbc.com/2021/10/13/president-putin-on-taiwan-china-does...>

The Ukraine Crisis! For China, it happened also in an immediate context that in spite of a few concrete instances of cooperation - all quite limited, indecisive and likely temporary – the 16 November 2021 online summit between Presidents Xi Jinping and Joe Biden demonstrated how difficult it is for both countries to achieve a lasting shared understanding in any major issue area, and even how easily several of them can deteriorate further from an already high level of tension. The issue of Taiwan of course continues to be the most prominent and significant hot spot. Biden Administration strongly pursues a situation in which the US can safely broaden and deepen the almost comprehensive support it gives Taiwan, including military support, together with broadening and deepening the rivalry against China in the Indo-Pacific region and even beyond without risk of military conflict. Moreover, during the short time span of only about one and half months, Washington has displayed a very hard line approach, harder than almost ever before, on issues as Xinjiang, realignment of supply chains mainly against China, high tech “containment” , and Indo-Pacific regional rivalry.<sup>64</sup>

Because of their respective increasingly intensive rivalries with the US, and to a somewhat lesser degree with the rest of the world, China and Russia have become now by way of the simple arithmetic of international politics what resembles a sort of para-alliance. But the arithmetic still has a complicated element, namely up to now there is no indication that the Russians commit in any degree to give military support to the Chinese in a potential conflict over Taiwan, and vice versa the Chinese are unwilling to commit to assisting Russia militarily over Ukraine.

The Chinese government and its top leader have just repeatedly declared that Russia’s legitimate

<sup>64</sup> Discourse with Shi Yinhong, “US and China Neck-and-neck in a New Cold War,” *The Korea Herald*, January 11, 2022; Shi Yinhong, “The Continued Downturn of US-China Relations and Beijing’s Approach to the Ukraine Crisis,” JOINT, February 2022. <https://www.jointproject.eu/2022/02/11/the-co....-approach-to-the-ukraine-crisis/>

security concerns should be paid attention to and solved, and furthermore, Putin's demand that the security framework in Europe should be reorganized to guarantee the security of every European country (that means, one can believe, the eastern European members of NATO should withdraw from that alliance and their military connection with US and other western powers should be cut off) has been supported by China.<sup>65</sup> All these can be read as quite pro-Russian. But such a declaration of support has been immediately mitigated by another statement by the Chinese government according to which all parties should remain calm and not do anything to increase the tension further and aggravate the crisis.<sup>66</sup> Taking Russian President Vladimir Putin's strong resolve to challenge Europe's security order into account, one can doubt that Beijing is willing or even able to mitigate his intentions towards Ukraine.

Iran? Of course. The signing in Tehran of a China-Iran agreement toward the end of March for China's investment of 400 billion USD in Iran in 25 years, including those for military cooperation.<sup>67</sup> On January 21, 2022, in the process of escalation of the Ukraine crisis, the navies of Iran, Russia, and China began to conduct a joint drill in a sea area of 17000 square kilometer from the north Indian Ocean to Gulf of Oman.<sup>68</sup> The

<sup>65</sup> Top U.S., Chinese Diplomats Fail to Agree on Ukraine Situation. Kyodo, January 27, 2022. <https://english.kyodonews.net/news/2022/01/ac445ad39b86-top-us-diplomat-tells-china-of-global-risks-over-ukraine-situation.html>; Xi and Putin Urge NATO to Rule Out Expansion as Ukraine Tensions Rise. The Guardian, February 4, 2022. <http://www.theguardian.com/world/2022...a-russia-tensions-grow-west>

<sup>66</sup> Top U.S., Chinese Diplomats Fail to Agree on Ukraine Situation. Kyodo, January 27, 2022. <https://english.kyodonews.net/news/2022/01/ac445ad39b86-top-us-diplomat-tells-china-of-global-risks-over-ukraine-situation.html>;

<sup>67</sup> China and Iran Sign Agreement of Comprehensive Cooperation for 25 Years, Involving Political, Strategic, and Economic Cooperation (in Chinese), CGTN, March 28, 2021. [https://www.guancha.cn/international/2021\\_03\\_28\\_585519\\_s.shtml](https://www.guancha.cn/international/2021_03_28_585519_s.shtml)

<sup>68</sup> Iran, China and Russia Hold Naval Drills in North Indian Ocean. Reuters, January 21, 2022. <https://www.usnews.com/news/world/articles/2022-01-21/ir>

related developments could be skipped off for brevity. So too China's rejection of any public criticism against the behavior of Myanmar's Junta in overthrowing civilian parliamentary government and its bloody suppression against the massive protest movement.

Changes in the relations between China and North Korea could be said as the most remarkable in the context here. On March 22, Xi Jinping and Kim Jong En exchanged oral messages, via respectively the head of the international department of the CCP Central Committee and newly appointed DPRK ambassador to China. Xi, according to Xinhua News Agency, stated that "China is willing to work with DPRK and other related parties, insists the direction of political solution of the Peninsular problem, maintains peace and stability of the Peninsular, and makes new positive contributions to regional peace, stability, development and prosperity." An omission was the most important and extraordinary: Denuclearization of the Peninsular, a consistent major position expressed in every statements of the Chinese government on the Peninsular since 2003, was impressively not referred to.<sup>69</sup> Korean Central News Agency (KCNA) reported on July 11 that for 60<sup>th</sup> anniversary of China-DPRK treaty of alliance, Kim sent a telegraph to Xi to say that the bilateral "comradely mutual trust and militant friendship increasingly strengthened" in front of "hostile forces", while Xi telegraphed to Kim to express the resolution of "constantly leading the bilateral relations of friendship and cooperation to enter into a new stage."<sup>70</sup> At the end of the same

[an-china-and-russia-hold-naval-drills-in-north-indian-ocean](https://www.guancha.cn/international/2021_03_28_585519_s.shtml)

<sup>69</sup> Secretary-General Xi Jinping exchanged oral messages with Kim Jong En, Secretary-General of Workers' Party of Korea (in Chinese). Xinhua Network, March 22, 2021. [https://www.guancha.cn/international/2021\\_03\\_28\\_585519\\_s.shtml](https://www.guancha.cn/international/2021_03_28_585519_s.shtml) Cf. Xi, Kim Share Messages Reaffirming China-N. Korea Alliance, Associate Press, March 23, 2021. <https://news.yahoo.com/xi-kim-share-messages-reaffirming-032853453.html>

<sup>70</sup> Leaders of N. Korea, China Vow Greater Cooperation in Face of Foreign Hostility: KCNA. Reuters, July 11, 2021. <https://www.usnews.com/news/world/articles/2021-07-10/leaders-of-nkorea-china-vow-greater-coope>

month, also according to KCNA, telegraphs were exchanged again between these two leaders, emphasizing that “both China and DPRK are socialist state led by Communist party.” In summary, China and North Korea have restored the alliance discourse and the expression of ideological commonality, while denuclearization of the Peninsula has no longer been an element of China’s position and policy toward North Korea.

All in all, like but later than the United States, China is also building up its “core coalition”. Great power rivalry has been so often symmetrical, rallying with allies and partners a major instrument available for strengthening China’s “position of strength”. Whether it could have this effect lastingly, of course, would be tested with vicissitudes in the future.

#### IV. CONCLUDING NOTE

A New Cold War has been at least emerging between the United States and China, if it has not yet definitely emerged. It is a New Cold War, of which one’s perception depends on whether one puts emphasis on the word “New” or on the phrase “Cold War”. If one emphasizes “New”, of course one could find numerous differences between U.S.-Chinese relations and the former U.S.-U.S.S.R. Cold War, though so many people today incline to overstate those. On the other hand, if one emphasizes “Cold War”, one is so easy to find that the current rivalry and confrontation between Washington and Beijing have already had some major and essential features of the old Cold War between Washington and Moscow, and even more so of that in the world history between two antagonistic greatest powers. We already have between Washington and Beijing severer and severer geopolitical and geo-strategic hostile actions, intensifying arms race, intensifying ideological rivalry, increasingly severe struggle in the areas of high tech, aggravating hostile and more nationalistic public opinion in either country against each other, driven by while restraining each other’s political leadership.

From this perspective respecting both current situation and historical experiences, what “New” are mainly the critical “decoupling” from those critical economic interdependence, making more and more critical areas fragmented and group-oriented separated, together with the strategic stalemate in Europe before 1980s has been replaced by the ominous strategic dynamics and fluidity now in East Asia and the Pacific and beyond, a situation sharply challenges intellectual and other capabilities of the present political and strategic leaderships in every major powers, let alone the pandemic and other imaginable climate-change related disasters that complicated things much further and often stunt leaderships’ talent in broad sense. Also “New” is the much more high-tech way of great power warfare or para-warfare that dramatically increases the dynamics of rivalry, making it so difficult to control. The “remnants” of economic interdependence and liberal globalization are likely not stronger than all the forces against stabilization.

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# New Forms of Post-Bureaucratic Control in the Education: Pisa on Political Speech Government in Spain

*Luz Herrero Casado*

## ABSTRACT

The thematic importance of the role of external evaluations in national education policy is becoming more and more important. In Spain, this trend is particularly evident when we look closely at the education reform process that began after the rise to power of the Partido Popular (PP) in January 2012. Their new education law (LOMCE: Ley Orgánica de Mejora de la Calidad de la Educación) explicitly includes numerous direct and indirect references to the PISA (Programme for International Student Assessment) of the OECD (Organisation for Economic Co-operation and Development) and the results references.

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# New Forms of Post-Bureaucratic Control in the Education: Pisa on Political Speech Government in Spain

Nuevas Formas De Control Postburocrático En La Educación: Pisa En Los Discursos Políticos Gubernamentales En España

Luz Herrero Casado

## ABSTRACT

*The thematic importance of the role of external evaluations in national education policy is becoming more and more important. In Spain, this trend is particularly evident when we look closely at the education reform process that began after the rise to power of the Partido Popular (PP) in January 2012. Their new education law (LOMCE: Ley Orgánica de Mejora de la Calidad de la Educación) explicitly includes numerous direct and indirect references to the PISA (Programme for International Student Assessment) of the OECD (Organisation for Economic Co-operation and Development) and the results references.*

*Keywords:* pisa, lomce, discourse analysis.

## SINOPSIS

*La importancia temática del papel de las evaluaciones externas en las políticas educativas nacionales es cada vez más acusada. En España, esta tendencia se pone especialmente de manifiesto cuando analizamos con detenimiento el proceso de reforma educativa que se iniciara tras la llegada al poder del Partido Popular (PP) en enero de 2012. Su nueva propuesta de ley (LOMCE: Ley Orgánica de Mejora de la Calidad de la Educación) recoge de manera explícita numerosas referencias directas e indirectas a las pruebas PISA (Programme for international Student Assesment) de la OCDE (Organización para la Cooperación y el Desarrollo Económico) y sus resultados.*

*Palabrasclave:* pisa, lomce, análisis del discurso.

## I. ESTADO Y NEOLIBERALISMO EN TIEMPOS DE GLOBALIZACIÓN

Tal como sostienen numerosos autores (Bonal y Tarabini, 2006 y 2011; Carrera y Luque, 2012; Terrén, 1999), actualmente, ante las dificultades que por un lado muestra el Estado moderno a la hora de equilibrar las necesidades de ciudadanía y mercado globalizado y, por otro, la debilidad del mismo como centralizador de las políticas educativas, cabe afirmar que el Estado se ha debilitado (si bien mantiene su potestad en lo relativo a la financiación), y que el cuestionamiento del discurso tradicional de la educación pública constituye ya un nuevo marco interpretativo para la investigación educativa. En este nuevo marco interpretativo, conceptos como “globalización” han de ser analizados en profundidad, con el fin de conocer su alcance en el campo educativo actual. Hablamos de la globalización como de una nueva forma de expansión del capitalismo que supone, a su vez, un nuevo modelo mundial que entiende al mercado y sus demandas como fin último y objetivo de la Humanidad. Este nuevo modelo estatal “competitivo” no perseguiría ya el Estado de Bienestar socialmente distribuido, sino un proceso de acumulación de capital transnacional, que va a depender prioritariamente del grado de competitividad alcanzado a nivel global (Bonal y Tarabini, 2006; Bonal, Tarabini y Verger, 2007; Torre 2004). Al mismo tiempo, surge lo que para unos constituye uno de sus brazos ideológico-discursivo y para otros la esencia misma del nuevo capitalismo: el neoliberalismo (Fairclough, 2000; Quirós, 2010).

Podríamos identificar los orígenes de lo que entendemos por neoliberalismo en el liberalismo clásico, que promovía las libertades civiles y estaba en contra de cualquier forma de despotismo o absolutismo, siendo sus pilares el Estado de Derecho, la democracia participativa, la división de poderes, la libertad económica, la economía de libre mercado y el capitalismo (Chatelet y Mairet, 2008; Hayek, 1973; Puelles, 2005). Según diversos autores (Bonal y Tarabini, 2006; Clift, 2003; Fairclough, 2000; Quirós, 2010), el posterior neoliberalismo defiende la necesidad de fomentar el libre mercado capitalista con escasa intervención por parte del Estado, dentro de un marco reestructurado en torno a una economía integralmente globalizada. Para Díaz-Villa (2011:10), la globalización y el neoliberalismo han de entenderse como “significantes articulados”: la globalización impone valores individualistas para el acceso al mercado, y el neoliberalismo asegura la retirada del Estado de los servicios sociales. Será a partir de 1980 cuando asistamos al surgimiento de políticas educativas neoliberales, con una significativa reducción del papel del Estado. Estas políticas serán adoptadas como referencia para los programas diseñados por los organismos supranacionales como el Fondo Monetario Internacional, el Banco Mundial, o la OCDE (Barroso, 2005; Pini 2010a).

Entre los discursos educativos con mayor capacidad globalizadora encontramos el neoliberal (Bourdieu, 1998; Díaz-Villa, 2011; Fairclough, 2000). Analizando esta realidad, Fairclough (2000) considerará que una de las claves de la fuerte incidencia social del neoliberalismo es su capacidad para difundir un discurso acerca de la globalización como si esta constituyera un fenómeno imposible de ser evitado, así como las consecuencias económicas que de la misma se derivan. Por ello, la necesidad de adaptación de la sociedad y de los diversos gobiernos será igualmente inevitable, sin que exista posibilidad alternativa factible. Esta influencia de los discursos educativos neoliberales puede ser identificada en las retóricas discursivas de aquellos políticos y medios de comunicación que critican los servicios públicos desde una

inapelable lógica de mercado, aquellos que subordinan las políticas educativas a una dinámica estrictamente económica, competitiva (excelencia, cultura del esfuerzo), y de gestión empresarial.

En el caso concreto de Europa, a partir de los años 90 del pasado siglo, diversos expertos neoliberales en política educativa formularían nuevas teorías para la gestión de la educación pública, no explícitamente privatizadoras, pero sí orientadas a la rebaja de costes por parte del Estado (y de responsabilidades) y al aumento de la productividad, la eficacia y la eficiencia (dentro de una lógica de mercado y libre competencia). Es lo que Whitty comenzó a desgranar en su llamada teoría de los cuasimercados y numerosos autores han seguido profundizando desde entonces (Alegre, 2010; Barroso, 2005; Bolívar, 2009; Pini, 2010b; Torrendell 2002; Whitty, Power y Halpin, 1999). Entre las rasgos principales de la teoría de los cuasimercados educativos, en lo que respecta a su relación con el cambio de roles de los diversos actores educativos clásicos (Estado, familias, alumnos, centros educativos), y a su capacidad de decisión, pueden destacarse:

- a. Sustitución del Estado como organizador del conocimiento, por la lógica de mercado. Aumentaría la necesidad de las escuelas de adaptarse a su vez a las necesidades del mercado, asegurándose que el alumnado amplía su empleabilidad al ajustar sus conocimientos y capacidades a los requerimientos del mismo. El papel del Estado quedaría básicamente reducido a fomentar: i) la descentralización y autonomía de los agentes educativos; ii) la competencia entre escuelas, y iii) las evaluaciones externas de organismos independientes (Olmedo y Santa Cruz, 2012; Terrén, 1999; Viñao, 2012; Whitty, Power, y Halpin, 1999).
- b. Desplazamiento de la responsabilidad de la calidad educativa del Estado hacia familias y centros. La transferencia de la responsabilidad educativa viajará desde la Administración a las familias (a través de la libre elección de centro), al alumnado (a través del logro de altos resultados académicos), y a los centros educativos (a través del logro de altos

estándares de calidad en las evaluaciones). Para los defensores de la disminución de la responsabilidad estatal, las familias disfrutarían entonces de mayor libertad de elección, “liberándose” de la burocracia estatalizada (Olmedo y Santa Cruz 2012; Viñao, 2012; Whitty, Power y Halpin, 1999).

- c. Aumento del grado de competición entre centros, familias, y alumnado. Según la lógica de mercado capitalista, la competencia aumenta la calidad del producto. La competencia entre centros se desarrollaría en términos tanto de calidad educativa (medida en función de estándares y clasificaciones según resultados), como de servicios alternativos, flexibilidad de horario, atención especializada, etc. Las familias también habrían de competir entre ellas para escolarizar a sus hijos en los mejores centros. A su vez, los alumnos tendrían que competir entre sí para ser seleccionados por los centros de estándares más elevados (Terrén, 1999; Torres, 2001; Whitty, Power y Halpin, 1999).

## II. MODELOS POSTBUROCRÁTICOS DE GESTIÓN DE LA EDUCACIÓN

Entendiendo los modelos postburocráticos de regulación educativa como “procesos de articulación y producción de normas o reglas de juego en una organización, orientando la conducta de los actores” (Bolívar, 2009:41), es conveniente apuntar que también existen otras modalidades de gestión, siendo más correcto hablar de “regulación de regulaciones” que de un control directo sobre la acción de los “regulados” (multi-regulación) (Barroso, 2005; Bolívar, 2009).

Luengo, Olmedo, Santa Cruz y Saura (2012) han clasificado estas diversas dinámicas de regulación como: a) endógenas o encubiertas (internas a los centros escolares. Por ejemplo, fomento del alumnado “excelente” o de mayor rendimiento), y b) exógenas (externas a los centros escolares). En la actualidad los modos de regulación exógena, como el establecimiento de evaluaciones externas para la comparación entre centros y Estados, están cobrando cada vez más protagonismo. En

esta línea, varios autores consideran que estas pruebas se transforman en las verdaderas organizadoras (o reguladoras) de la enseñanza (Monarca, 2012 y 2015; Pérez y Soto, 2011).

Tras un estudio comparado de las estrategias de regulación de cinco países europeos (Bélgica, Francia, Hungría, Portugal e Inglaterra), Barroso (2005) concluyó que las actuales políticas de regulación se caracterizaban por su oposición al anterior modelo de control “burocrático-profesional”, y que convergían en la puesta en marcha de modelos de regulación “postburocráticos”, organizados en torno a concepciones, o bien de “Estado evaluador”, o bien de “cuasimercado”, si bien cada uno con particulares. Las características que definirían dichos modelos serían: a) diversificación de la oferta escolar; b) promoción de la libre elección de centro; c) mayor autonomía del centro escolar; d) equilibrio entre centralización y descentralización; y e) aumento de las evaluaciones externas.

## III. LA AGENDA ESTRUCTURADA GLOBALMENTE Y LOS NUEVOS MECANISMOS DE CONTROL

La nueva agenda estructurada globalmente va a constituir a su vez un nuevo regulador de la educación a escala global. Esta se define como una nueva forma de regulación postburocrática compuesta por el conjunto de temas, cuestiones, y conceptos calificados como relevantes para la toma de decisiones y construcción de discursos de los gobiernos. La agenda global se traduce así en prioridades, políticas y acciones para los Estados, dentro de un marco supranacional de legitimación científica, y requerirá de un aumento de número e incidencia de instrumentos de evaluación externa (Feldfeber, 2007; Pedró, 2012; Rambla, Tarabini y Verger, 2009). Nóvoa (2010:37) afirma que este tipo de “nuevas maneras de gobernar sin gobierno” han demostrado ya su eficacia a la hora de crear un “sentido de inevitabilidad” del proceso globalizador, y su consiguiente asimilación por parte de los actores educativos nacionales.

La agenda educativa estructurada globalmente tendría como marco amplio la globalización, por

lo que incidirá de manera especial en los procesos de reforma de los Estados nacionales, así como en la reestructuración escolar dentro del nuevo capitalismo. (Feldfeber, 2007). Los **mecanismos** de regulación servirán de nexo entre los niveles nacional y supranacional del mundo globalizado.

Para profundizar en la comprensión estos procesos nos valdremos de tres conceptos explicativos del funcionamiento del Estado introducidos por Dale en (1989), al definir los conceptos de mandato (aquello que se valora como legítimo que sea cumplido por el sistema educativo), capacidad (margen real de cumplimiento del mandato con que cuenta el Estado) y gobernanza, de los Estados nacionales (estrategias para alcanzar el mandato).

En este contexto, en el que la globalización así entendida repercute en el mandato, la capacidad y la gobernanza de los estados nacionales, Dale (1999) desarrolla la teoría de los mecanismos, los cuales son un recurso teórico-metodológico para explicar e investigar las formas específicas en que se producen las influencias, en el contexto de globalización, sobre los Estados nacionales.

No obstante, no todos los Estados ni todas las regiones son igualmente permeables a estos dictámenes: cada Estado presenta unas realidades históricas, sociales, económicas, etc., concretas. Esta es la razón por la cual habrán de diseñarse modos diversos de influencia, cuyo impacto final tampoco será homogéneo. De este modo, se distinguen cinco mecanismos de control (Bonal y Tarabini, 2006):

- *Imposición*: crédito a cambio de adoptar determinadas medidas impuestas: descentralización, mayor oferta privada, etc.
- *Armonización*: obligatoriedad de la enseñanza hasta los 15/16 años en los países pertenecientes a la Unión Europea, etc.
- *Interdependencia*: refleja el interés global por temas que afectan a las naciones más allá de sus fronteras (como el medioambiente), y trata de persuadir en este sentido.
- *Diseminación*: desarrolla documentos, publicaciones, etc., desde organizaciones

ajenas a los Estados nacionales, que indiquen las líneas políticas a seguir en un futuro.

- *Estandarización*: aplicación de modelos globalizados y generalizados a nivel mundial.

Para Bonal y Tarabini (2006 y 2011), el mecanismo de estandarización habría tenido, especialmente en la Unión Europea, un papel predominante, al aplicar instrumentos de evaluación educativa como el Programa PISA, que establece pruebas homogéneas entre sistemas educativos diferentes. Según esta línea de análisis, la finalidad real de los sistemas de evaluación externa pasaría a ser la de influir sobre las políticas educativas nacionales, siendo voluntaria la decisión de realizar o no dichas evaluaciones. Esta circunstancia disminuirá en los diversos actores educativos implicados la percepción de injerencia política de los organismos supranacionales, ya que la participación de los Estados en prácticas como PISA no es obligatoria. Una vez se ha formado parte de este tipo de evaluaciones a escala internacional, los organismos responsables de su implementación requerirán de datos, en forma de categorías y clasificaciones, para incidir eficazmente en las diversas realidades educativas existentes (Bonal, 1998; Bonal y Tarabini, 2006 y 2011; Novoa, 2010). Nóvoa (2010:35), hablando del caso concreto de la Unión Europea (UE), considera que “las políticas se construyen a través de una lógica de comparaciones continuas” que se presentaría como soluciones técnicas, pero que constituiría la forma más eficaz de injerencia política (gobernanza) de la UE en los temas educativos nacionales.

De acuerdo con los autores abordados en este apartado, los organismos supranacionales (como OCDE, Banco Monetario Internacional, Fondo Monetario Internacional, etc.) habrían sabido erigirse en estructuradores de la política educativa de los Estados, a través de la aplicación de diversos mecanismos, mientras las naciones ceden progresivamente competencias, soberanía y legitimidad legisladora en materia de educación. Así, la gobernabilidad educativa de los Estados quedaría determinada por esta cesión parcial de

responsabilidades políticas a los organismos supranacionales (Bonafé y Tarabini, 2011).

### III. OCDE Y PISA

Para una parte de los investigadores del campo de la educación, la legitimidad actual de PISA se sostiene bajo el supuesto de su papel como evaluador objetivo de la calidad educativa a escala internacional. En palabras de Valle (2012:137), PISA habría nacido precisamente por las siguientes motivaciones: “la necesidad de contar con comparaciones internacionales fiables en términos de los resultados de logro de los sistemas educativos llevó a la OCDE a diseñar una estrategia a medio y largo plazo para realizar evaluaciones internacionales de gran alcance y elevada fiabilidad. Surge así el Programme for International Student Assessment (PISA)”.

No obstante, y siguiendo el marco teórico anteriormente descrito, cabe preguntarse si el papel de PISA es meramente evaluativo o informativo ya que, por el contrario, parece haberse constituido como un influyente instrumento de regulación política a escala supranacional. Atendiendo a los mecanismos que describiera Dale, PISA supone un claro ejemplo de cómo desde la OCDE se pone en marcha un proceso de estandarización educativa a nivel global.

En este sentido, serán varios los autores que afirmen que PISA organiza indirectamente las decisiones políticas en un escenario discursivo mundial posterior al Estado moderno, y que se desarrolla en un contexto que es al mismo tiempo de competición y de cooperación, donde el discurso sobre la “sociedad del conocimiento” cobra una relevancia crucial. Así, PISA ejercería un control exógeno de la educación, abanderando con él la “monitorización de la calidad”, en muchas ocasiones al margen de las necesidades nacionales reales, siendo habitual que el discurso político nacional haga más referencia a los estudios PISA que a los resultados de sus propias evaluaciones nacionales (Carvalho, 2009; Pedró, 2012; Rambla, Tarabini y Verger, 2009). Para adquirir tan importante grado de legitimidad a ojos de los Estados, la OCDE habría insistido en

recalcar su estatus de organismo libre de injerencias políticas, al mismo tiempo que se presenta como organización experta en materia de educación, a la que ha de presuponerse capacidad para redactar normas y reglas universales, fruto de procesos de investigación que aplican métodos científicos consensuados por la comunidad científica internacional (Carvalho, 2009).

Esta percepción de objetividad se verá reforzada por las propias características del instrumento PISA, que reúne una tecnología evaluativa que eclipsa a ojos de la opinión pública su carácter de dispositivo de regulación política, ya que (Carvalho, 2009):

- a. Define normas que dotan de previsibilidad a la acción educativa.
- b. Cuenta con una amplia cobertura tanto geográfica, como de la muestra (un tercio de la población estudiantil mundial).
- c. Está orientada a la evaluación de competencias.
- d. Interrelaciona características técnicas (medida, cálculo) y sociales (representaciones, símbolos).
- e. Permite a los países financiadores ejercer cierto control sobre las prioridades del programa durante su aplicación.

Una vez puesta en valor la legitimidad de la OCDE, la participación de los Estados en las pruebas PISA no será presentada ante la opinión pública como un instrumento de regulación política, sino que los discursos políticos nacionales afirmarían que para sus sistemas educativos supone la posibilidad de contar con supuestos diagnósticos objetivos de sus realidades educativas. Dichos diagnósticos informarían fielmente tanto de las ventajas competitivas (y de los competidores directos), como de las propias fragilidades particulares, siempre a partir de lo que funciona en otros países. Al mismo tiempo, a través de los medios de comunicación se refuerza entre la opinión pública la idea de que la participación en PISA constituye un hecho informativo relevante, y que ofrece datos objetivos y fiables (Carvalho, 2009; Díaz, 2013). Sobre estas y otras cuestiones, se construyen los discursos políticos nacionales en torno a PISA, y a los

sistemas educativos nacionales en un mundo globalizado.

#### IV. DISCURSOS POLÍTICOS Y EDUCACIÓN

En la difusión de este nuevo (y complejo) modelo de gestión educativa que se ha explicado en las páginas anteriores, los discursos políticos también emplearán nuevas estrategias discursivas. El conocimiento de dichas estrategias es fundamental ya que, como asegura Bonal (1998:192), “conocer el discurso tiene capacidad estructurante de la experiencia”, porque “fija los límites de lo posible y lo pensable”.

Según indica Pini (2010a: 80), todo discurso consta de tres dimensiones: a) un texto (que puede ser oral) b) una práctica discursiva (que implica la producción e interpretación del texto), y c) una práctica social en la que se inscribe. En el caso que nos ocupa, cuando hablamos de estrategias discursivas ponemos el énfasis tanto en la capacidad de éstas para representar prácticas sociales, como en su utilidad para reconfigurar significados. Atendiendo a prácticas discursivas de naturaleza política, la reconfiguración de significados implicará la transformación interesada del sentido de realidad, conformándose así la posibilidad de emplear el discurso como herramienta de poder (Fairclough, 2000; Monarca, 2012; Rodríguez, 2010). Foucault (1988) afirmará que sin discurso no hay poder, ya que el discurso es la suma de poder y conocimiento: el discurso se centra en el modo en que las palabras construyen las realidades a las que se refieren como ejercicio de poder. En esta línea, Luengo y Saura (2012:114), entienden el discurso como “las prácticas que garantizan la concreción de mecanismos de control institucional”. Si la relación entre discursos y ejercicio del poder es tan estrecha como los anteriores autores indican, será necesario identificar cuál, o cuáles, son las características de los discursos que emanan de las políticas educativas actuales, así como desmenuzar sus estrategias discursivas y de poder.

Dentro del amplio campo de estudio que suponen los discursos políticos en torno a la educación, la evaluación de los aprendizajes constituye un

género discursivo en sí mismo, por ello su análisis se hace fundamental si pretendemos comprender las dinámicas actuales de globalización educativa. Concretamente serán las evaluaciones externas llevadas a cabo por organismos supranacionales las que adquieran un papel protagonista. Estos organismos serán identificados como aglutinadores de influencia y poder y, por lo tanto, como difusores de los discursos predominantes en torno a la educación globalizada, como es el discurso neoliberal. La descodificación e interpretación de los significados profundos de los mensajes lanzados a través de estos discursos del poder, descubrirá la macro-estructura legitimadora (o el metarrelato) a la que estos se supeditan (Cárdenas, 2012; Fairclough, 1995; Luzón, Sevilla, y Torres, 2009; Pini, 2010a; Van Dijk, 1996, 1999 y 2003). Para Fairclough (2000:14), “la investigación acerca del lenguaje en el Nuevo Capitalismo quizá pueda aportar un nuevo ámbito e impulso a la investigación crítica del lenguaje, en especial por lo que se refiere a áreas como el Análisis Crítico del Discurso (ACD)”, del que Van Dijk constituye su principal exponente.

Relacionado con la temática abordada, una de las explicaciones del porqué de la incidencia en la opinión pública de estos discursos políticos vendría fuertemente determinada por el falso efecto de objetividad que generan en el receptor. El oyente del discurso, al no poder identificar la autoría directa del mismo, percibe una sensación de verdad difícil de contrastar, que puede acabar por crear adhesión, tanto si existen motivaciones ideológicas, como si estas no son evidentes. Por otro lado, los discursos políticos pueden también ceder rigor conceptual o conocimiento profundo de las cuestiones a las cuales se refieren, en favor de construcciones discursivas de tipo emocional, que calarían en la ciudadanía especialmente en épocas de descontento político, como es el caso actual (populismo). También pueden identificarse como estrategias discursivas de poder, por ejemplo, el uso interesado de relaciones de equivalencia entre elementos que de facto no lo son, la presentación negativa de valores no identificados como propios (y viceversa), la polarización consistente en enfatizar los aspectos

negativos de los otros (y viceversa), etc. Actualmente, también se pueden identificar numerosas estrategias discursivas empleadas por actores políticos donde el uso reiterado y supuestamente aséptico de términos como: nuevas tecnologías, bilingüismo en inglés, prácticas remuneradas en empresas, competencias, necesidades del mercado, clientes, o autonomía de gestión, se convierten en un modo de progresiva propagación del mensaje neoliberal en el campo de la enseñanza (Barroso, 2005; Domínguez y Sánchez, 2013; Fairclough, 1995; Herrera, 2011; Pini, 2010a; Van Dijk, 2003; Viñao, 2012).

En el caso concreto de las pruebas PISA, los discursos políticos que de ellas se derivan ponen especial atención a la difusión de conceptos percibidos como positivos y no tendenciosos por parte de la ciudadanía, tal y como sucede con el empleo de términos como “intercambio”, “reflexión conjunta”, o “acuerdo”. Esta estrategia ayudaría a que su mensaje tenga hondo calado en amplios sectores de la población. Progresivamente, el discurso político dota de “valor objetivo” a las pruebas PISA, quedando legítimamente segregado (por su propia “irracionalidad”) quien no se adapte al nuevo y “científico” modelo de mejora de la calidad educativa. Desde la OCDE se intenta ofrecer datos aislados y descontextualizados, bajo el supuesto de una realidad objetiva, en tanto es expresada de forma exacta por una medición, desconociendo que la medición, la forma de hacerlo, es una construcción subjetiva, es decir, de los sujetos que la hacen, que la determinan (Carvalho, 2009; Díaz, 2013; Fairclough, 1995; Monarca, 2012; Nóvoa, 2010; Pini, 2010a; Quirós, 2010; Terrén, 1999; Van Dijk, 2003).

## V. CONCLUSIONES

Existe cierto consenso dentro del ámbito educativo, al respecto de la importancia alcanzada por las pruebas PISA a nivel mundial. De hecho, PISA y sus resultados se han instalado en los discursos políticos de nuestro país, dirigiendo debates y justificando medidas políticas de todo signo. El propio acrónimo “PISA” parece haberse convertido en una categoría más dentro del

lenguaje universal de la educación. Esta integración de PISA en nuestro lenguaje como concepto con entidad propia, supone un nuevo modo de representación de la realidad, que se inscribe a su vez en un nuevo discurso, el de la globalización, interesado en transmitir un nuevo orden capitalista, el orden neoliberal. Dentro de este entramado, los organismos supranacionales se han convertido en actores educativos de primer nivel (Bonal y Tarabini, 2011; Carvalho, 2009; Díaz-Villa, 2011; Fairclough, 2000; Pedró, 2012).

No en vano, PISA ha mutado de mecanismo evaluador a “tecnología política” es decir, a dispositivo para la influencia sobre las agendas nacionales y legitimador de concepciones neoliberales, así como en fuerza generadora de discursos políticos socialmente difundidos a través del inmediato y permanente flujo de información del que en la actualidad disfrutamos.

Considerando este contexto, se hace relevante profundizar en los estudios de Roger Dale acerca de los mecanismos de control postburocráticos sobre los Estados, identificando a PISA como uno de los más relevantes dentro del actual mundo globalizado. Para ello, debería indagarse a través de la metodología del análisis del discurso, que pone especial énfasis en la perspectiva crítica (Análisis Crítico de Discurso: ACD), y en autores como Van Dijk, Fairclough o Pini.

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# A Glance to the Future of Healthcare in the Emerging Markets through 4IR Technologies

*Mr. Jordan Seke*

## ABSTRACT

By dint of changing the lenses of observation in healthcare, the plethora of issues painted in this paper constitutes the source of inspiration from his author. The motivation derives from an assignment tailored to a thousand words essay on the dot inclusive of everything in which the author could not explore or investigate the core of this topic to its fullest. Beyond the narrow scope designed and requested of him in class, this paper is a rewrite of an assignment one would argue but it is in fact a wider scope powered by the desire of his author to share his view with a larger community in the body of knowledge.

*Keywords:* disruptive technology; connected patient; cloud computing; robotic process automation; blockchain technology; emerging markets.

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## ABSTRACT

*By dint of changing the lenses of observation in healthcare, the plethora of issues painted in this paper constitutes the source of inspiration from his author. The motivation derives from an assignment tailored to a thousand words essay on the dot inclusive of everything in which the author could not explore or investigate the core of this topic to its fullest. Beyond the narrow scope designed and requested of him in class, this paper is a rewrite of an assignment one would argue but it is in fact a wider scope powered by the desire of his author to share his view with a larger community in the body of knowledge. It can therefore be described as a research article or a practical case study with review of available literature where observation is considered as a methodology of research. Its findings contribute to addressing the hot topic of the future of healthcare in light of technological breakthroughs of the Fourth Industrial Revolution (4IR) in the emerging markets. While the paper calls upon physicians, health care organisations, the Ministry of Health in the emerging markets and the industry experts at large to prepare for this change - each in their respective areas of expertise, it does not stand between any theories and should not be viewed as such.*

**Keywords:** disruptive technology; connected patient; cloud computing; robotic process automation; blockchain technology; emerging markets.

## I. INTRODUCTION

The economic growth of unindustrialized marketplaces along with the digital revolution fuelled by the development of Artificial Intelligence (AI), biotechnology, neurotechnologies, cloud computing and others are

currently transforming the delivery of health and social services (Ćwiklicki et al., 2020). Despite the fact that the emerging world lingers behind when it comes to an effective digital revolution, giving magnificent primary care underscore Bates & Bitton (2010), is vital to the conveyance of excellent clinical consideration of the populations. Perhaps the main current characteristic is that robots work as human substitutes in a wide scope of businesses, not just medical services. Updating digital business ideas is adaptable, loaded with innovations and investigations (Antoniuk et al., 2017).

The genuine story here is that the future will be better. Technology will progress and there will consistently be new and energizing arrangements. Caution to make is that, technology is and will remain a multi-facets tool designed to improve efficiency and effectiveness in our lives (Thielst, 2007). Today, Robotic Process Automation (RPA) has been received in numerous walks of our lives and things continue to improve while other technologies get invented and or adopted. We have keen choice guides to improve finding that speak specifically to our realities in the emerging markets, and they will just improve. A few groups would highlight the hidden drivers: technology is getting quicker, better and more modest. Is this the response to our expectations? Moore's Law says the speed of innovation is on steroids. Are the emerging markets keeping up with this speed?

While many questions fuelled our minds, it is safe to agree that healthcare offerings present multiple choices because of technological breakthroughs. Future innovation will continue to change healthcare while advancements such as new medications and medicines, new gadgets, new online media support for healthcare, and so on will drive innovation (Thimbleby, 2013). This is

on the grounds that the forward energy in the developing circle of computerized medication has opened up new universes of revelation that all circuit together to shape a tidal wave of innovation, alongside sociological and social changes. The dramatic pace of technological change makes significant sociological changes and these elements influence the clinical field (Lotem & Shani, 2018).

These days like never before, the developing countries are just beginning to redesign the digital economy. Notwithstanding this reality, it colossally affects the improvement of business and economies during late years. Also, digital transformations and quick principal changes in medical care are among prevailing aspects of the Fourth Industrial Revolution (4IR) of the 21st century (Antoniuk et al., 2017). The straightforward story underscores Thimbleby (2013) is we will simply appreciate the ride. Notwithstanding, the more intricate story uncovered compromises. For instance, 4IR technologies are surely a lot quicker, however to exploit them, we initially have to discard the more slow legacy systems adopted and implemented as an interim solution to digital transformation without any scalability so they can be supplanted, and afterward we may well find the patient data on the legacy platforms will not work on the new ones. However, the above can constitute the topic of investigation for other projects.

Reality of the ground is that every healthcare system in the emerging market is not the same and the dynamics that govern the adoption of technologies in that industry are also complex, but they blindly share the same problems due chiefly to the process of diffusion of innovation. This process is understood as the acknowledgment over the long haul of some particular thing - a thought or practice by people, gatherings or other embracing units, connected to explicit channels of correspondence, to a social design and to a given arrangement of qualities, or culture (Cain et al., 2002; Kaminski, 2011; Katz et al., 1963). In simple terms, the diffusion of innovation in this paper refers to the plethora of issues identified across the board in the healthcare industry

through the lenses of 4IR technologies in the emerging market.

The problem above the threshold of countless issues is that the emerging world continues to face various health challenges exacerbated by environmental change, legacy medical care frameworks, restricted medical infrastructures, and an absence of qualified medical experts. Looking through the precious stone of capacities in which 4IR technologies can be transformational, this paper is a brief on how essential medical care at the family level and the degree of first contact with drug stores, crisis paramedics and general specialists could be improved in the emerging world. It suggests a practical solution as its contribution to the body of knowledge.

Despite the fact that literature speaks about healthcare to be one of the prime developing afflictions of an economy, governments are still facing severe issues to prioritise healthcare in their programmes notwithstanding expanding levels of sickness and medical conditions as the populace keeps on developing. Imaginably, the best activities being executed in one form or another today are home medical services (Alaiad & Zhou, 2014). It is within our scope that we feel constraint to state the following – *“the current state of home and community healthcare in the merging world is still evolving and it is difficult at this point in time to determine on which stage of the diffusion of innovation many states found themselves as some contemplations continue to be reviewed”*.

Nevertheless, a few nations move past existing patterns because of their speed of reception. Accordingly, there are changes in their medical services industry or area. Specifically, new types of working together, including cloud computing frameworks and RPA, and collaboration with innovative monsters like Microsoft, IBM, Oracle, General Electric, Siemens and various partners continue to grow and be created. There are new sorts of services through Internet of things, better approaches for utilisation and commercialisation of the current services into computerized checking

and control framework advancements in addition to other related considerations.

## II. SIGNIFICANCE OF THE TOPIC

Numerous variables in our general public proceed to drive and change the scene of our daily lives in different ranges of healthcare, however technology drives healthcare more than some other power, and later on it will keep on creating dramatically. The author stays wary that extrapolation of latest things is a helpless method to consider the future, especially on occasion of incredible change like this. He remains confident in the power of technology in dictating the rules of the game in driving our daily lives.

The current preoccupation with technology shifting and innovation accelerating focus on improving health and healthcare value for patients. Should there be any best technique to anticipate what is to come? Would it be advisable for us to concur with one or a gathering of not many incredible personalities to the cost of others? Or on the other hand ought to rather believe in the power of data exploited by a group of people with interest in the subject? While we can joyfully express and discuss the subtleties of future patterns in healthcare explicitly in the developing countries, we should be clear about the drivers born with the 4IR so we can line up with them and effectively work to guarantee the best results for society in general.

The adoption of various technologies in healthcare around the globe has resulted in an improved determination to develop platforms, both at the hardware level as well as the core software level (Qadri et al., 2020). While the emerging markets set up the major growth opportunity in the progressing world economic order (Arnold & Quelch, 1998), this topic in regard with the pressure brought by 4IR technologies stands as a call to leaders of these markets. It can be an introduction and or a review of available literature to capacity building in light of the nearest future of healthcare through 4IR technologies in the emerging markets.

## III. BACKGROUND : TRANSFORMATION IN HEALTHCARE

Albeit each healthcare framework is unique, no healthcare framework on the planet is steady, and every leader of the digital age would agree with the author that all frameworks would go through impressive change in the next decade or beyond because of the speed of digital transformation. It is important however to state that the drivers of progress in the developed world are arriving at the constraints of the government assistance state, debilitating customary techniques and devices for containing cost, and encountering expanded shopper refinement and requests. Change is being driven in the emerging markets by the development of the working class, more noteworthy requests from that working class, and the globalization of economies as these nations are more presented to what the industrialised world has to bring to the table and experience more prominent rivalry and economic pressing factor inside their own economies (Smith, 1997).

Recent studies show the far-reaching integration of 4IR technologies in healthcare leading to a archetype shift in all capacities of human-machine interactions (Qadri et al., 2020). While the combination of physical, computerized and organic universes depicts 4IR, its technologies have decidedly impacted uncommon changes in the medical care industry to date. These progressions are observable and are embodied in various circles (Diño & Ong, 2019). The 4IR has risen up out of a popular expression to turn into a basic spine of progress in the developing business sectors. It has empowered answers to mitigate dangers of cracked medical care frameworks to assemble economical medical care for all.

Arrangements range from guaranteeing that patients skip lines in emergency clinics, set aside cash as everything is conveyed at the force of fingers, infection anticipation and successful homecare conveyance through on request benefits. Along with its technologies, 4IR addresses also long-term clinical consideration necessities at huge lower uses in walking settings or patients' homes by Information and Communication Technology (ICT) applications

(Haluza & Jungwirth, 2015). Together with the spread of 4IR technologies, these solutions have empowered the emerging world with access to healthcare for populations.

The fundamental empowering technologies upheld by a few new technologies incorporate the correspondence frameworks between the detecting hubs and the processors; and the preparing calculations powered by algorithms for creating a yield from the data gathered by the sensors (Qadri et al., 2020). While the big data permits dealing with a tremendous measure of data, the Software Defined Networks (SDNs) carry adaptability to the new framework of healthcare in the industrialised world (Lotem & Shani, 2018). In addition, the blockchains technologies brought in the game are tracking down the most novel use cases of the 21<sup>st</sup> century coupled with the internet of things (IoT) in healthcare (Diño & Ong, 2019).

Through all accessible technologies on the commercial centre, patients are currently utilizing the internet and different technologies just as individual patients to analyse their own issues, track down the best treatment, and constantly enhance their medicines, and even asset and direct exploration. They are doing this not with gratitude to, yet in spite of, medical care (Riggare, 2018). Albeit the clinical culture is comparable, there have been sensational innovative changes, and really these progressions would be difficult to clarify. The “E” utility of 4IR technologies is now leading the transition of traditional healthcare to modern E-health capabilities. The use of Artificial Intelligence has contributed to accelerating E-health systems at almost every level.

What should the new healthcare resemble? We don't know without a doubt, yet 20 years prior, Tom Ferguson, a health informatics professor, contended that doctors and other healthcare professionals should accept the endeavours of dynamic patients. He said that conceding patients' desires for more online correspondence with their doctors could lessen conference times. He begat the expression "E-patients" to mean patients or their companions or family members who look for health related data online, which brings about "better health data and administrations, and

extraordinary (however not in every case better) associations with their doctors (Ferguson & Frydman, 2004; Riggare, 2018).

While for some residents of most developed nations, the internet has become an incredible and natural healthcare instrument (Ferguson & Frydman, 2004), for several emerging markets in 2021, the internet is still a luxury and the cost of internet access for poor communities and rural areas is still above the common threshold. However, with the quick development of online long range interpersonal communication for health, healthcare frameworks are encountering an inevitable expansion in intricacy (Griffiths et al., 2012). Today notwithstanding, experience-based plan can emphatically add to the healthcare encounters of patients and their families on the worldwide scale. What this developing space of exploration has featured is a more extensive change in healthcare advancement, which is progressively about planning with patients and not just for them (Reay et al., 2017).

In any case, patients are utilizing person to person communication to get to and contribute health data and they are the reason for healthcare (Thimbleby, 2013). Systems administration among health care supplier organisations is empowering more prominent misuse of health data for health care positioning. The foundations of communication are likewise evolving. Patient–specialist experiences are presently more penetrable to impact from informal communities and professional organisations (Griffiths et al., 2012). The high-minded triangle have uplifted freedoms for data social occasion and examination for more focused on and successful admittance to healthcare methodologies in the developed world so it is occurring in the developing markets.

#### IV. 4IR TECHNOLOGIES FACTORS

As seen through the ground-breaking force of remote and portable technologies under 4IR technologies, the accompanying table typifies arrangements tried and embraced with the goal of improving clinical data and healthcare administration conveyance in the arising scene.

The emerging markets have in the contemporary years incorporated a growing number of ingenuities that aim to address complex healthcare needs and challenges through ‘innovation’.

While many of these ingenuities take the form of a ‘national endeavour’, they are in many cases also a collaborative platform committed to the growth of social innovation through investigation, scrutiny and rapid experimentation (Reay et al., 2017). The table below is a condensed example of the ingenuities embraced by some emerging markets.

*Table 1:* Powered 4IR solutions in the emerging markets

4IR Technologies	Solution in Practice	Specific Place
Cloud Computing (Wireless Communication)	<ul style="list-style-type: none"> <li>Mtrac - a real-time monitoring of disease prevalence, medicine stock-outs and health service delivery complaints</li> <li>Khon Kaen Smart Health - incorporates a smart ambulance service that uses GPS to coordinate patient pick-up, coupled with real-time video and data transmission to prep the hospital ahead of patient delivery.</li> </ul>	<ul style="list-style-type: none"> <li>Public healthcare workers of Uganda</li> <li>Thailand</li> </ul>
Technology and process optimization (Robotic)	<ul style="list-style-type: none"> <li>Incorporation of drones into health care system, using autonomous air vehicles (flying Robot) to deliver blood transfusions to remote regions.</li> </ul>	<ul style="list-style-type: none"> <li>Rwanda</li> </ul>
Artificial Intelligence	<ul style="list-style-type: none"> <li>Slowly implementation to help medical professionals correctly diagnose cervical cancer and other abnormalities</li> <li>To determine the optimal methods for eradicating malaria in specific locations and using game theory and deep learning data analytics to diagnose pathological diseases and birth asphyxia</li> </ul>	<ul style="list-style-type: none"> <li>Ethiopia</li> <li>IBM Africa</li> </ul>
Big data/IOT	<ul style="list-style-type: none"> <li>The Rwandan Health Management Information System: Improving Collection and Management of Health Service Data to Support Informed Decision</li> <li>Brazil Health Data - point of collaboration and use of structured data combined with Artificial Intelligence and Predictive Analysis to alleviate the suffering of the people</li> </ul>	<ul style="list-style-type: none"> <li>Rwanda</li> <li>Brazil</li> </ul>
Digitalisation	<ul style="list-style-type: none"> <li>Adoption of digital health systems to improve hospital administration and patient care</li> <li>Khon Kaen Smart Health - It also includes a sensor platform that monitors the activity and condition, including the blood pressure and sugar levels, of elderly residents with chronic diseases, enabling them to remain at home. The data is then integrated with the patient’s EHR information</li> </ul>	<ul style="list-style-type: none"> <li>Kenya, Rwanda, Morocco</li> <li>Thailand</li> </ul>

## V. ELUCIDATIONS

The investigation of healthcare frameworks in the industrialised countries by and large spotlights on three significant sorts: the Beveridge framework where the state is essentially engaged with healthcare financing and arrangement, the Bismarck model which depends on friendly

protection and capacities inside a corporatist state, and the market-ruled framework where private protection plays a significant role. Healthcare in the non-industrial or emerging nations, be that as it may, do not typically fall perfectly into any of these three significant sorts. Most are described by an enormous private, here and there casual, supplier area because of the

deficiency of state healthcare; and financing is regularly from cash on hand (Chee, 2008). The following paragraphs highlight a non-exhaustive list of contemplations coupled with some solutions in the emerging markets when it comes to healthcare.

### 5.1 Definition of an Emerging market

While there is no universally accepted definition of an emerging market (Arnold & Quelch, 1998), the scope of this paper in looking to the future of healthcare in these particular markets forces the researcher to clarify this keyword in context of this exploration. Additionally, the internet search of the concept provides a rich haul of definitions as its definition is somewhat up for debate (Frick et al., 2019; Michas, 2011). The above in context is true as there are over 150 emerging markets according to the International Monetary Fund (IMF). The researcher has since compiled the following definitions to fit the purpose of this paper.

- Emerging economy is the market of a developing economy that is becoming more involved with global markets as it grows (Scott, 2020);
- Emerging market is a market moving away from its traditional economy that depended heavily on agriculture and the export of raw materials (Amadeo & Eric Estevez, 2020).
- Emerging markets (or EME, for the emerging market economy) are economies of nations that are in the transition of becoming an industrialized nation state and characteristically are moving toward mixed or free markets (Sraders, 2018).

For the sake of this paper and for future reference, emerging markets are defined as nation states that are transitioning from the “unindustrialized” stage to the “technologically advanced” phase with substantial economic growth and hold some characteristics of an industrialized nation. The five most well-known emerging economies are: Brazil, Russia, India, China and South Africa. The five countries are coined under the acronym of ‘BRICS’.

### 5.2 Healthcare through the Connected Patient

Digitalization and 4IR technologies applied to healthcare in the industrialised nations has generated one of the most dynamic and competitive markets within medical technology. This has not stopped there as the emerging markets all azimuth have in return emulated the same capabilities here and there to respond effectively to this trend. This dynamic however has drastically changed the face of healthcare and can be described or explained through the diffusion of innovations by Rogers in both, the developed and developing markets in the upcoming study.

The connected patient will be in other terms an acceptable form of healthcare that might operate within any healthcare frameworks in the future (Reay et al., 2017). With a tipping point of Cloud Computing adoption and the early stages of Artificial Intelligence (AI) driven analytics for diagnosis in the emerging markets, patients will have access to insights and will be capable of controlling their own health with less consultations to the professionals. As the above scenario takes a visible shape in many countries, the emerging markets will by that time reach a full radical interoperable data stage. What this paper means by “radically interoperable data” is the stage of the next decade or two where “collection and convenience of a multiplicity of data sources and data sets from different aspects of a consumer's life and that they are willing and able to share that data like financial status, behavioural health status, health status, their environment and activity, and could be paired up with data that describes more fully what's going on with weather and population health,” (Siwicki, 2019).

An illustration of the above can be described in detail with Discovery health in South Africa tapping into the digital bank through connected devices to reward healthcare and financial behaviours with the assistance of the virtuous triangle of the 4IR technologies notably – Big data, Internet of Things (IoT) and AI to some extent. The connected patient is stimulated to comply, eat and live healthy and will be rewarded

in the trade off of his data. This alone has significantly reduced patient visits to health professionals in recent years in South Africa. This example prompts however the radically interoperable data (Information age healthcare) stage in the emerging markets where healthcare practitioners and professionals will be regarded as the support to a healthcare framework that focuses on self-care of patients to the detriment of the traditional Industrial age of healthcare.

Figure 1 below shows how “information age healthcare” inverts the traditional pyramid of “industrial age medicine.” Healthcare providers will headway in this stage from treatment of disease to stimulating health, and they will do this over and done with lifetime plans that are built on intimate and detailed knowledge of patients (Smith, 1997). The patient in return will only ask the right questions when deemed necessary.

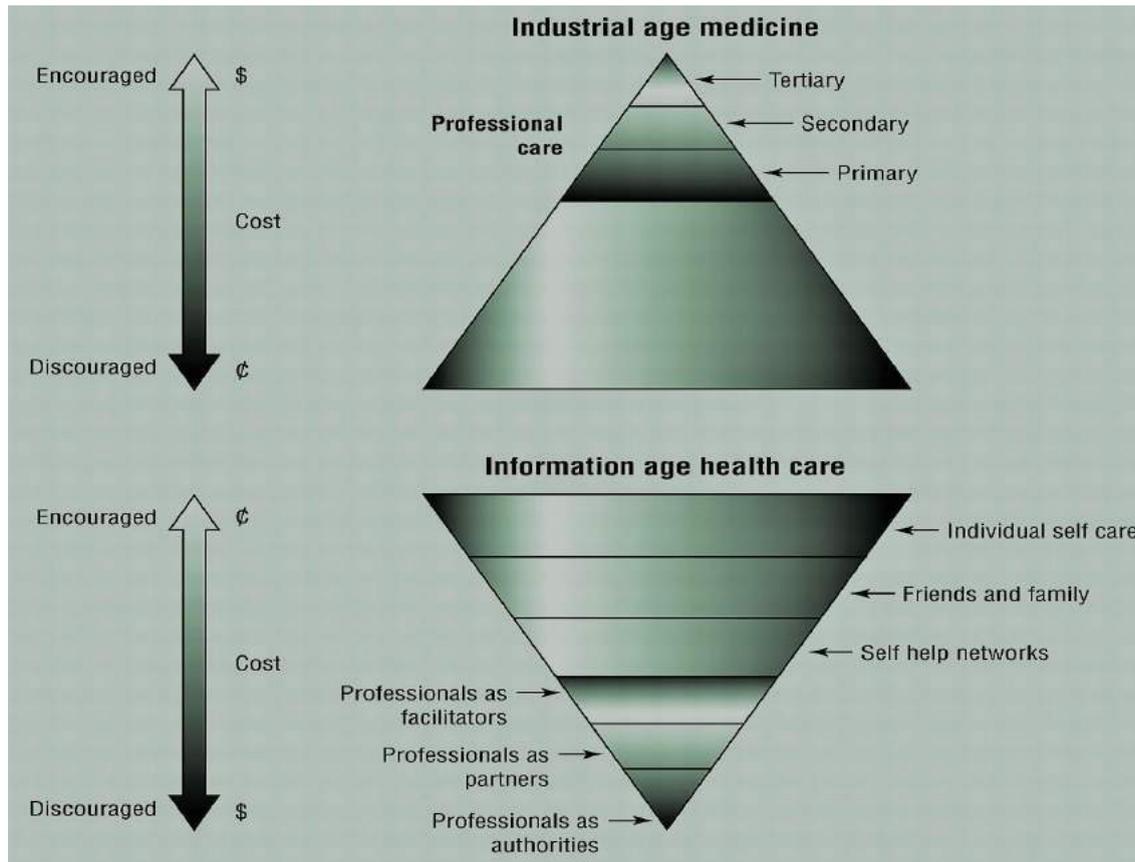


Figure 1: How “industrial age medicine” will invert to become “information age healthcare (source: (Smith, 1997))

### 5.3 Healthcare through Cloud Computing and others technologies

Considering the degree escaped in this paper, unquestionably, the 4IR presents basic freedoms similarly as troubles for the healthcare industry in the developing markets. Since finding person's clinical records can be troublesome in these nations, the digitization of clinical records and the headway of shrewd gadgets, among others, are not simply bringing practically better and seriously convincing healthcare arrangements, however

moreover engage healthcare professionals to get to patients faster in the care of their families or through drug stores in their networks as well as with the aid of Robotic Process Automation (RPA) with the like of drones. This methodology is by all accounts bearing organic products in a few nations in the creating scene as an independent arrangement or through associations including a fast reception of the prudent triangle of 4IR Technologies.

Talking about arrangements in this unique circumstance, distributed computing and mass appointment of phones in the emerging market stay the central members. Cloud computing here encompasses Software as a Service (SaaS), Infrastructure as a Service (IaaS), Platform-as-a-Service (PaaS), and Function as a Service (FaaS), with further consideration for deployment types such as private, public, and hybrid and community cloud.

Although the service providers of these deployments are GE Healthcare, CareCloud, Agfa HealthCare, Microsoft, Google, Amazon to name these few popular brands, the chance in the emerging markets however is for techpreneurs to create applications utilizing Amazon Web Services (AWS) that interface patients to impartial thusly more brilliant home clinical benefits on-request, at whatever point and anyplace required. Albeit the arrangement includes various layers of 4IR technologies at its centre, it works on cycles and business activities to improve healthcare conveyance.

Without drilling deeper into much details of the solution as the scope of this paper remains at the very higher level subject to a fleeting look; this application will alarms the healthcare providers through a dashboard in the emergency room that uses a blend of not many components comprehensive of the catchphrases and area to convey paramedics or reach out to the patient remotely. The solution is however called 4IR healthcare simply because cloud computing alone will not cater for all the requirements. Its deployment is often done at small scale outpatient facilities and clinics. Some RPA devices might be deployed in combination with others rich technologies to make a solution fit for purpose. On-request healthcare eases the weight of patients in far off networks to make a trip significant distances to look for clinical consideration from healthcare specialists regularly found in huge urban communities as it is seen in the developing markets to date. The theoretical structure underneath addresses the arrangement in the nutshell.

As a result for a sustainable healthcare in the emerging markets, “Upomyaji Nyumbani” healing at home in Swahili creates value for investors. Questions could arose to why a Swahili name for a proposed solution – simply because “Kiswahili is an official language of the African Union and the lingua franca in most of east Africa and parts of central and southern Africa”(Mlemwa, 2019). Likewise, Africa is a continent of emerging economies.

While many empirical studies introduced the future of healthcare in multiple forms and different technological considerations, the truth beyond this particular view of 4IR Healthcare is that the technologies associated in the mix hold the perspectives for boosting meagre medical resources in the emerging markets to guarantee both infection counteraction and more controlling medical services are executed in family units and communities at affordable cost for the general public. The shift is noticed in isolation case by case with the pace of adoption of innovation coupled with regulatory reforms required.

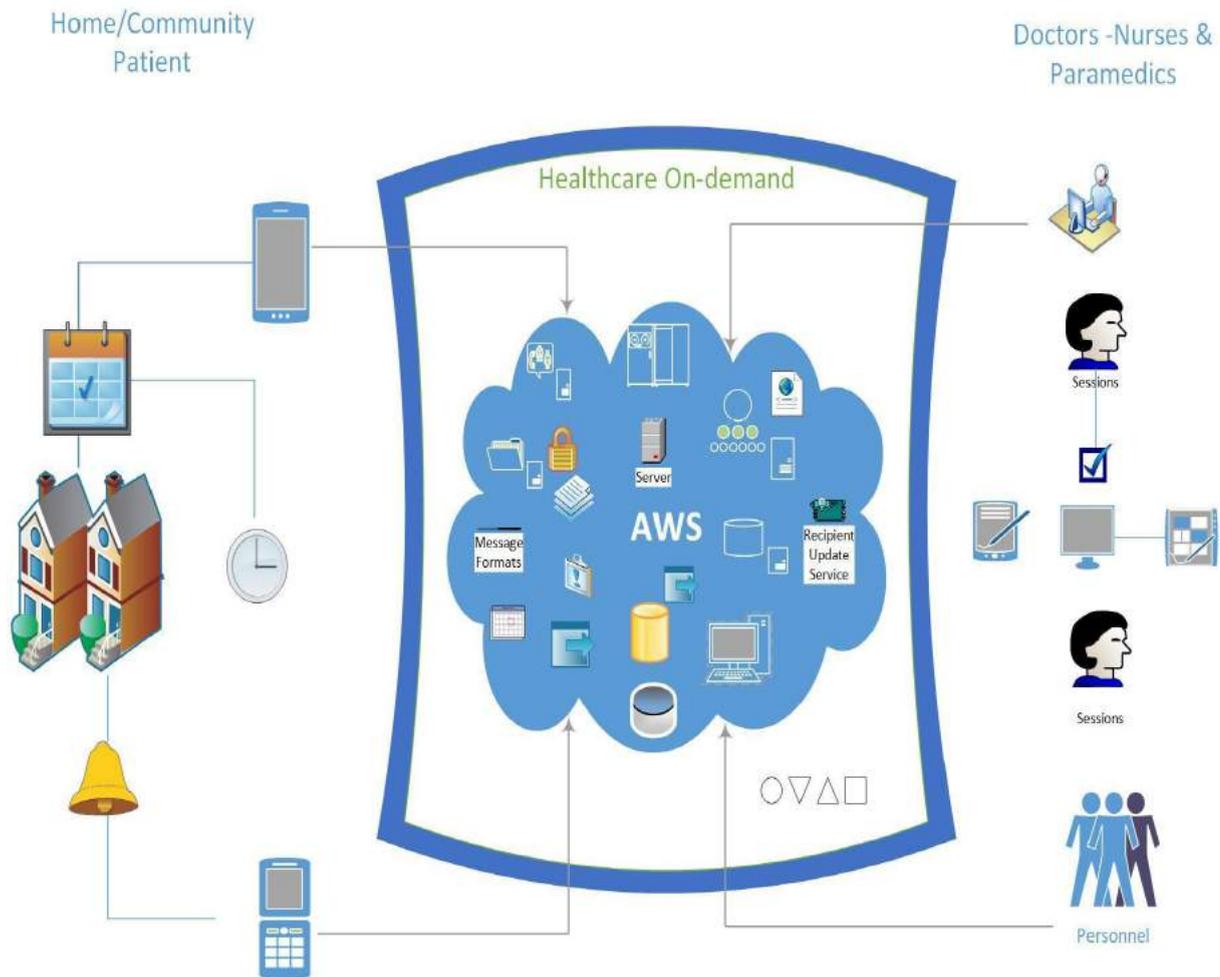


Figure 2: Conceptual framework of healthcare On-demand

#### 5.4 Healthcare through Robotic Process Automation (RPA)

Recognised as a foundational 4IR technology because of its wide adoption and funding scale as 4IR at the moment, RPA is about enacting a process, which in essence is a sequence of activities and tasks that ultimately fulfil a certain goal or outcome (Armstrong & Lee, 2021). Unmanned Aerial Vehicles (UAVs), commonly known as drones, is regarded as a RPA solution in healthcare as an autonomous runner. The devices have been used for more than one to two decades over delivery of medical supplies in many emerging markets to date.

As new technology has the potential to accelerate access to decent healthcare, in emerging economies such as Rwanda and Ghana, partnerships developed by local governments with private companies like Zipline are currently operating drones that deliver much-needed medical supplies to rural hospitals (Kamnqa, 2021). Despite the fact that this 4IR technology has been widely argued and reported to change the delivery of healthcare; Madagascar, Malawi and Senegal were among a group of early adopters following the diffusion of innovation diagram by Rogers piloting the use of bi-directional transport drones for health systems in sub-Saharan Africa (Knoblauch et al., 2019).

While many tongues argue the importance of deploying such 4IR technology in the emerging markets, the question that arises for this problem is how to optimize delivery of medical supplies times in-home healthcare made up of drones? A quick response in light of the future applications of drones in healthcare include delivering items such as blood samples, medications, vaccines, and organs, between healthcare institutions and directly to patients' homes (Cawthorne & Robbins-van Wynsberghe, 2020). Another question however is to know if it is safe to project a solution or a response into the future while the technology has been widely used and has even registered positive impact in the emerging markets?

It is therefore safe to state that beyond the debate on the robot ethics in light of various reflections to privacy, human rights and autonomy of the industry of healthcare, the developing countries have been at the core of many dilemmas due to poor or lack of political economy of healthcare (Braun et al., 2019). In addition, this flying device controlled remotely by a person or a computer known as a drone, has become real working tools, a big deal in the emerging markets beyond its own scope of exploration (Euchi, 2021). As “Rescue Robotics” outside of Kigali in Rwanda, drones

now carry 35% of blood supplied for transfusion. In Ghana they are beginning to deliver COVID-19 testing materials (Baker, 2020). The technology is finding supporters in other emerging countries as well. India, a country with serious healthcare disparities, has also acknowledged the need for drone delivery solutions (Santhanam, 2020). This in essence bridges some of many serious gaps between the industrialised world and the emerging markets, as well as the distances often encounters by patients of major metropolitan centres and distant rural communities separated by unpractical roads and related enquiries (Braun et al., 2019)

If the future of healthcare is attached to any technology in the emerging markets, drones in that sector is a big deal and is drastically closing the gaps. While numbers remain astonishing and delivery and implementation of many initiatives through RPA /drones have been affected by the global pandemic of COVID-19, the digital future promises great success in healthcare through drones and other 4IR technologies. As underscored previously, RPA is widely funded and holds the potential for immediate adoption (Armstrong & Lee, 2021); below are some details in light of this technology in particular.

**Table 2:** The promising future of drones in prehospital medical care and its application to battlefield medicine (Source: (Braun et al., 2019))

	Zipline	DrOne	Matternet	Flirtey	Parcelcopter 4.0
<b>Configuration</b>	Fixed wing	Fixed wing	Quad Copter	Hexa Copter	Fixed wing tilt rotor
<b>Maximal speed</b>	128km/h	-	40km/h	-	140km/h
<b>Range (single battery charge)</b>	160km	100km	20km (1kg cargo)	32Km	65 Km
<b>Cargo capacity</b>	1,75Kg	2Kg	2,2Kg	2Kg	4Kg
<b>Take-off</b>	runway	VTOL	VTOL	VTOL	VTOL
<b>Developers</b>	Zipline and UPS	Drones for development	Matternet	Flirtey	Deutsche Post DHL

While literature suggests that the drone technology can be traced back to the 1800 and early 1900 for military operations; “This is in fact a medical Kitty Hawk moment” (Balasingam, 2017). The world is witnessing the rise of intelligent machines in many walks of life to date and healthcare is no longer immune to embrace the changes. Several predictions were made and

some of them fade away for multiple reasons while some have seen the light at the end of tunnel as announced. According to Industry trend, Medical Drones Market size was valued at USD 88.2 million in 2018 and is expected to witness 24.7% CAGR from 2019 to 2025 (Ugalmugle, 2019).

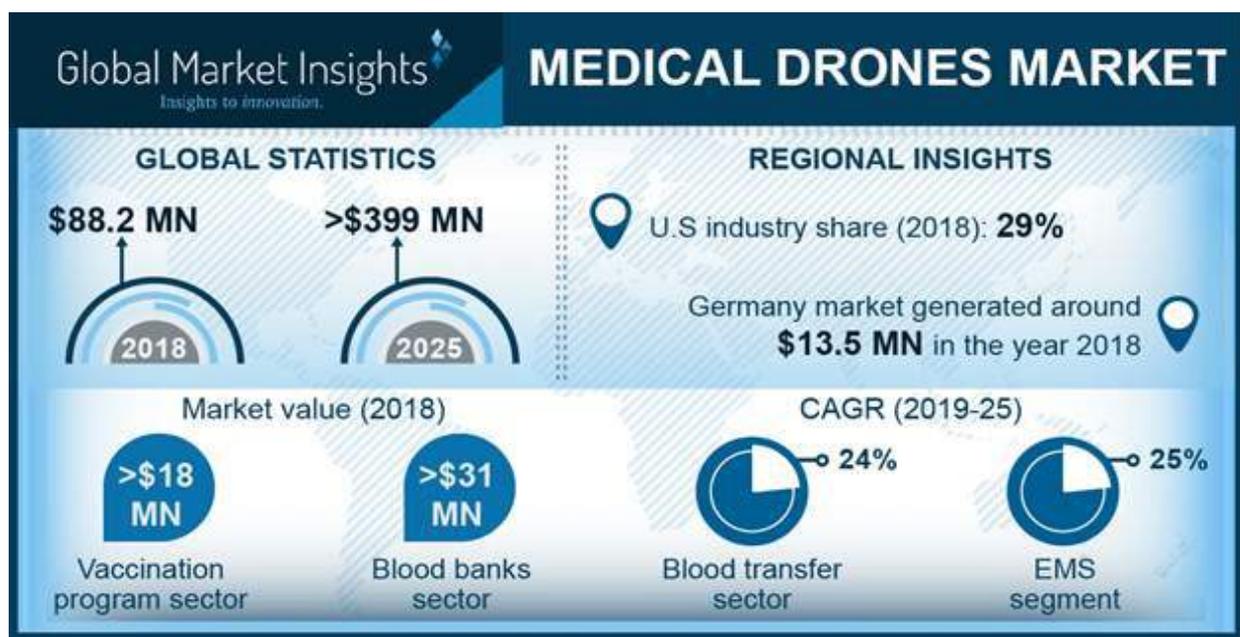


Figure 3: Global Market Insights (source : (Ugalmugle, 2019))

Many cases identified in the emerging markets to date can back up the above findings beyond detailed observation for the future of healthcare through the lenses of the 4IR technologies. RPA technology in particular has gone the extra mile to deliver beyond the scope of its deliverables in the healthcare industry both, in the developed and developing world.

### 5.5 Healthcare through Blockchain Technology

While Blockchain is understood to go beyond Bitcoin – the cryptocurrency that have faith in this technology and has been at the helm of its wide publicity (Mackey et al., 2019), many advocates including the author are quite certain of its potentials on the transformation of healthcare in the emerging markets. The technology provides decentralization, security and shareability features beyond the traditional databases. Blockchain constitutes a disruptive force that healthcare continues to build capacities upon (Rosalind, 2019). Its first major feature is that information is safeguarded in ‘blocks’ of data (Armstrong & Lee, 2021).

Though it has been hailed as a ground-breaking technology, the technology remains one of

developing knowhow both uptight with unexpected challenges and the promise of unrealized perspective in healthcare (Ribitzky et al., 2018). “Blockchain is an advanced methodology for record keeping, a digital architecture, consisting of a shared, immutable ledger that can better ensure the resilience, provenance, traceability, and management of health data and capable of achieving better advantages over traditional databases”(Armstrong & Lee, 2021; Mackey et al., 2019). One cannot jump to the potential of blockchains to healthcare in the emerging markets without underlining a novice understanding of this disruptive technology.

Similar to cloud computing deployments, blockchain allows limit sharing and access to allotment of data (Abdellatif et al., 2020). There are therefore, public blockchains such as cryptocurrency platforms and other analogous platforms where anyone can buy, sell, store and trade. There are also private blockchains where access is controlled and available to trusted and verified parties only, as well as permissioned blockchains which in simple terms can be described as hybrid blockchains. This blockchain has both private and public features and allows

multiple customizations. The technology has potentials to enable others technologies as well as acting like a backbone for others 4IR technologies such as cloud computing, artificial intelligence, e-Health and m-Health devices, applications, and to interface to a comprehensive Internet of Medical Things (Abdellatif et al., 2020; Brogan et al., 2018; Firdaus et al., 2018).

Many advocates will back up this technology in the emerging markets as many studies on its application in healthcare are available in the library of knowledge but few will stop one time and ask the right question to whether or not these nations have the means to sustain such technology. While the above might create an atmosphere of division between several parties, the possibility of seeing this adoption in the emerging markets remains plausible. Below are a few reviews that attracted our attention from the available literature.

Fusco et al., (2020) in their paper titled “Blockchain in Healthcare: Insights on COVID-19” stated that, the author directly quotes “The use of blockchain and its combination with artificial intelligence systems here “machine learning” allows the creation of a generalizable predictive system “Big data – Predictive analytics” that, included in the wider risk management process, could contribute decisively to the containment of pandemic risk on national territory”. The argument drawn behind the use of predictive models is that the aftereffects of a continually refreshed predictive model, in view of data on and clinical information of patients, can specifically impact clinical practice as well as more for the most part the automatic strategies of hazard control at territorial and public levels (Fusco et al., 2020; Mackey et al., 2019; Ribitzky et al., 2018). Below are a few considerations for the emerging markets with the adoption or use of blockchain in the future of healthcare.

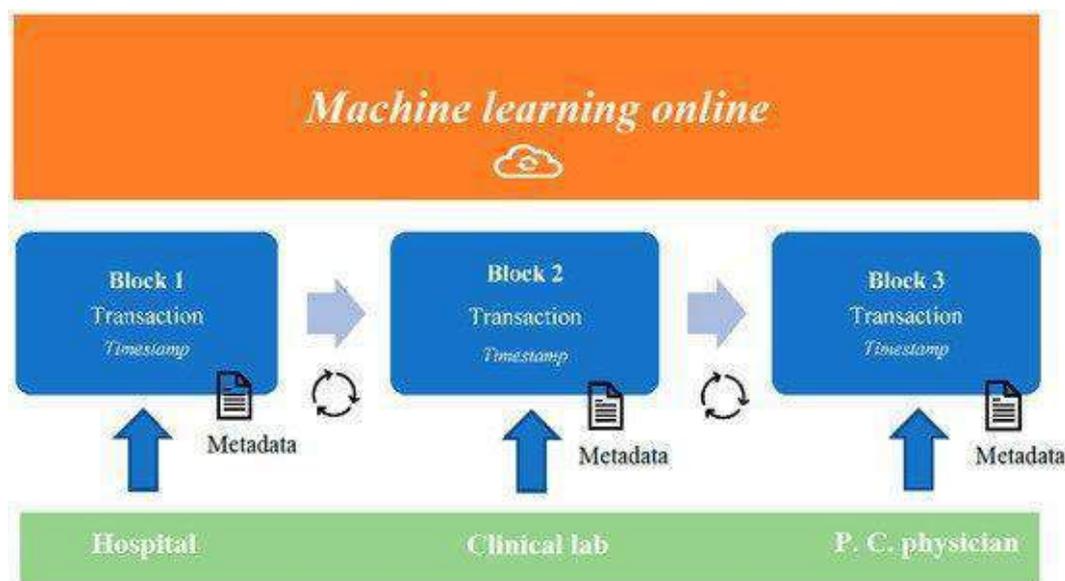


Figure 4: The concept of a blockchain-based predictive model (Source: (Fusco et al., 2020))

This model provides some leverages in management of healthcare of the future in the emerging markets. It requires serial testing and updates to deliver reliability.

Mirroring the expanded consideration given to blockchain in medical care and life sciences, the quantity of PubMed filed articles incorporating the catchphrase 'blockchain' in the title or theoretical fields has expanded drastically, from simply 5 in 2016 to 64 out of 2018 (Mackey et al.,

2019). This is an evidence of the impact of 4IR technologies in healthcare not only in the Industrialised world but equally so in the emerging markets. In addition, as many types of blockchain technology have been identified for healthcare (Firdaus et al., 2018), the key features of a blockchain-based healthcare systems in light of recent related literature are highlighted in figure 5 and table 3 (Abdellatif et al., 2020; Hasselgren et al., 2020).

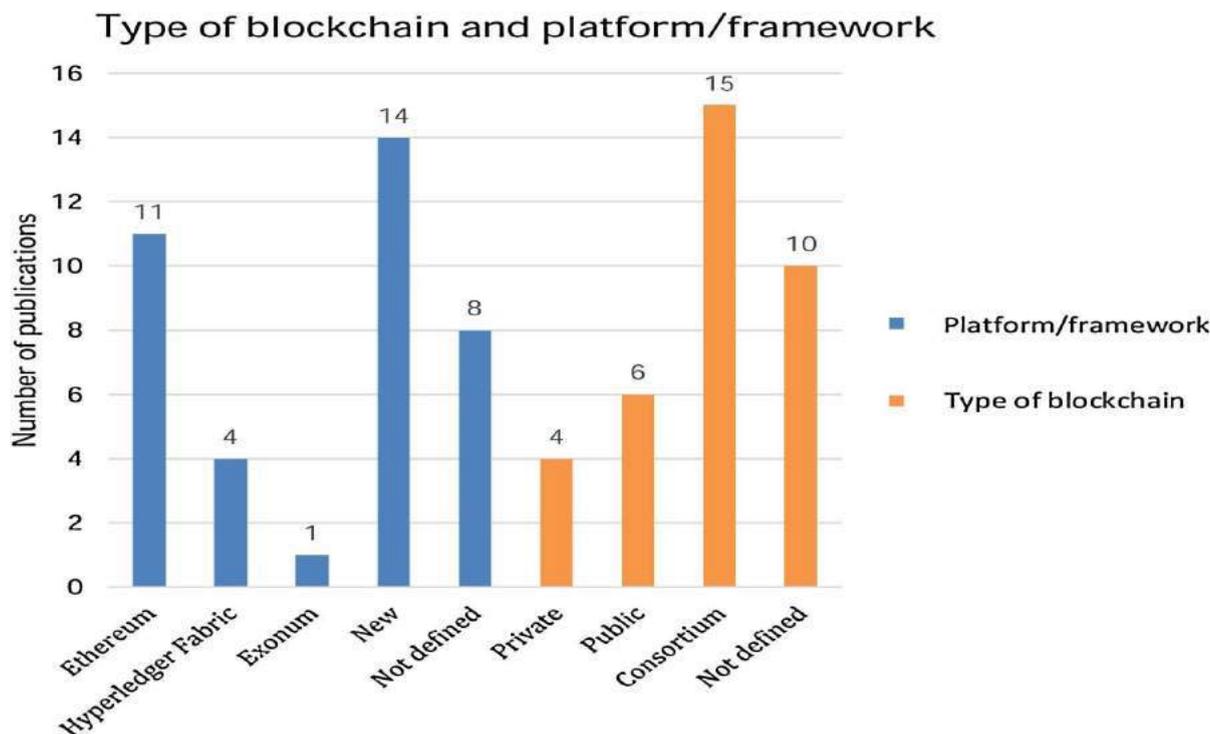


Figure 5: Type of blockchains and platform/framework (source : (Hasselgren et al., 2020))

Table 3: Summary of the relevant work on blockchain in healthcare systems (source: (Abdellatif et al., 2020))

Blockchain type	Description	Limitations	Entities
Private (Ethereum) Consensus: Practical Byzantine Fault Tolerance (PBFT) class: patient[4]	Blockchain system links patients with doctors using customized smart contract to record all events on the blockchain	Latency, scalability	Patients, hospitals
Private (Ethereum) Consensus: Proof of Work (PoW) class: patient[5]	A blockchain framework is proposed for searching encrypted index of electronic health records (EHRs) while real data stored in database	Scalability	Patients, hospitals, medical labs, insurance companies
Private (consortium) Consensus: delegated proof of stake (DPoS) class: patient[2]	Parallel healthcare system using blockchain, technology is proposed to link various parties for medical data sharing	Latency, scalability, security	Patients, hospitals, healthcare communities, researchers
Private (Ethereum) Consensus: PoW class: patient[6]	Blockchain framework is proposed to connect the patients with the hospitals to enable health-related information exchange	Scalability	Patients, hospitals, healthcare institutions
Private (Hyperledger fabric) Consensus: Byzantine fault-tolerant state machine replication class: patient[7]	Blockchain framework is proposed for sharing processed medical data between different healthcare entities	Scalability, patients approval	Patients, healthcare providers
Private (Ethereum) Consensus: proof of conformance class: entity [8]	Framework of dual blockchains is proposed, one to store and share the index of the EHR with multiple hospitals, and the other to store the original data	Storage scalability	System manager, hospitals
Public (Ethereum) Consensus: PoW class: entity [9]	Propose a framework of two coupled blockchains for managing the storage of two types of data to enhance the throughput, accessibility, and fairness among users	Latency, scalability, computational cost	Patients, medical institutions
Private (MeDShare) Consensus: using consensus nodes class: patient[10]	Blockchain system is proposed to provide medical data sharing, auditing, and control over diverse entities	Privacy scalability	Patients, hospitals, research institutions
Private (Hyper ledger fabric) Consensus: voting-based approach class: patient[11]	Blockchain has been integrated with a tree-based method for medical data sharing between different entities	Privacy, scalability	Patients, doctors, insurance companies

The above table is a condensed report of recent works in 4IR technologies here blockchain with its encryption techniques, consensus algorithms adopted for each solution, and the limitations each unveil. The above also depict the scalability

(expansion) of blockchain and the flexibility of its adoption in use cases in healthcare and beyond (Mackey et al., 2019). The picture below paints a simple and self-explanatory summary of blockchain architecture.

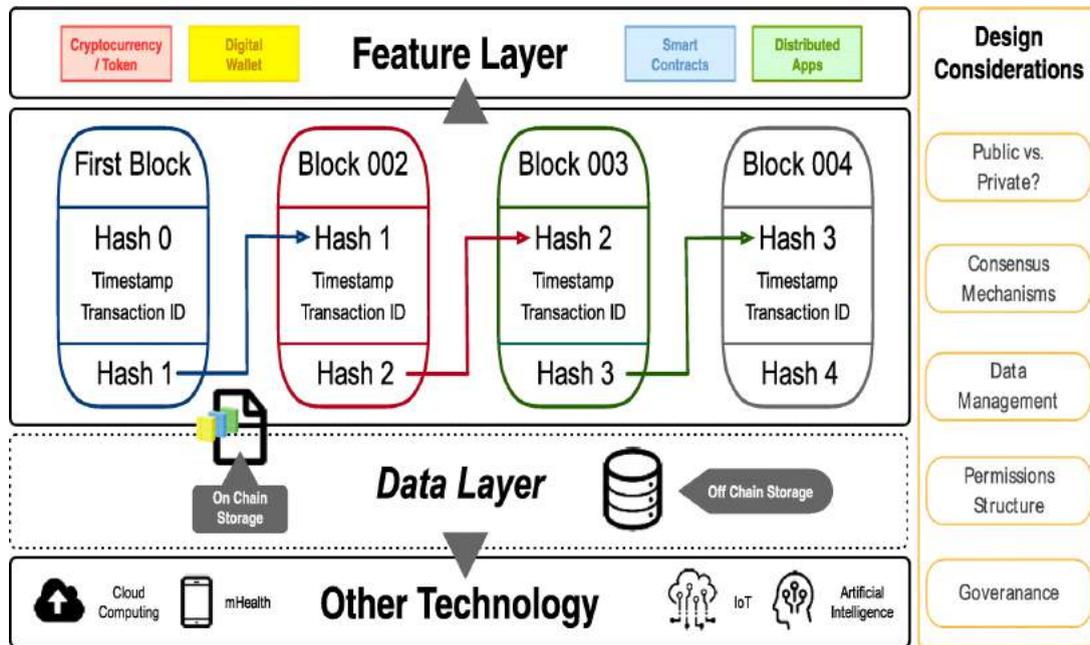


Figure 6: Depiction of blockchain data architecture components (source: (Mackey et al., 2019))

## VI. FINDINGS

Healthcare is a significant recipient as the tech environment in the emerging markets keeps on developing (Rosalind, 2019). The discoveries through understanding of 4IR technologies assessed show that the conventional players in the healthcare ecosystem today will be compelled to advance as the scene turns out to be more patient driven. Society in general is moving from what has customarily been a business to business healthcare model, really past a business to shopper healthcare model, to a customer to plan of action (Siwicki, 2019). There is consequently a shift of parts in the master plan of healthcare fuelled by 4IR technologies reception and development in the emerging markets.

While analysts and others researchers concur that healthcare is a framework that involved various segments, first being patients, and including institutions to give care, providers of prescriptions or hardware, the healthcare labour force to convey administrations, instructive and research establishments to prepare the labour force, and

payers and government financing systems (Ribitzky et al., 2018); its future is being formed by consolidating 4IR technologies to drive new models for patient consideration.

These are not, at this point, customary models of healthcare the way things are today. The researcher has through a checking of perceptions survey found that the explorative utilization of 4IR technologies in healthcare in the emerging markets is a scholarly examination subject in its early stages yet that the quantity of examination bunches approaches with centre around Africa and proposed arrangements at present is developing dramatically. The quality and amount of the papers are likewise on the ascent (Mackey et al., 2019). Cloud computing, information sharing and information mining, Robotic Process Automation, AI, man-made brainpower, and blockchain are the most affecting current systems for healthcare management (Balasingam, 2017; Braun et al., 2019; Fusco et al., 2020; Hasselgren et al., 2020; Riggare, 2018).

As digital transformation reshape healthcare all throughout the planet, the emerging markets can acknowledge the transition to wire and adventure these 4IR technologies on one hand, and think about genuine changes considering political, financial, social and technological contemplations then again. It is therefore indispensable to recognize the vested interests in healthcare today of social and political powers stubborn and hauling it in different ways. The proposal is for acclimated healthcare pioneers in the emerging markets to team up with techpreneurs and government offices to set up the transition to digital. It is basic for different players of healthcare to get ready for the digital move in light of the fact that the bearing and construction of a future healthcare framework will be resolved generally by the arrangement of healthcare planned with 4IR technologies in the emerging markets.

## VII. CONCLUSION

Research on 4IR technologies in healthcare is taking shape as an academic field, and the number and quality of individual publications put together are exponentially growing. This trend is also noticeable in the emerging markets where the smartphone boom is cascading into the healthcare market together with some 4IR technologies are transforming the future of this industry, here healthcare.

In light of the above and context assigned, this paper has explored the future of healthcare in the developing markets using the lenses of 4IR technologies. It has therefore observed the various adoptions and applications of one or multiple 4IR technologies that currently have a stake in healthcare in these markets so far. There are other observations which were not examined in detail in this paper due to context and scope, notably cybersecurity, the virtuous triangle, virtual and augmented reality as well as biotechnology with a focus on neurotechnologies.

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The Niger Delta region is richly endowed with crude oil and natural gas. However, in spite of its rich resource endowment the region is largely underdeveloped leading to the emergence of different militant groups. The activities of these groups have had numerous effects on oil production, host communities, Multi-National Oil Companies (MNOCs), the Nigerian State and the world at large. The different measures put in place by the government to manage the situation have not achieved the desired outcome; as the crisis has continued unabated.

*Keywords:* niger delta, militancy, crude oil, government.

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*The Niger Delta region is richly endowed with crude oil and natural gas. However, in spite of its rich resource endowment the region is largely underdeveloped leading to the emergence of different militant groups. The activities of these groups have had numerous effects on oil production, host communities, Multi-National Oil Companies (MNOCs), the Nigerian State and the world at large. The different measures put in place by the government to manage the situation have not achieved the desired outcome; as the crisis has continued unabated. The country's national security is thus threatened; thereby making it extremely difficult for the government in promoting the general well-being of the people. The paper used both primary and secondary sources of data. The former is In-depth Interview (IDI) conducted with respondents while the latter are materials from books, journals etc. The study discovered that deep-rooted mistrust and frustration through long years of neglect is responsible for the emergence of militant groups in the region. It concluded that the crisis in the Niger Delta has had negative consequences on the people of the region, the MNOCs, the government and even the international communities which depend partly on crude oil from Nigeria. The national security is therefore negatively affected. It recommended that the government should sign into law the Petroleum Industrial Bill (PIB) that will make the host communities also benefit from their natural resources endowment and reduce thereby reducing the perceived marginalization, corruption, poverty etc. in the Niger Delta.*

**Keywords:** niger delta, militancy, crude oil, government.

**Author:** Research Fellow, The Nigerian Institute of Social and Economic Research (NISER) Ibadan, Oyo State Nigeria.

e-mails : mosesbaron@yahoo.com; mibassey@niser.gov.ng

## I. INTRODUCTION

The Nigeria state is richly endowed with immense human and material resources, which should naturally provide opportunity for national development (Oyakorotu, 2008). However, since the return to democracy in 1999 one issue that has continued to attract national attention is the activities of different militant groups such as the Movement for the Emancipation of Niger Delta (MEND), The Niger Delta Volunteer Force (NDVF), The Niger Delta Avenger (NDA), The Movement for the Survival of Ogoni People (MOSOP), the Ogoni Liberation Movement (OLM) and many more in the Niger Delta region whose activities have threatened national security and socio-economic development. The security of lives and properties are the fundamental reason for the existence of a government, in the first place as attested to by various social contract theories like Hobbes, Locke and Montesquieu. In Thomas Hobbes' book titled the Leviathan, the people want security and prevent a state of lawlessness where lives were brutish, nasty and short, so they surrendered their natural right to a body called government. A major challenge to Nigeria's national security is therefore the containment of diverse manifestations of violence spearheaded by various known and unknown

groups. According to Nwolise, (2011), citing, former President Olusegun Obasanjo while formulating Nigeria's Grand Strategy for National Security:

The primary objective of national security shall be to strengthen the Federal Republic of Nigeria, to advance her interests and objectives, to contain instability, control crime, eliminate corruption, enhance genuine development, progress and growth, and improves the welfare and well-being and quality of life of every citizen (Grand Strategy for National Security, 2001 in Nwolise, 2011).

National security is thus very important in every state because without it, the state is bound to experience great difficulty in harnessing its resources that will be geared towards promoting the general well-being of the people and development. In a lecture given at NIPSS by the former head of the state, Abdulsalami Abubakar, on the Challenges of Security in Nigeria "it is pertinent to consider security issues and problems that have affected the attitude, confidence and cooperation of all groups and segments that make up the Nigerian federation" (Abubakar, 2004).

This clearly shows that one of the greatest threats to national security since the beginning of the Fourth Republic is insecurity perpetuated by various known and unknown groups within the Nigerian state.

A challenging example is the case of different militant groups in the Niger Delta region of Nigeria. The activities of these groups that are fighting to correct the perceived injustice done to the region by the government and Multi-National Oil Companies (MNOCs), over the years, has taken centre stage in national and international discourse. This is because the Niger Delta region is of great importance to the Nigerian state, given its centrality to the country's political economy and national security. The Niger Delta region is Nigeria's oil belt; as it holds the bulk of the resources that sustains the economy. The region contributes about 80% of the total government revenue, 95% of foreign exchange and over 80% of national wealth (Tell, February 18, 2008). The Niger Delta presently hosts Nigeria's oil industry, including oil multinationals, state and local oil

companies, oil service companies, 'thousands of kilometers of oil pipelines, ten export terminals, four refineries and a massive liquefied natural gas (LNG) sector' (Watts, 2007).

Despite all these, the communities in the Niger Delta region suffer inadequate social, infrastructural and environmental degradation, displacement, poverty, neglect, human rights abuse and transport bottlenecks, which has hampered the development of the region (Naanen, 1995; Obi, 2004). Others are kidnapping, seizures of oil pipelines and installations, institutionalizing authorities as well as confrontational attacks (Ikelegbe, 2005). The region has also been bedeviled by insecurity problems stemming from the activities of different militant groups. The violence from the activities of these militant groups has turned the region into a theatre of war thereby compounding the nation's already bad security situation. It has also hindered the development of the region in particular despite its rich resource endowment and the Nigerian state in general (Akhemonkhan et al., 2012). The people of the oil rich Niger Delta communities have predicated their abject poverty, environmental degradation, and the general underdevelopment of their area on the economic marginalization and socio-political exclusion from revenue allocation by the federal government. These and many more led to the rise of different militant groups in the region.

It has to be stated that the problems in Niger Delta dates back to 1958 prior to independence, when the Willink's Commission concerned about the regrettable situation in the region, recommended the establishment of the Niger Delta Development Board (NDDDB) to tackle the problems of underdevelopment, yet nothing concrete was done because the headquarters of the commission was located in Lagos, far from the Niger Delta. In the 1990s, the government decided to prosecute people of the Niger Delta region most especially the entire Ogoni ethnic group who were at the forefront of the struggle. This led to the eventual execution of the environmental rights activist, Ken Saro-Wiwa and other eight Ogoni kinsmen.

In 1993, the Ibrahim Badamosi Babangida (IBB) led federal government established the Oil Mineral Producing Areas Development Commission (OMPADEC) with the aim of getting to the heart of the problem, the agency however went moribund without success. Other agencies were also created such as the Delta State Oil Producing Areas Development Commission (DESOPADEC) to develop the Niger Delta, but the agency due a number of factors, achieved little success (Omoweh, 2000; Raji, et al., 2000). In the Fourth Republic, the Federal Government of Nigeria (FGN) created the Niger Delta Development Commission (NDDC), Ministry of Niger Delta Affairs (MNDA) and even granting unconditional amnesty to militants but all these policies have not yielded the desired outcomes or produced the expected results as the activities of these militancy have continued to threaten national security.

The activities of these militant groups have threatened not only Nigeria's oil production, but also the country's economy, fragile democracy and national security. It is against this background that this study will assess the activities of the militant groups in the Niger Delta region and the challenge to national security in Nigeria. The study will be guided by following research questions: What factors led to the emergence of the militant groups in the Niger Delta region? What are the challenges posed by the activities of militant groups to Nigeria's national security? What are Government's responses to the national security challenges posed by militant groups?

## II. LITERATURE REVIEW

Recent studies have attributed the prevalence of large-scale insecurity caused by militancy in many third world countries and developing nations to the abundance of natural resources, such as oil. Ross, (2004) linked the outbreak or prolonging of violent conflict in third world countries to abundant resource endowments which feed into corruption, struggles over resources, and political instability. The need for oil from endowed developing third world countries has contributed to the on-going conflict dynamics in oil bearing third world countries (Cramer, 1988). This is

because crude oil and its products are globally strategic; as they are the foundation of energy for modern civilization, and the fuel for modern industrialization.

Collier and Hoeffler (2000) and Ross (2004) identified oil-endowed developing countries as having a high risk of experiencing militancy leading to armed conflict. According to the resource curse perspective, conflicts in Angola (oil), Burma (tin, gems), DRC (copper), Sudan (oil), Indonesia (natural gas), Morocco (oil) and Nigeria (oil) can be attributed to the destabilizing and conflict element in the resource abundance-development linkage. Following from this, Ikelegbe (2006) present greed and opportunism as the motivating incentives for armed groups to engage in conflict. Ikelegbe (2006), also notes how economic interests fuel conflicts. By drawing from the Movement for the Emancipation of the Niger Delta (MEND) on the case of a resource endowed country like Nigeria, he points out that foreign mining and mineral exploiting companies enter into partnership with state or non-state actors to have unhindered access into the legal or illegal trade of primary resource exploration and exploitation.

The problems of governance, educational attainment (the lack of it) and income levels are also identified by Oyefusi (2007) as the immediate cause of rise of militancy leading to armed conflict in resource-endowed countries, especially Nigeria. Elbadawi and Sambanis (2000) see the lack or absence of political and economic development as the root cause of conflicts (militancy) in the African continent. Ifeka (2000) on the other sees conflict, especially in the Niger Delta as the consequence or reflection of political repression and undemocratic practices by erstwhile military dictators. In this regard, Ikelegbe (2006) and Reno (2003) have rightly expressed the idea that a primary resource in/by itself does not engender conflict; rather it is the complex struggles by various classes, fractions and groups, local, national and international, with regard to the manner of extraction, management, appropriation and distribution of benefits that propel and fuel armed conflict.

To understand national security one must be able to evaluate the prevailing threat posed by militancy within a state. Threat situations are also dynamic and in many cases are sometimes are politically determined (Ochoche, 1997). For years, the history of humankind was interfaced by search for the best way of ensuring the security of people, property, territories, states, institutions etc. Balogun, (2003) observed at a forum that “man’s primary and engaging concern has been that of survival and protection; from the vagaries of nature, natural disasters and from the ill-intentions and misdeeds of his fellow men”. This is amplified by section 14(b) of the Nigeria constitution (1999), which states inter alia that:

“The security and welfare of the people shall be the primary purpose of government”. A secure nation is one that is able to protect and develop itself so that it can develop its core values, meet the needs of its people, and provide them with the right atmosphere for self-improvement”.

Therefore, threats to national security are not static, but dynamic, and just as the political, economic, military and social causes of threats change, so does the national security posture of a country change (Okodolor, 2004). In the context of Nigeria’s national security considerations, Former President Olusegun Obasanjo contends that:

The primary objective of national security shall be to strengthen the Federal Republic of Nigeria, to advance her interest and objectives to contain instability, control crime, eliminate corruption, enhance genuine development, progress and growth, and improve the welfare and well-being and quality of life of every citizen (Tyoden 2005).

In this sense, national security is a collection of two broad crucial elements: State security and Human security. It entails the preservation of the safety of Nigerians at home and abroad and the protection of the sovereignty of the country and the integrity of its assets (Federal Republic of Nigeria, 2006). So therefore, a country is secured to the extent that the political leadership is able to anticipate, recognize and respond effectively to these threats, using the available national

resources to ensure the safety of life and property of the citizens, and guarantee the integrity of its territorial boundaries as well as its strategic assets, both within and outside its territory.

One thing that confronts Nigeria today is the resurgence of civil unrest and its threat to her security. The insecurity being caused by militants in the Niger Delta region of Nigeria is of great concerns to everybody because the region serves as the source of revenue to the Nigerian state. The problem is made worst by the inability of the Nigerian state to effectively address the security threat posed by MEND and other militancy. This has portrayed Nigeria as one of the most insecure place to live in the world today. Foreign investors have left in haste to neighbouring countries and her citizens are leaving the country on a daily basis. People are beginning to question the capability of government in addressing its security challenges in the 21st century.

### III. THEORETICAL FRAMEWORK

#### 3.1 *The Relative Deprivation Theory*

Most sociologists used relative-deprivation theory within the early 1960s and 1970s. The theory, according to Ted Gurr (1970), argues that prolong poverty and marginalization within countries are breeding grounds for violent political movements and terrorism. The theory also contends that people often perceive themselves to be deprived in comparison with others. This perception creates hostility. The theory stresses psychological characteristics as the main reason why social movements emerge. Its claim is that people experience “relative deprivation” through meeting obstacles in life, such as economic and social, and that as a result of this, they often search for alternative goals in compensation, such as collective action. However, this does not mean that all discontent leads to social movements, or collective actions. But in most cases when the people are exposed to difficult life situations overtime, in spite of being richly endowed with natural resources they tend to take arms against the state or the perceived enemy to their progress. Proponents of this theory were fast to point out that for social discontent to translate into social movements, the people involved must feel that

they deserve, or have a right to more social welfare, be it resources, power or status, than they already had.

And often, they must also conclude that they would not attain their satisfactions via individual conventional methods. Therefore, the only viable option left would be “collective action”, which social movement organizations offer (Glock and Stack, 1965). Because of the increasing presence and popularity of social movements, which were increasingly cropping-up in the developing countries during the 1960s, this perspective almost achieved a position of monopoly, especially within sociology of religion (Furseth, 1999). More than most other theories, it seemed like the most suitable viable sociological explanation for the rise of militancy and the implications of their activities on national security.

This theory shows the nexus between the emergent of militancy and challenges to national security. MEND holds the FG and MNOCs accountable for the inability of communities in the Niger Delta to access sustainable livelihoods. They, therefore rebel against the perceived enemy (FG and MNOCs). Scholars generally agree that deprivation of livelihoods of the inhabitants of the Niger Delta by the multi-national oil companies through oil exploration and production, environmental degradation, perceived insensitivity of the state, and pollution of rivers and farmlands were the cause of the Niger Delta crisis (Agbibo and Maiangwa, 2013). Consequently, people whose main vocations are farming and fishing have been deprived of their primary means of earning a livelihood. These have led to various forms of violence and conflicts including arson, kidnapping, and vandalism of oil installation.

#### IV. MATERIALS AND METHODS

The study adopted the descriptive survey. Primary and Secondary data were collected and utilised. While Primary data was sourced from In-depth interviews conducted with stakeholders in Bayelsa, Rivers, and Delta States, Secondary data was sourced from published and unpublished sources. The types of primary and secondary data for this study include the under listed items:

- Evidence of factors that led to the emergence of militant groups in the Niger Delta region of Nigeria
- Evidence of the goals, ideology and membership composition of these groups in the Niger Delta region of Nigeria.
- Evidence of the effect of the activities of these groups on National Security in the Nigeria.
- Evidence of government response to the activities of different militant groups in the Niger Delta region of Nigeria.

The sources of data were collected from both primary and secondary sources. Primary sources involved in-depth interviews with stakeholders while secondary sources were a host of materials such as journals, books, archival documents, communicate, and documents from stakeholders on separatist agitations and national security. The Techniques for Data Gathering: Two major research techniques were employed in this study, namely, in-depth interview and documentary source of information. The major research instruments designed were:

- Checklist of questions for in-depth interviews;
- Checklist of documents that were collected.

In-depth Interviews were conducted with stakeholders at two realms: state and society from the following:

*Table 1:* Showing Stakeholders and Number of Interview conducted

Respondent	Interviews in Bayelsa	Interview in Delta state
MEND members	2	2
Niger Delta Development Commission	1	1
Security Agency	1	1
Traditional Rulers	1	1

CSOs	1	1
Academia	1	1
Total	8	8

Data Analysis Approach: The data collected from the field were content analysed according to the thematic areas.

## V. DISCUSSION OF FINDINGS

### 5.1 Causes of Separatist Agitation in the Niger Delta Region of Nigeria

The UNDP report (2006), the Niger Delta is now a place of frustrated expectations and deep-rooted mistrust. Though, the long years of neglect could be adduced for this, it has implanted in the community a mentality and feeling of hopelessness and eternal deprivation especially among women and youth. Due to these repression from the government over the ears, persistent violence has become the order as survival in the region is only by the fittest<sup>1</sup>. Cajetan, (2008) stated that there is substantial evidence abound that oil exploration and production in the Niger Delta has resulted into different form of pollution (land, air, sea). The land in many places now yield little or no harvest; plants shrink and fade away because of gas flaring, many species of fishes have died due to water pollution. The fishermen in the Niger Delta have been made jobless due to oil spillage due to oil spoilage that has killed fishes and other toxic chemicals released into the environment; have also caused health problems like skin cancer. Socio-economic activities is now at the mercies of the oil companies and the government<sup>2</sup>.

Paradoxically, the neglect of the Niger Delta region does not appear to be one sided because the resources accruing to the state by way of 13 percent derivation to oil-producing state does not seem to have been adequately channeled towards the development of the region by those who have

been in government in the area. Secondly, the establishment of Niger Delta Development Board (NDDDB), OMPADEC and NDDC also appear not to have made any meaningful impact in the development of the area (Roberts, 1998). Hence, as earlier noted wide there is widespread poverty, lack of social and economic infrastructure and a high rate of employment and crime. This in turn has bred frustrated population, ethnic polarization and an anti-establishment hostility and agitation.

The irony of Nigeria's Niger Delta region is that the region is richly endowed with oil which should be a thing of joy, it is like paradise in hell. The people are one of the poorest sets of people in the world as the majority live in slums and shanties; unemployment is rife and illiteracy is prevalent<sup>3</sup>. Also, Aluko, (2004), in his study reported that 95.8% of the inhabitants of the Niger Delta are of the opinion "that oil exploitation and the environmental degradation that accompanied it, are largely responsible for their impoverishment which denied them of their primary source of livelihoods". The inability of the governments to translate earned oil revenue to sustainable growth and improved livelihood has festered the feeling of resentments among the inhabitants against the governments, resulting in violence and conflicts. This was echoed in an interview with one of the respondent from the region who stated that, "there is total failure of accountability and transparency in governance, and governments have failed to apply oil revenues to alleviate the sufferings of the people"<sup>4</sup>. Given these scenarios, it is easy to see why the people feel victimized and disenchanting and are willing to take to violence against the state at the slightest provocation (Herskovits, 2012). This correlates with the

<sup>1</sup> Interview with a staff of Niger Delta Development Commission in Delta State. (22/11/2020)

<sup>2</sup> Interview with Professor Ambily Etekpe, Director of Peace and Conflict Studies, Niger Delta University, Wilberforce Island (10/11/20202).

<sup>3</sup> Interview with Chief Lucky Wiwa (The brother to the late Ken Saro Wiwa) (20/11/2020)

<sup>4</sup> Interview with King Malala Sasime, a paramount ruler in Bayelsa 11/11/20202

relative deprivation theory of conflict used in this study.



Source: Nairaland, (2011) – *The Niger Delta in Pictures*, [online], January 17, 2011. Available from <http://www.nairaland.com/587622/niger-delta-pictures>

*Figure 1:* Shell Exploration Plant in Effurun, Delta State



*Figure 2:* Fire outbreak from oil spillage in Bayelsa

Nairaland, (2011) – *The Niger Delta in Pictures*, [online], January 17, 2011. Available from <http://www.nairaland.com/587622/niger-delta-pictures>.

The abuse of laws on environment by the Multi-National Oil Companies (MNOCs) leading to environmental pollution of the Niger Delta region. All peaceful efforts to make Shell and other oil companies compensate the communities fell on deaf hear. Instead of the Federal and state

government sanctioning them, they were rather protecting them and arresting human rights activist like Ken Saro-Wiwa who brought to the crime of these oil companies to the forefront. In one of the interview conducted with a member of the dreaded MEND who is presently into oil bunkering. He said “I be fisherman before, but now no fish again for the water because of the frequent oil spillages that have destroyed the water and kill fishes. Se I no go survive? Well, that’s why I join MEND. The Amnesty thing is just camouflage, we still do bunkery and the military are aware of it”<sup>5</sup>.

One of the major cause of separatist agitations in the Niger Delta is the problem of unemployment. No society thrives on unemployment and underemployment especially when it seems as if a particular group is marginalized. Such may be a reason for separatist agitation as any particular group or groups feeling that the government for political reasons deliberately sidelines them, may see secession as a way out<sup>6</sup>. Another cause is the problem of poor social amenities in the Niger Delta. Infrastructure is an index of development and people will not want to remain in a polity that seem to oppress by purposely not providing the basic. A group may agitate to separate where there is little or no physical presence of the government in their region. Where that exist, the loyalty of such a group to the state may become an issue which may give room for alienating itself from the state. These problems and many more led to the rise of militant groups in the Niger-Delta region of Nigeria.

### *5.2 The Effects of Militant Activities on the National Security*

The Nigeria state is richly endowed with lots of natural resources which should naturally aid its development but instead of helping in the development of the environment, exploration and exploitation of these resources particularly oil have led to vast degradation of the environment in the region where it is found (Aluko, 2004). Oil

exploration in the Niger Delta region of Nigeria is not restricted to only the rural areas or offshore but oil is also explored on the sea, land, in the rural and in the urban cities. The Nigeria Niger Delta environment is about the most grossly impacted by activities relating to oil Production chief of which are oil spills and gas flaring (Vermont Law Review, 2012). A CIA report published in the year 2000 and referred to as Douglas et al (2004), warned of the spill-over effects of environmental stress in the Niger Delta. World Wildlife Funds (2013) stated that oil and gas extraction and production could result in lasting damage to the environment due to the release of tons of harmful pollutants in the air, water, and land. According to Wayne (1971), the time it takes a contaminated environment to return to its original state can never be determined accurately.

<sup>5</sup> Interview with member of MEND comrade Alisbi Kamalu (15/11/2020)

<sup>6</sup> Interview with Chief Lucky Wiwa on 20/11/2020 (Immediate brother to the Late Ken Saro Wiwa)



*Figure 3:* Figure of Elf Oil Pollution site in Sagbama, Bayelsa.

Nairaland, (2011) – The Niger Delta in Pictures, [online], January 17, 2011. Available from <http://www.nairaland.com/587622/niger-delta-pictures>

Oil exploration and production are bound to have negative environmental effects in the area where they are being carried out the Niger Delta inclusive (Ugochukwu, 2008). The Vermont law review (2012), of the situation in the Niger Delta shows that over fifty years of explorative activities in the region has resulted in grave destruction of arable farmlands and productive waters. During oil exploration and production lot of untreated Effluents is release into surrounding water bodies. On the effect of oil exploration and production Corbett (1996), states that either the physical nature of oil or its chemical components can affect the water body or the organisms in it. The impacts of oil pollution on land could be as devastating as leading to the destruction of wildlife and biodiversity, loss of fertile lands, degradation of farmlands and contamination of underground waters.

The activities of SHELL spelt S H E L L if you remove the first letter S, you will have HELL. Their activities are causing us lots of pain. They have spoil our land and water. Many people have been made jobless because they were fishermen and the pollution from their activities have destroy the water. Today in the Niger Delta

anytime it rains we have black water, so tell me how you can have good crops<sup>7</sup>.

A similar view shared by both Ugochukwu (2008) and Lucy et.al (2011) stated that the impacts of oil pollution on the water make the water unsuitable for its other purposes including being a life support system for both man and animals. Essien and John (2010), for crops and plants to germinate, it requires a soil with adequate air, water and nutrient to support the growth of the plant, however, oil pollution in the Niger Delta of Nigeria reduces the productivity of soils by making the required air, water and nutrients unavailable. The pollution of the atmosphere in the Niger Delta due to gas flaring and other oil related activities is a major source of concern, as it is a major cause of environmental degradation in the region. Affirming this, the Vermont law review (2012) further stated that these flaring points in the Niger Delta area are always found close to places of residence and according to Alvarez and Paranhos (2012), exploration activities produce volatile gases which in areas of concentrated production could have substantial air quality effects. This proximity to homes according to Ugochukwu (2008) raises issues of human rights abuses and the need for efficient laws to control it in Nigeria. Potential Physical and health impacts of oil exploration in the Niger Delta causes acid

<sup>7</sup> Interview with Chief Lucky Wiwa on 20/11/2020 (The Junior Brother of late Ken Saro Wiwa).

rain, cancer, birth defects, neurological problems, and other irreversible health effects.

The stubbornness on the part of the government to do the right thing instead of doing that they were busy bribing some people and coercing people in the region to be obedient. Today the Niger Delta is very polluted, you can put on a clean white clothes without it getting black in two hours because of air pollution<sup>8</sup>.

## VI. GOVERNMENT RESPONSE TO NIGER DELTA CRISIS

The event unfolding in the Niger Delta, have been a source of concern to all Nigerians and the international communities. The Niger Delta region and oil remain the major driver of Nigeria's economy (Orbunde, 2012). The impacts of Militant activities in the Niger Delta, blown out of proportion due to the insensitivity various administrations and government to years of deprivation and neglect of the region cannot be overestimated. One of the respondent said the strategy of the government instead of solving the crisis in the Niger Delta, it's giving us more heat as the different strategy adopted by the government to manage the crisis have not achieved the desired outcome but have rather led to constant clashes between militants and various security outfits in Nigeria<sup>9</sup>. As enshrined in the 1999 constitution, it's the responsibility of the Nigerian state to protect the citizens both from external and internal aggression while also ensuring the protection of Multinational oil companies' businesses and properties.

The government which is responsible for the day to day running of the affairs of the state. One of its major functions is maintain law and order. The starting point for resolution of the Niger delta crisis was in the 1957 establishment of Henry Willink Commission to look into the fears of the minority in the Niger Delta. The commission acknowledge the total neglect of the Niger Delta and recommended that creations of the Niger

<sup>8</sup> Prof Ambily Etekpe of Niger Delta University Wilberforce Island, Bayelsa state on 10/11/2020.

<sup>9</sup> Interview with Wilberforce Golden of Ogoni Liberation Movement 20/11/2020

Delta development Board (NDDDB) to attend the specific development needs of the Niger Delta. However, the board headquarters was located in Lagos far away from the Niger Delta and was highly affected by inadequate funding by the government control by the three major ethnic groups<sup>10</sup>.

A turning however was the 1.5 percent fund and the presidential committee on the Development of Mineral Producing Areas. The 1.5 percent from the federation account was set aside for development of oil producing areas. The Federal government administered fund committee that was set up. The committee embark on identification and development of many projects. In 1992 the president then Ibrahim Badamosi Babangida established the Oil Mineral Producing Areas Development Commission (OMPADEC) to manage the development problems in the oil producing areas. OMPADEC achieved so much comared to agencies that was established before it but community needs preference were not reflected in the project identification and location (Roberts, 1998).

The first response from the government of Nigeria was military repression. This singular act of insensitivity cost the nation so much in terms of military spending of oil revenue. This constant clash has led to casualties both on both sides (the militants and the security outfits). Also, the cache of sophisticated arms and ammunition at the disposal of these militants is a source of worry, exposing the proliferation of the country's border and the inefficiency of different security agencies like the customs. When the government realized that military option can neither deter the militants nor bring peace to the region, on June 25, 2009, the government of late President Musa Yar' Adua granted unconditional amnesty to the militants.

The amnesty provision was that all militants should surrender all arms and ammunition in their possession within 60 days. The ex-militants were to receive N65, 000 stipends at the end of

<sup>10</sup> Interview with Chief Luck Wiwa (The brother to late Ken Saro Wiwa). 20/11/2020

every month, while they undergo training at home and abroad to acquire skills in order to be employable and reintegrated into the civil society. This seems good and has almost abated the spate of militancy in the area but the several decades of neglect have created restiveness among various groups (Onigbinde, 2008). These crises which are the consequences of several years of exploitation, neglect and deliberate abandonment of the region which is the economic base of the nation by successive governments (federal, regional and states) have brought about militant agitations, protests, violent demonstrations, communal crisis, proliferation of arms, attack on oil and gas infrastructure and personnel, seizure of drilling rigs, and kidnapping of industry personnel, among others.

## VII. THE IMPLICATION OF MEND ACTIVITIES ON NIGERIA NATIONAL SECURITY

A nation that is riddled with crisis of insecurity can hardly make progress. This is because genuine investors will be scared away from such counties. This has in large part become the burden of governments in Nigeria. The festering crisis in the Niger Delta has had negative consequences on the people of the region, the MNOCs, the government and even the international communities which partly on crude oil from Nigeria. Roberts, (2006) reported that the crisis have led to social, economic and political impacts with negative implications on development. The immediate consequences are deaths, destruction of properties and displacement of persons. Others are loss of lives, injury, wrongful arrest and detention, psychological trauma etc. the persistent crisis have created security problems that have discourage investors and threatened the national security. The foreign direct investor profile of Nigeria for the period 1990-2005 aptly reflects the dire economic consequences face by a nation is riddled with insecurity.

The activities of MEND with other militancy had lot of negative consequences on Nigeria. No wonder the United States for example in January 2012 warns its citizens of the potential risk of traveling to Nigeria and essentially, the need to

avoid all except important trips to the Niger Delta States of Delta, Rivers, Bayelsa and Akwa Ibom (U.S Department of State, 2012). This is because their well-coordinated attacks on oil installations and foreign expatriate and local oil workers sent a very damaging signals to the rest of the international community that Nigeria is not safe and secured place and as such, not sustainable to economic investments and activities. This created an alarming state of insecurity in the region. Usually when crisis occurs apart from loss of lives and properties, it also leads to capital, migration of people whether indigene or non-indigene in search a safer environment. Another effect is the increased militarization of the region as the government sends lots of armed forces to the region to maintain laws and order. This Soja way government they bring come Niger Delta, them they do like say dem be God. They do arrest people without clear evidence that the person has committed a crime, rape, kill, and commits lots of atrocities<sup>11</sup>.

Furthermore, when the people are displaced, there is social dislocation of the going conditions of production in the conflict environment both in traditional and modern economies. By extension national security is affected. Roberts, (2006) also report that the security siege in the region also means that normal economic activities including oil production, have sometimes became impossible. For, instance between January and August, 1998, Shell installations in the eastern division of the Niger Delta alone were blocked 117 times, leading to a loss of about 11 billion barrels of crude oil estimated at US \$1.32 billion<sup>12</sup>. The losses incurred by the oil companies have often forced them to declare force majeure. The loss of profitability by oil companies greatly affected the revenue accruing from the state from the federation account and excess crude account. This is because the federal government is largely dependent on the foreign exchange earnings from the petrol dollar. Once there is any crisis that affects that sector, the amount of money expected

<sup>11</sup> Interview with Chief Lucky Wiwa, the immediate junior brother of late ken Sarowiwa (20/11/2020)

<sup>12</sup> Notes from Niger Delta, Nigerian Tribune, May, 21, 1999, pp 11 and 22

by the federal government is also impacted. This is why the activities of MEND and other militant groups within the Niger delta gain international and local attention.

Furthermore, the activities of MEND are also having negative impacts on the reputations of Multi-Oil Companies. This is because agitations in the Niger Delta region of Nigeria started as non-confrontational but have grown into full blown violent confrontations, attracting the interest of not only the MOCs and the Nigeria government but the world at large. The militants have particularly made as one of their main targets, oil installations and other facilities owned by multinational oil companies including their staff. Multinational oil companies suffer continuous aggression from militants and host communities due to what the latter refers to as the contribution of the MOCs to the degradation and poverty of the region, demanding the pulling of MONCs (Okoji, 2012).

## VIII. RECOMMENDATIONS

### *8.1 Governance Reform*

The study found that the underdevelopment of the Niger Delta led to the emergence of militant groups in the region and their activities negatively affected the country's National Security. The reality of the sequence of this activities needs to be disentangled through the reform of governance at all level. The local government which is should be the closet to the grass root is virtually non-existent. There is also no synergy between the state and federal government as demonstrated in the activities of NDDC. The state and the federal government should also to reduce the level of wastefulness and increase the level of accountability and prudence. There must be very a strong and committed development leadership in the Niger Delta states, that will honestly execute the development programmes in their region within a specifies time frame; let the people aware of the time frame as to what and what they want to do and how soon they are going to do them. The national assembly should make laws that would fast track the development of the oil-rich region.

### *8.2 Review the Land Use Decree of 1978 and other laws on Land ownership*

There is a need to review the present land ownership Laws to allow for private ownership of land and resources while Legislation should be made for such owner of land upon which resources are found to pay royalties to the federal government. This would help reduce the conflict between the government and the people on rights and ownership. The government can own the resources offshore while the people control their own lands with a royalty paid the government.

### *8.3 Reform of Laws and Institutions in the Petroleum Industry*

The government through the National Assembly (Senate and Federal House of Representative) should scrapped retrogressive and obnoxious laws like the Petroleum Act that prevent the self-actualisation of the people of the Niger Delta. The government should also sign into law the Petroleum Industrial Bill (PIB) that will make the host communities also benefit from their natural resources endowment and reduces thereby reducing the perceived marginalization, corruption, poverty etc. in the Niger Delta. A bill to allow for an upward review of the 13% derivation allocation being paid to the oil producing States should be placed before the National Assembly; this would further empower the states to develop these degraded regions. The present Laws as it relates to oil production in Nigeria such as the Federal Environmental Protection Act (FEPA) and the Petroleum Act should be reviewed to incorporate the protection of the environment and human wellbeing in it. Stiffer penalties should be placed on damage to the environment unlike the present laws while also emphasizing compensation not prolonged beyond a certain period of time as obtained in developed Nations.

### *8.4 Restructure the Nigeria Federation*

Since the return to democracy in 1999 there has been calls in different quarters for the government to restructure different aspect of the Nigerian federation as it's the only solution to managing the different crisis befalling the state. The

government should therefore take a cue from advance federation that are also oil producing and practicing true federalism so that the Niger Delta region and other states of the federation will have full opportunity to develop at their own pace. The different insecurity crisis affecting National Security will also be addressed through the practice of true federalism.

## IX. CONCLUSIONS

What is therefore needed to maintain National Security and ensure peaceful co-existence is an all-inclusive system of governance that is devoid of favouritism and nepotism. The Federal Government of Nigeria (FGN) should be aware that whether a separatist group achieves its aims or not is largely determined by local and international politics which is the balance of interests and forces that extend beyond the state. It is based on this that the FGN is advised to use diplomatic/political means to resolve all forms of agitations in Nigeria other than the use of force.

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## APPENDIX I

### INDEPTH INTERVIEW GUIDE

#### Militancy in the Niger Delta and the Challenges of National Security in Nigeria

##### In-depth Interview Guide

1. Can you introduce yourself?
2. How long have you been in Niger Delta?
3. Did you relocate or you are an indigene of the Niger Delta?
4. How will describe the Niger Delta in terms of basic amenities and development compared to the resources available to the region?
5. What are the major problems in the Niger Delta?
6. Will you say these problems are responsible for the emergence of militant groups in the Niger Delta? If no, what are the cause of militancy in the Niger Delta region of Nigeria?
7. What are the major effects of militant activities on:
  - i. Communities in the Niger Delta?
  - ii. The Multi-National Oil Corporation (MNOCs) in the Niger Delta
  - iii. The local, state and federal government of Nigeria?
  - iv. Finally, on Nigeria's National Security?
8. What are the effects of these problems on the people of Niger Delta and their economic well-being?
9. How will you describe government response to militant activities?
10. What is your advice on how to effectively manage militant activities and improve National Security?

*Thank you*

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