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Practical guidelines for unleashing human potential: exploration of the synergy between self-awareness, self-actualization and self-transformation

Alexander Tsvetkov
E-mail: alex.tsvetkov1@gmail.com

Abstract.
The concept of self-actualization, pioneered by Maslow (1954), represents the pinnacle of human development—a state in which individuals realize their inherent potential and achieve personal fulfillment. This article explores self-actualization and the connection with self-awareness and self-transformation, emphasizing the importance of introspection and growth. Grounded in theoretical frameworks and empirical studies, this paper provides practical insights into the processes and strategies that individuals can employ to embark on a journey towards self-actualization. By examining the interplay between psychological, social, and environmental factors, we aim to offer a holistic understanding of the dynamics involved in the realization of one's true potential.

Keywords: self-awareness, self-actualization, self-transformation, self-assessment.

Introduction

The connection between self-awareness, self-actualization, and self-transformation forms an integral pathway towards personal development. Grounded in seminal works and research findings, this interplay underscores the importance of cultivating self-awareness as the starting point, progressing through the milestones of self-actualization, and embracing the ongoing journey of self-transformation for a fulfilling and meaningful life.

Self-Awareness as the Catalyst: Self-awareness serves as the foundational catalyst in the journey towards self-actualization and self-transformation. Daniel Goleman, in "Emotional Intelligence" (1995), emphasizes the pivotal role of self-awareness in understanding and managing one's emotions (p. 43). This heightened self-awareness is a prerequisite for recognizing personal strengths, weaknesses, and aspirations.

Self-Actualization as the Pinnacle: Abraham Maslow's seminal work, "Motivation and Personality" (1954), introduces the concept of self-actualization as the pinnacle of human development (p. 37). Maslow posits that self-actualized individuals are characterized by a deep understanding of themselves and a commitment to personal growth.

Self-Transformation as an Ongoing Process: While self-actualization is a critical milestone, self-transformation extends the journey into an ongoing process of growth and change. Carol S. Dweck, in "Mindset: The New Psychology of Success" (2006), discusses the importance of a growth mindset, framing challenges as opportunities for learning and transformation (p. 42).

Research Insights: Research by Kegan and Lahey (2009) in "Immunity to Change" delves into the dynamics of personal transformation (p. 89). The study suggests that self-awareness is a prerequisite for identifying and challenging limiting beliefs, paving the way for transformative change.

Cultivating Self-Awareness for Transformation: Jon Kabat-Zinn, in "Wherever You Go, There You Are" (1994), introduces mindfulness as a practical approach to cultivating self-awareness (p. 56). Mindfulness practices, such as meditation, provide a platform for self-reflection and lay the groundwork for transformational experiences.

The Spiral Dynamics Model: Don Edward Beck and Christopher Cowan's "Spiral Dynamics: Mastering Values, Leadership, and Change" (1996) presents a model that integrates self-awareness, self-actualization, and self-transformation (p. 78). The model suggests that individuals progress through stages of development, each marked by an evolving awareness of self and the world.

Neuroplasticity and Transformation: Norman Doidge, in "The Brain That Changes Itself" (2007), explores the concept of neuroplasticity, emphasizing the brain's capacity to adapt and transform throughout life (p. 132). This aligns with the idea that intentional practices and experiences can reshape neural pathways, facilitating self-transformation.

Theoretical Foundations:

Maslow, A. H. (1954). "Motivation and Personality." Harper & Brothers.

Maslow's groundbreaking hierarchy of needs lays the foundation for understanding the stages individuals traverse on the path to self-actualization.

Rogers, C. R. (1961). "On Becoming a Person." Houghton Mifflin.

Carl Rogers contributes significantly to the humanistic approach, emphasizing self-actualization as a process of becoming an authentic and fully functioning person.

Psychological Perspectives:

Csikszentmihalyi, M. (1990). "Flow: The Psychology of Optimal Experience." Harper & Row.

Csikszentmihalyi explores the concept of flow, a state of complete absorption and focus, as a key element in the journey toward self-actualization.

Deci, E. L., & Ryan, R. M. (2000). "The 'What' and 'Why' of Goal Pursuits: Human Needs and the Self-Determination of Behavior." Psychological Inquiry, 11(4), 227-268.

This article delves into the psychological needs that drive human behavior, providing insights into the motivation behind self-actualization.

Philosophical Reflections:

Aristotle. (4th century BCE). "Nicomachean Ethics."

Aristotle's exploration of eudaimonia, often translated as flourishing or living in accordance with one's true nature, contributes a philosophical perspective to self-actualization.

Frankl, V. E. (1946). "Man's Search for Meaning." Beacon Press.

Viktor Frankl, a Holocaust survivor, reflects on finding meaning in suffering and highlights the importance of purpose in the journey toward self-actualization.

Practical Applications:

Covey, S. R. (1989). "The 7 Habits of Highly Effective People." Free Press.

Covey's seminal work offers practical advice on personal development, aligning habits with principles for effective living.

Duckworth, A. L. (2016). "Grit: The Power of Passion and Perseverance." Scribner.

Angela Duckworth explores the role of grit, a combination of passion and perseverance, as a key factor in achieving long-term goals.

Empirical Research:

Huta, V., & Waterman, A. S. (2014). "Eudaimonia and Its Distinction from Hedonia: Developing a Classification and Terminology for Understanding Conceptual and Operational Definitions." Journal of Happiness Studies, 15(6), 1425–1456.

This research study delves into the conceptual nuances of eudaimonia, shedding light on its distinction from mere pleasure (hedonia) in the pursuit of self-actualization.

King, L. A., Hicks, J. A., Krull, J. L., & Del Gaiso, A. K. (2006). "Positive Affect and the Experience of Meaning in Life." Journal of Personality and Social Psychology, 90(1), 179–196.

Examining the interplay between positive affect and the experience of meaning, this research contributes valuable insights into the subjective aspects of self-actualization.

Global trends

1.Personal Development Industry Growth:

Insight: The personal development industry has experienced significant growth globally, with an increasing number of individuals investing in self-help books, courses, and coaching.

Reference: Statista. (2021). "Market size of the self-improvement market worldwide from 2019 to 2022." Retrieved from Statista.

2. Corporate Emphasis on Employee Well-Being:

Insight: Businesses are increasingly recognizing the importance of fostering employee well-being and self-actualization to enhance productivity and job satisfaction.

Reference: Deloitte Insights. (2020). "Well-being: A strategy and a responsibility." Retrieved from Deloitte Insights.

3. Rise of Mindfulness Programs:

Insight: Mindfulness programs in both personal and professional settings have gained popularity as tools for stress reduction, enhanced focus, and improved overall well-being.

Reference: Forbes. (2018). "The 7 Biggest Trends in Personal Development for 2018." Retrieved from Forbes.

4. Increased Interest in Positive Psychology:

Insight: Positive psychology, focusing on strengths, virtues, and factors that contribute to a fulfilling life, has gained traction in both personal and professional contexts.

Reference: Peterson, C., & Seligman, M. E. P. (2004). "Character strengths and virtues: A handbook and classification." Oxford University Press.

5. Adoption of Flexible Work Arrangements:

Insight: The global shift towards remote work and flexible schedules has enabled individuals to tailor their work environments to better align with personal values and self-actualization goals.

Reference: Global Workplace Analytics. (2021). "Work-at-Home After Covid-19—Our Forecast." Retrieved from Global Workplace Analytics.

10 benefits related to self-actualization

1. Enhanced Well-Being and Life Satisfaction:

Reference: Seligman, M. E. P. (2011). "Flourish: A Visionary New Understanding of Happiness and Well-being." Free Press. (Page 33)

Description: Seligman's research suggests that self-actualization contributes significantly to overall well-being and life satisfaction.

2. Improved Mental Health and Resilience:

Reference: Ryff, C. D., & Singer, B. H. (1998). "The Contours of Positive Human Health." Psychological Inquiry. (Page 1)

Description: Ryff and Singer's work highlights the positive impact of self-actualization on mental health and resilience.

3. Increased Emotional Intelligence:

Reference: Goleman, D. (1995). "Emotional Intelligence." Bantam Books. (Page 87)

Description: Goleman emphasizes that self-actualization contributes to the development of emotional intelligence, enhancing interpersonal relationships.

4. Greater Motivation and Goal Attainment:

Reference: Locke, E. A., & Latham, G. P. (2002). "Building a Practically Useful Theory of Goal Setting and Task Motivation." American Psychologist. (Page 705)

Description: Locke and Latham's research demonstrates that self-actualization fosters motivation and increases the likelihood of achieving set goals.

5. Improved Stress Management:

Reference: Lazarus, R. S., & Folkman, S. (1984). "Stress, Appraisal, and Coping." Springer Publishing Company. (Page 141)

Description: Lazarus and Folkman's framework suggests that self-actualization plays a role in effective stress management.

6. Greater Adaptability to Change:

Reference: Dweck, C. S. (2006). "Mindset: The New Psychology of Success." Random House. (Page 214)

Description: Dweck's concept of a growth mindset indicates that self-actualized individuals are more adaptable to change.

7. Increased Creativity and Innovation:

Reference: Csikszentmihalyi, M. (2014). "The Systems Model of Creativity." Springer. (Page 214)

Description: Csikszentmihalyi's research suggests that self-actualization is linked to increased creativity and innovation.

8. Enhanced Interpersonal Relationships:

Reference: Seligman, M. E. P. (2011). "Flourish: A Visionary New Understanding of Happiness and Well-being." Free Press. (Page 94)

Description: Seligman underscores the positive impact of self-actualization on interpersonal relationships.

9. Greater Sense of Purpose and Meaning:

Reference: Frankl, V. E. (1959). "Man's Search for Meaning." Beacon Press. (Page 111)

Description: Frankl's existential philosophy highlights that self-actualization contributes to finding purpose and meaning in life.

10. Increased Life Engagement and Fulfillment:

Reference: Deci, E. L., & Ryan, R. M. (2008). "Hedonia, Eudaimonia, and Well-Being: An Introduction." Journal of Happiness Studies. (Page 13)

Description: Deci and Ryan's work emphasizes that self-actualization leads to increased life engagement and overall fulfillment.

Embarking on the journey of self-actualization yields a multitude of benefits that positively impact various aspects of an individual's life, as evidenced by the aforementioned references and research.

12 practical advises for self-actualization

1. Set Clear, Achievable Goals:

Reference: Covey, S. R. (1989). "The 7 Habits of Highly Effective People." Free Press. (Page 68)

Description: Covey emphasizes the importance of setting clear and measurable goals as a foundational step toward self-actualization.

2. Cultivate a Growth Mindset:

Reference: Dweck, C. S. (2006). "Mindset: The New Psychology of Success." Random House. (Page 23)

Description: Dweck's research advocates for adopting a growth mindset, promoting the belief that abilities can be developed through dedication and hard work.

3. Embrace Challenges as Opportunities:

Reference: Csikszentmihalyi, M. (1990). "Flow: The Psychology of Optimal Experience." Harper & Row. (Page 118)

Description: Csikszentmihalyi explores the concept of "flow," where individuals find fulfillment in challenging activities, underscoring the link between challenges and self-actualization.

4. Practice Mindfulness and Presence:

Reference: Kabat-Zinn, J. (1994). "Wherever You Go, There You Are." Hyperion. (Page 42)

Description: Kabat-Zinn introduces mindfulness as a practical approach to self-awareness, promoting the importance of being present in the moment.

5. Reflective Journaling:

Reference: Emmons, R. A., & McCullough, M. E. (2003). "Counting Blessings Versus Burdens." Journal of Personality and Social Psychology. (Page 377)

Description: Keeping a reflective journal, as suggested by Emmons and McCullough, enhances self-awareness by focusing on positive experiences.

6. Prioritize Health and Well-Being:

Reference: Rath, T., & Harter, J. (2010). "Wellbeing: The Five Essential Elements." Gallup Press. (Page 63)

Description: Rath and Harter emphasize the integral role of physical well-being in achieving overall self-actualization.

7. Foster Positive Relationships:

Reference: Seligman, M. E. P. (2011). "Flourish: A Visionary New Understanding of Happiness and Well-being." Free Press. (Page 94)

Description: Seligman highlights the impact of positive relationships on personal flourishing, aligning with the concept of self-actualization.

8. Practice Continuous Learning:

Reference: Csikszentmihalyi, M. (2014). "The Systems Model of Creativity." Springer. (Page 345)

Description: Csikszentmihalyi discusses the role of continuous learning in fostering creativity and personal development.

9. Cultivate Emotional Intelligence:

Reference: Goleman, D. (1995). "Emotional Intelligence." Bantam Books. (Page 43)

Description: Goleman's work emphasizes the significance of emotional intelligence in navigating personal and professional challenges.

10. Seek and Provide Constructive Feedback:

Reference: Stone, D., Patton, B., & Heen, S. (2010). "Difficult Conversations: How to Discuss What Matters Most." Penguin Books. (Page 45)

Description: Stone, Patton, and Heen discuss the importance of effective communication and feedback in personal and professional growth.

11. Practice Resilience in the Face of Setbacks:

Reference: Seligman, M. E. P. (2018). "The Hope Circuit: A Psychologist's Journey from Helplessness to Optimism." PublicAffairs. (Page 82)

Description: Seligman explores the concept of resilience as a key factor in overcoming challenges and achieving self-actualization.

12. Foster a Sense of Purpose:

Reference: Frankl, V. E. (1959). "Man's Search for Meaning." Beacon Press. (Page 111)

Description: Frankl's existential philosophy underscores the importance of finding meaning and purpose in life for true self-actualization.

Questionnaire for daily self-assessment regarding self-actualization

Am I Living in Alignment with My Core Values?

This question encourages individuals to reflect on their actions and decisions in relation to their deeply held values, promoting a sense of authenticity and purpose.

Reference: Covey, S. R. (1989). "The 7 Habits of Highly Effective People." Free Press.

Have I Challenged My Comfort Zone Today?

Embracing challenges fosters personal growth and resilience. This question prompts individuals to assess their willingness to step outside familiar territory.

Reference: Kahneman, D. (2011). "Thinking, Fast and Slow." Farrar, Straus and Giroux.

What Did I Learn from Failure or Setback?

Acknowledging failures as opportunities for learning is crucial for self-actualization. This question encourages a growth mindset.

Reference: Dweck, C. S. (2006). "Mindset: The New Psychology of Success." Random House.

Did I Express Gratitude Today?

Gratitude cultivates a positive mindset and enhances overall well-being. This question prompts individuals to focus on the positive aspects of their lives.

Reference: Emmons, R. A. (2007). "Thanks!: How the New Science of Gratitude Can Make You Happier." Houghton Mifflin.

Am I Actively Pursuing My Goals?

Regularly evaluating progress toward goals ensures a sense of purpose and direction. This question emphasizes the importance of goal-oriented actions.

Reference: Locke, E. A., & Latham, G. P. (2002). "Building a practically useful theory of goal setting and task motivation: A 35-year odyssey." American Psychologist, 57(9), 705–717.

Did I Practice Mindfulness Today?

Mindfulness fosters self-awareness and reduces stress. This question encourages individuals to engage in practices such as meditation or deep breathing.

Reference: Kabat-Zinn, J. (2003). "Mindfulness-based interventions in context: Past, present, and future." Clinical Psychology: Science and Practice, 10(2), 144–156.

Have I Maintained Healthy Boundaries?

Setting and maintaining boundaries is vital for personal well-being. This question prompts individuals to reflect on their ability to assert themselves when necessary.

Reference: Cloud, H., & Townsend, J. (1992). "Boundaries: When to Say Yes, How to Say No to Take Control of Your Life." Zondervan.

Did I Contribute Positively to Others' Lives Today?

Acts of kindness and contribution to others are linked to increased life satisfaction. This question emphasizes the importance of social connection.

Reference: Dunn, E. W., Aknin, L. B., & Norton, M. I. (2008). "Spending money on others promotes happiness." Science, 319(5870), 1687–1688.

How Did I Manage Stress and Adversity Today?

Evaluating stress management strategies promotes resilience. This question encourages individuals to reflect on their coping mechanisms.

Reference: Lazarus, R. S., & Folkman, S. (1984). "Stress, Appraisal, and Coping." Springer Publishing Company.

Did I Take Time for Self-Care Today?

Prioritizing self-care is essential for overall well-being. This question emphasizes the importance of maintaining physical and mental health.

Reference: Neff, K. D. (2011). "Self-compassion: Stop Beating Yourself Up and Leave Insecurity Behind." HarperCollins.

These questions, rooted in psychology and personal development literature, serve as powerful tools for individuals on their journey toward self-actualization.

A daily program with 5 effective routine practices for self-actualization

1. Morning Mindfulness Meditation:

Reference: Kabat-Zinn, J. (1994). "Wherever You Go, There You Are." Hyperion. (Page 56)

Description: Kabat-Zinn advocates for the daily practice of mindfulness meditation, emphasizing its role in cultivating self-awareness and fostering a present-focused mindset.

2. Reflective Journaling Before Bed:

Reference: Pennebaker, J. W. (1997). "Writing About Emotional Experiences as a Therapeutic Process." Psychological Science. (Page 162)

Description: Pennebaker's research supports the idea that reflective journaling before bedtime can enhance emotional well-being and self-reflection.

3. Daily Goal Setting and Reflection:

Reference: Locke, E. A., & Latham, G. P. (2002). "Building a Practically Useful Theory of Goal Setting and Task Motivation." American Psychologist. (Page 708)

Description: Locke and Latham's work highlights the efficacy of daily goal setting in motivating action and promoting a sense of achievement.

4. Gratitude Practice Throughout the Day:

Reference: Emmons, R. A., & McCullough, M. E. (2003). "Counting Blessings Versus Burdens." Journal of Personality and Social Psychology. (Page 377)

Description: Emmons and McCullough's research suggests that incorporating gratitude practices into daily routines can positively impact well-being and enhance self-awareness.

5. Evening Reflection on Lessons Learned:

Reference: Duhigg, C. (2012). "The Power of Habit." Random House. (Page 143)

Description: Duhigg discusses the power of reflective routines, suggesting that daily reflection on lessons learned contributes to personal growth and habit formation.Top of FormTop of Form

In conclusion, the journey towards self-actualization is a dynamic process rooted in self-awareness and fueled by transformative experiences. By embracing practical advice, incorporating daily routines, and engaging in self-assessment, individuals can unlock their full potential, reaping the multitude of benefits that come with self-actualization. The literature and research cited in this article collectively underscore the significance of these interconnected processes for achieving new heights of personal development.

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Deci, E. L., Vallerand, R. J., Pelletier, L. G., & Ryan, R. M. (1991). Motivation and education: The self-determination perspective. Educational psychologist, 26(3-4), 325-346.

Koltko-Rivera, M. E. (2006). Rediscovering the later version of Maslow's hierarchy of needs: Self-transcendence and opportunities for theory, research, and unification. Review of General Psychology, 10(4), 302-317.

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Rath, T., & Harter, J. (2010). Wellbeing: The Five Essential Elements. Gallup Press.

English Language Education in Algeria: An Added Value to International Cooperation

Nabil Djawad BEMMOUSSAT
Faculty of Letters and Languages
ESPT Laboratory, Department of English
University of Sidi Bel Abbes, Algeria
Nabilbenmoussat13@gmail.com

Smail BEMMOUSSAT
Faculty of Letters and Languages
ESPT Laboratory, Department of English
University of Tlemcen, Algeria
Smail11256@yahoo.co.uk

Abstract.
The re-emergence of English from the status of an international language to that of a global language is nothing but a direct result of the on-going globalization process. The globalization of English is further driven by the growing global economy. This paper tries to shed light on the 21st century-vision of language education, not least English, with teacher effectiveness as a key component and learner involvement as an active partner. It is to this end to wonder about the prospect of English Language Education in Algeria with the assumption that English is to be an added value to embrace cooperation regionally and internationally thus acting as a springboard conducive to technological advancement, economic development and commercial expansion.

Keywords: English Language Education, regional/international cooperation

Introduction

The advent of democracy marking the end of the one-political-party system in the late 1990s initiated overall politico-economic reforms that have led to the exercising of the open-door policy, and thus foreign language-wise assigning the English language a higher status, i.e. the shift of English from the status of an international language to that of a global one. As a result, English Language Education1 in Algeria has slanted towards the approach that places the learner at the forefront with the teacher's role as facilitator, a provider of creative contexts and supportive environments for language learning. This explicit recognition of English as a global language has led key stakeholders including policy-makers, textbook writers and teachers to reconsider the teaching of English at the different levels of education, middle, secondary and tertiary.Clearly, the importance and value of the English language in the education system at the three levels, primary, secondary and tertiary, ought to be revisited and the newly-assigned educational status of English, worldwide, could serve as an index to inform policy makers to reshape the current policy in the Algerian educational institutions. No doubt, there are issues at stake which would need to be unveiled. However, much depends on the challenge of implementing an adequate language planning policy that strikes the balance between local and the global2.

Global Vs. Local

An appropriate methodology ought to account for both the global and local needs of EFL learners. A reconsideration of the notion of appropriate methodology is grounded in the fact that the EFL teaching methodologies and materials developed in Britain and the United States could not be used in the same way they were intended by their original authors once they reach a non-Anglo-Saxon country. Broughton's textbook Success with English (1970) and Alexander's series New Concept English, namely Practice and Progress and Developing Skills (1967), which were prescribed EFL textbooks at middle and secondary-school education respectively in the 1970s and early 1980s, were illico presto replaced by home-made textbooks drawing mainly on principles depicting the mainstream culture. As Dickinson (2021) further explains, there are likely to be many differences between the contexts: differences in the resources, i.e. things like equipment, classroom, teachers, and so on. Differences in aims and objectives, i.e. why the language is being taught, and the examination system

through which the students have to demonstrate their learning. There is no doubt, however, that in educating the citizens of tomorrow, as Botlitho notes,

"We should be preparing them to cope with change in our increasingly globalised world. Among other things, this seems to mean laying emphasis on using language as a tool for communication and accessing information and developing transferable skills such as critical thinking and learning how to learn. These features should be in evidence in the curriculum and in textbooks as well as in classroom practices" (Bolitho, 2012, p. 35).

This quotation clearly illustrates what Wedell (2019) describes as an interpretive and dynamic view of the educational process, with an accentuated role of the teacher as a facilitator rather than a fount of knowledge.

Teacher Role Specifications

1.The PLEFTER Model.

Though, admittedly the teaching-learning process has to be learner-centered3, the teacher still performs a role of paramount importance in an EFL classroom. In this very specific context, it is worth noting the motto-like teaching statement, "The EFL teacher is a P.L.E.F.T.E.R.", put forward by the General Inspectorate of English in the late nineties to specify and define the different roles that the EFL teacher, mindful of his or her duties, is supposed to play on the classroom stage. The acronym P.L.E.F.T.E.R. stands for the following:

Planner, i.e. the teacher sees planning and structuring of learning activities as fundamental to success in teaching and learning.

Linguistic model, i.e. the model learners should imitate.

Evaluator, i.e. the teacher assesses the learners' progress.

Facilitator, i.e. the teacher simplifies the learning process.

Team member, i.e. the teacher takes part in cooperative activities and team work.

Educator, i.e. the teacher serves as an example suitable for imitation.

Researcher, i.e. the teacher is expected to keep up with the latest development in the field of language learning.

However, this account reflects in part what the teacher, as a practitioner and researcher, ought to do in relation with the requirements of the teaching profession. More importantly, the teacher should account for the specificities of the teaching situation; the teacher is in a better position to know what his pupils need, what their interests are, and what should be done to adjust these needs and interests to the demands of the school curriculum (Bemmoussat, 2003).

2. Richards and Lockhart's Model.

Interestingly, the roles, teachers as practitioners and researchers are supposed to perform, have attracted considerable attention. Richards and Lockhart (2010) provide an account in which they identify eight teacher role specifications; the following are intended to teachers who think about their task and want to improve their classroom performance as well as learning outcomes:

Needs analyst, i.e. the teacher determines students' individual needs following institutional procedures (e.g. a structured interview) and uses the information obtained for course planning and development.

Curriculum developer, i.e. the teacher develops his own course plans and syllabuses based on students needs.

Materials developer, i.e. the teacher develops his own classroom materials.

Councelor, i.e. the teacher is encouraged to identify students who are having problems and learning difficulties, and to offer individual councel to students who need it.

Mentor, i.e. the teacher assists less experienced teachers with their professional development.

Team member, i.e. teachers are encouraged to work together as a team rather than to teach in isolation from other teachers in the school.

Researcher, i.e. the teacher is encouraged to conduct research related to language learning, including research in his own classroom.

Professional, i.e. the teacher is expected to continue with professional development by taking part in workshops and conferences, reading professional journals in the field, and joining professional organizations (Richards and Lockhart, 2010, pp. 99-100).

An expanding literature on the concept of professionalism with respect to the management of innovation and change in EFL settings has emerged recently; the teacher as a professional has been elaborated to cover other attributes. The teacher, in this respect, should build up a sound understanding of the principles underlying the teaching practice, not just a collection of technical skills. According to Ur (2019), this profile of the teacher as a professional proper is a cardinal component of the teacher profile in the sense that it "equips them [teachers] with the ability and authority to criticize input from other professionals and academics and evaluate its appropriateness or acceptability in principle or for specific contexts" (Ur, 2019, p. 3).

3. Spratt et al's Model.

A few years ago, Spratt et al. (2018) making use of their experience as EFL teachers and ELT project consultants, advocated a model providing a clear and detailed outline on classroom management, not least on teacher role specifications. According to their model, teachers need to behave in different ways at different stages of a lesson plan in order to manage the classroom and to gear learners through the lesson. To successfully do so, teachers are supposed to adopt the following behaviour in a more or less prescriptive way:

Planner, i.e. the teacher prepares and reflects on the lesson before teaching, anticipates problems and selects, designs and adapts materials.

Manager, i.e. the teacher organizes the learning space, makes sure everything in the classroom is running smoothly and sets up rules and routines (i.e. things which are done regularly) for behaviour and interaction.

Monitor/Observer, i.e. the teacher goes around the class during individual, pair and group work activities checking learning and providing support as necessary.

Facilitator, i.e. provides opportunities for learning, helps learners to access resources and develops learner autonomy.

Diagnostician, i.e. the teacher works out the causes of learners' difficulties.

Language resource, i.e. the teacher can be used by the learners for help and advice about language.

Assessor, i.e. the teacher evaluates the language level and attitudes of the learners by using different means of informal and formal assessment.

Rapport builder, i.e. the teacher tries to create a good relationship with and between learners (Adapted from Spratt et al., 2018, p. 199).

This triadic-oriented teacher role specification, though overlapping at different teacher roles, is in effect, a clear provision of an overall account relating to the ways the classroom is to be managed and sustained in the true sense of the term. It shows empirically how teacher roles ought to match with various aspects underpinning the teaching process. In sum then, effective and fruitful classroom management depends to a larger extent upon the teacher versatility. Yet, English Language Education in Algeria, so to speak, has been hijacked from its ultimate objective: the development of communicative competence in its comprehensive meaning, and paradoxically speaking to score high in tests equates to excel in the use of the English language.

Teaching to the Test Approach

The changes that English Language Education has gone through, moving from a teacher-centred pedagogy to a more learner-centred education, from a textbook-based teaching to a task-based approach, from a summative assessment to a formative assessment, reflect educators commitment and teachers concern in a bid to reach an appropriate methodology which best relates teaching to testing on a communicative continuum. Yet the problematic has not yet been resolved even after decades of continual change, update, and improvement of the English Language Teaching Methodologies. Even worse, the issue has reached a critical state when the main concern and worry of most stakeholders, mainly parents and the educational institution, is shifting from students potential and academic development to students achievement in exams. In this sense, the notion of 'achievement' means nothing more than scoring well on standardized tests and high-stakes exams4 such as the Baccalaureate exam which is, par excellence, an illustration of what a high-stakes test is.

This high score-academic achievement intimate relationship has conducted EFL teachers to engage in a selection of only those items that likely to feature prominently in exams rather than to teach effectively and with pace according to their learners degree of intake and assimilation. The socio-educational dimension is due to the fact that both parents and the academic institution give too much importance and great value to the result obtained by their offspring and students. In other words, and in terms of accountability, the education institution, in general and teachers in particular, are judged in relation to their students' success and achievement in exams, not least high-stakes exams. Since independence in the early 1960s, scores obtained in standardized tests have served as a 'benchmark' to compare and rank educational institutions throughout the country. In sum then, standardized testing is still regarded as a large-scale measure of schools effectiveness.

To play safe and in an effort to meet the learners' parents' expectations and to abide by loyally the education institution's policy, the teachers, caught between the hammer and the anvil, have generally recourse to the teach-to-the-test approach. This teaching practice is considered to have a negative effect on the teaching/learning process, and consequently, calls into question the reliability of exam results and, by extension, dirties the credibility of the education system as a whole. Additionally, most educators and applied linguists, as rightly pointed out by Schweisfurth 2011, agree that at present tests are no more testing learners' knowledge and potentials, but testing their ability to reproduce fixed bodies and exact structures of knowledge. As a result, schools are losing the very intrinsic value that is placed in them as educational institutions with sole attributes encouraging meritocracy and fostering scholastic advancement for those highly motivated and talented students. However, many individual learners, without learning opportunities, cannot develop the competencies and skills

that will help them use the language communicatively. One might dare say that testing, which is supposed to be the pedagogical tool to assess and promote learning, comes to act as a the sword of Damocles over English Language Education in Algeria, thus, very likely to be an overt deteriorating element in a teaching approach.

What is more, EFL teachers have to search for ways in which these common practices might be modified or, to some extent, extended to develop the students' communicative abilities. In so doing, we pave the way for the English language to gain a foothold in our educational institutions, not least at tertiary education level. Such an orientation will comfort the World Bank and the International Monetary Fund's (IMF) emphasis on the English language in the educational systems of developing countries to further the goals of national development.

English: A Must-Have Language in Algeria

In today's world globalization and the English language seem to represent the ideal couple and to symbolize the perfect marriage. The widening, deepening and speeding up of interconnectedness on a worldwide basis cannot be achieved first and foremost without a sound knowledge of the English language that, undeniably, serves as a globe-spanning mediating power, i.e. a lingua franca of communication and exchange. Global communication and exchange require a shared linguistic code that has been learned rather than natively acquired (Block and Cameron: 2021). Yet, how can the language skills be taught, not as a self-sufficient achievement but as an aspect of communicative competence. As teachers, we often complain about our students' lack of motivation for EFL studies and say that our students' command of the language is not that 'good', and therefore not adequate to fulfill basic communicative functions. In sum then, the ability to communicate effectively in English is now a well-established goal in any ESP enterprise.

In very practical terms, it is through the English language that financiers, economists, scientists and academics are connected to the world's networks of finance, trade, industry and education. Thus, as one would expect, mastery of the English language becomes a sine qua non condition for success at every step. This pragmatic reality reflecting the capital importance of English in virtually all fields of specialization goes all the way back to Kachru (1985), as shown by the following quote:

In comparison with other languages of wider communication, knowing English is like possessing the fabled Aladin's lamp, which permits one to open, as it were, the linguistic gates to international business, technology, science and travel. In short, English provides linguistic power (Kachru 1986:1).

Admittedly, within the globalization framework, English has become the linguistic tool whereby the desire not to lag behind and be left out of the world is manifested, and hence "English standards have become touchstones of internationalization" (Tam & Weiss 2014: XI), serving in this sense as key factor in sustaining today's influence of the Anglo-American pole over the rest of world. Alongside with that, Ibn Khaldun, the famous Arab sociologist, pointed out in his Al Mukadima, "The triumph of a language reflects its speakers' triumph and its position among languages expresses its position among nations".

From a linguistic standpoint and metaphorically speaking, globalization and English are viewed as two sides of the same coin. The following quotations are concrete evidence to back up such an intimate relationship: 'The development of globalization has been associated with the dominance of the English language' (Bottery 2008: 6), while it can also be noted that, 'The power and influence of English have been widely recognized nowadays in the context of globalization' (Chang 2006: 515). More importantly, "Globalization has contributed to the spread of the English language … the English language is itself an agent of the spread of globalization" (Mouton, 2018: 27). Such rapprochement denotes how globalization has brought English language education to the forefront, and how global English has become the 'flagship' of globalization. Hence, EFL teachers in Algeria and elsewhere must take their place again and reconsider themselves among the most respected intellectuals. They must move beyond the citadel of the classroom to preparing their students to be world citizens in a knowledge-driven society.

From a diachronic viewpoint, the teaching of English in the Algerian schools can be traced back to the mid 1930s as part of the French prescribed curriculum, as the country was under French rule from 1830 to 1962. Therefore, as a developing country, Algeria is constrained to join the new world order's club, and therefore align her economy along that of modern states' lines. This perspective has, somewhat up-graded the status of the English language at the expense of French. What is more, the ministerial orders to include EFL courses and modules at tertiary level for almost all disciplines and specialties signal the state's recognition that a degree of proficiency in English language is an essential part of a well-rounded education. It is a one's duty to say that the educational authorities have always expressed their will and eagerness to promote ELT in terms of textbook design and teacher-training services.

French-English Language Divide

There are many aspects of tertiary education in Algeria which illustrate the so-called language divide, i.e. French vs. English. This has become a sensitive issue at university level, although, formally speaking, the two languages are labeled as 'first foreign language' and 'second foreign language' respectively in student academic transcripts and grade sheets. However, the French language takes the lion's share and the lead as the dominant language of instruction in virtually all scientific and technological disciplines, by way of an example, medicine, pharmacy, dentistry, physics, chemistry and computer science, to mention just a few, are taught through the medium of French.

Since the implementation of the Arabicization process in 1971, university teachers have always expressed their reluctance and resistance to that change. In fact, those at the chalk face did not resist change, they resisted being changed; to the opinion of many teachers, "Arabicization means spending much more time and effort on translating and looking for the right words and concepts than focusing on improving learning outcomes". A statement report that is expressed and shared by the majority of teachers and backed up covertly by inspectors.

The 1990s pilot experiment to 'oust' French from primary education and 'impose' English instead did not yield the expected results. The verbs 'oust' and 'impose' are between quotation marks for a good reason. The educational decision was made on the basis of nationalism rather than nationism to use Fishman's (1972) dichotomy. The educational objectives of the Algerian School have always been molded to inculcate and engender feelings of nationalism (one state! one language! one nation!) as a counter to ethnicity - multilingualism oblige! However, to split the difference, starting from the academic year 2022–2023, the English language has been re-introduced in primary schools alongside the French language. The French-vs.-English sensitive issue ought to be sorted out at earliest convenience so that to free the Algerian University from the occult powers at work. This language divide impacts negatively on the role and mission tertiary education is supposed to perform and accomplish respectively in order "to avoid lagging behind many comparator countries" (MENA World Bank Development Report (2020).

Stockholm Syndrome vs. Helsinki Syndrome

Worth noting, a few years ago, Algerian former Minister of Higher Education and Scientific Research Tayeb Bouzid (2018-2020) posited in very clear terms that "the French language does not get us anywhere" and ordered the country's 77 universities and higher education institutions to use English rather than French. In an official note addressed to university rectors, the minister noted that, "Within the framework of the policy to encourage and strengthen the use of English in order to give better visibility of education and scientific activities in the higher education system, I urge you to use both Arabic and English in official documents". Expectedly, the shift from French to English sparked much discussion and hot debates about Algeria's strong linguistic and cultural ties to France 60 years after the country's independence in 1962. Is Algeria condemned to push the 'Stockholm Syndrome' to its extreme?

This policy of acquisition planning, the strategy to increase the use and number of users of a language through language teaching, received a cold welcome from the francophones. They have always viewed the acquisition of French as un butin de guerre, a war booty, to use Kateb Yacine's famous terms, therefore a treasured possession as well as a key to economic betterment and modernization, intellectual pursuit and progressive values, and personal development, hence a compromise for some time to come. Beyond the political discourse, it should be noted that French is no longer the property of the old enemy; French, as a language of wider communication, is a tool that can serve many purposes: linguistic, cultural, social, economic and technological. Is that another form of 'Stockholm Syndrome'? The 'Helsinki Syndrome'!?

Conclusion

As a conclusion, a broad and multi-leveled question, which to the opinion of many Algerian scholars, deserves a fair share of attention and de facto imposes itself in the present context: How can the Algerian economic model, financial system, commercial outlet, technological industry and scientific research be freed from the grips of the French language. Put differently, how can we make the most of English Language Education in Algeria in the light of today's multi-faceted world's demands without 'ousting' the merits of the French language? As a legacy of colonialism, the French language has loyally served the country's interests at different levels since independence in 1962. Many linguists and language planners still view the French language as a war booty, i.e. as a blessing that is worth caring and sharing. While other linguists and statesmen view the French language as a curse that is worth fighting and chasing. Indeed, it is a very 'tough job' and a daunting task for language planners to find a compromise solution to this very sensitive and thorny issue.

Arguably, the English language is found more useful, more practical and more productive, globalization oblige, to respond positively to the demands of the 21st century. What is more, with the development of many new opportunities for private businesses, and the multiplication of joint ventures with foreign companies resulting from the on-going international cooperation, the English language in Algeria will be assigned a higher status, and thus a must-have language that is, in effect, needed for economic development, technological advancement and commercial expansion. However, in the light of such importance, English Language Education in Algeria needs further refinement and reconsideration to respond positively to the requirements of the newly-established world order.

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Article Endnotes:

1 The terms 'English Language Teaching' and 'English Language Education' might be semantically and didactically equivalent, but we prefer to use English Language Education in an attempt to be truly educative and to give a broader value and meaning to the language learning process. Language teaching can claim to have social significance, and to contribute to the students' general education by introducing them to cultures other than their own.

2 It has been argued that the globalization process and the blurring of national and linguistic boundaries due to the tremendous development in the field of ICT's coupled with the emergence of regional thinking and the revival of ethnic and regional cultures have given rise to the political motto 'Think global, act local', translated into EFL/ESL pedagogy as 'global thinking, local teaching.

3 Many English classrooms are still being described as dominated by the three T's: teachers, textbooks and tests. However, task-based learning is seen as requiring a significant change in pedagogy "from teacher-centred to pupil-centred, from textbook-based to task-based teaching and from summative assessment to formative assessment". In recent pedagogical discourse, a process-oriented, student-centered, and task-based approach has been the most effective for teaching/learning. The ELT research and professional circles have this as "the optimum interactional parameters within which classroom language learning can take place" (Holliday, 1994, p. 54).

4 High-stakes exams are so important in the eyes of many stakeholders in the sense that their results, as Madaus (2016, p. 87) notes "are seen, rightly or wrongly, by students, teachers, administrators, parents, or the general public, as being used to make important decisions that immediately and directly affect them."

From democracy to political electoral instability

Dr. Milka Yosifova,
Honorary Associate Professor of the Academy of Innovation and Development,
Manager of the Association "European Start for Research, Counteraction and Analysis of Corruption" (ESIPAC)
Honorary lecturer of the Department of "National and Regional Security" - UNWE

"To the people, by the people, for the people"
Abraham Lincoln

Bulgarian statehood was born after the liberation of Bulgaria from five centuries of Ottoman rule, with the recognition of the Bulgarian Exarchate. On September 30 and October 7, 1879, regular parliamentary elections were held in the Principality of Bulgaria, in which the liberal and conservative parties took part. The first ordinary national assembly is a fact, but only for the period of October 21 - 24, 1979, when Alexander Battenberg dissolves the assembly with a motive: ***The coming political crisis!*** His election as Bulgarian ruler did not happen without the help of the Great Powers, as according to the Berlin Treaty he was recorded with the name Alexander I of Bulgaria.

In 1886, the Regency Council [1]issued a decree for the elections, and from 1887 to 1914 Tzar Ferdinand (after September 22, 1908 known as king), issued the decrees for the elections and declared the Independence of Bulgaria. The longest-reigning monarch, 31 years, in the Third Bulgarian State, Tzar Boris III[2] , also puts his signature on scheduling elections for the period from 1919 to 1939.

The Council of Regents, in 1945, scheduled elections that were preceded by a scheduled plebiscite with Decree No. 13 of July 31, 1946, abolishing the monarchy and declaring a People's Republic. The elections in the period 1940-1989 are scheduled by Decree of the Presidium of the National Assembly, and for the elections in 1976, 1981 and 1986 by the State Council of the People's Republic of Bulgaria (PRB). Since 1990, elections have been scheduled by Decree of the President of the Republic of Bulgaria.

Elections are seen as the most democratic form of government in a free society. The theory has various definitions of the specific content of democracy, as a modern form of government in which state power derives from the people (citizens) through:

- consensus - consensus democracy;
- conducting referendums - direct democracy;
- elected representatives – representative democracy.

Can we say today, in 2023, that Bulgaria dispute the words of Darai , announced in the 6th century BC, ***that the best monarchy is better than the best democracy and the best oligarchy"***[3]

There are many and characteristically different definitions of the content of democracy. Since Antiquity, democracy has been associated with two main values: **freedom and equality** .

Liberty guarantees rights dressed in legal form to every member of the society. In the preamble of the Constitution of the Republic of Bulgaria, freedom, along with other values such as peace, humanism, equality, justice and tolerance, are bound together in a common essence, with the sole purpose of **expressing the will of the Bulgarian people.**

The Constitution raises as a supreme principle the rights of the individual, his dignity and security, but also imputes the constitutional duty to protect the national and state unity of Bulgaria, **as a democratic, legal and social state** .

Democracy worldwide is also a top priority for the European Union, declaring that it is the only system of governing where people can fully exercise their human rights as a factor in long-term stability. The legal basis is contained in Art. 2 and Art. 21 of the Treaty on European Union (TEU) and Art. 205 of the Treaty on the Functioning of the EU (TFEU). The approach is in the field of human rights, which is based on the Universal Declaration of Human Rights, international regulations and institutions, and elections.

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[1] In the Bulgarian history of the monarchy, regents on Bulgarian rulers manage the country on behalf of the incapacitated monarch , due to his minor age or until the election on new monarch . For example, Stefan Stambolov, Sava Mutkurov, Petko Karavelov and Georgi Zhivkov were regents after the abdication of Prince Alexander Battenberg. In ancient times, for example, after the death of Khan Omurtag, the regent was Kavhan Isbul of the minor Khan Malmir and of the minor Presiyan, etc.

[2] **Ferdinand Maximilian Karl Leopold Maria Saxe-Coburg and Gotha** was Tzar of Bulgaria from July 7, 1887 to September 22, 1908, when Bulgaria's Independence was declared.

[3] Snell , Daniel C. Flight and Freedom in the Ancient Near East . Brill Publishers , 2001. ISBN 9004120106 . p. 18 .

EU support for democracy is developed in the 2030 Agenda for Sustainable Development, which also develops 10 strategic objectives on:

- reduction of inequality;
- support for human rights and
- good governance.

The actual start was made on 17 November 2009 with the adopted conclusion by the Council on supporting democracy within the framework of the EU's external relations. In 2012, an agreement was reached on the Strategic Framework on human rights and democracy. The approach ***"more for more"*** is adopted **as** support for the democratic transition ***"democracy in depth".***

Can it still be accepted today that democracy is an indisputable human rule and it provides:

- all power by and for the citizens, here and now;
- all individual responsibility in the hands of each citizen;
- as well as full actual information?

On the contrary, can it be perceived that democracy today is not - all power, information, capital and personal safety, because it is in the hands of a circle of politicians, rulers and monopolists, which some scholars define as dictatorship, even fascism and communism.

Then the question is:

What is democracy, equality, justice today?

Do they have real ground in our country?

What is freedom, accountability, responsibility today?

Are those values still valid or are there signs that peace is threatened, that war is possible, that nature is taking its revenge, that human life is unprotected.

Freedom is often associated with freedom of speech. For more than 30 years, we have been learning about democracy through the evaluation of freedom of speech. After Bulgaria's membership in the European Union, from 111th place in terms of freedom of speech, in 2023 we climbed 20 places higher in the annual ranking of Reporters Without Borders (RSF) to 71st place in the edition of the index out of 180 countries, at 91st place for the past year 2022. The progress of the legal indicator in the assessment for Bulgaria is due to the efforts to fight against "slap cases", also known as SLAPP [4], in the same direction as the recommendations of RSF and in last year's report.

Freedom of expression is under pressure all over the world, which is a threat to democracy. This could be changed through solidarity and active work by journalists and active legislative mechanisms. As such measures is the opinion of the Information Bureau of the European Parliament from a round table held on the topic: "The Sakharov Prize of the EP, on November 19, 2022."

Equality is the other essential element of democracy after freedom. The Constitution of the Republic of Bulgaria proclaims equality for all citizens before the law and equal access to power. The same constitution in art. 65 violates this right by limiting the possibility of Bulgarian citizens holding a dual citizenship to be representatives of the people.

There is no referendum on this issue, just as there is no possibility "to ask the people " other significantly very important issues: ". In support of this ban and expansion of its scope, many arguments can be presented, especially after Bulgaria's entry into the European Union in 2007.

First of all, the question is those who do not live and work permanently in Bulgaria, which according to unofficial data are about 2 million, and a large part of them have dual citizenship, what contribution do they make to Bulgaria? Their knowledge, skills, professionalism and taxes go to the development of the other country, not to Bulgaria. Their children, grandchildren and great-grandchildren are human capital for other countries, fresh forces for their science, education and economy. For Bulgaria, from a population of 9 million

[4] Strategic affairs against public participation.

before 1989, as of December 31, 2022, according to the data of the National Statistical Institute, the population is 6,447,710. And as of December 31, 2023?, And next year?

Bulgarian citizens who do not speak and write the Bulgarian language, do not know Bulgarian history and values such as national flag, homeland, customs and do not contribute every year to the development of the economy and well-being of the country, with work, taxes and contributions - they are only Bulgarians on paper. Bulgarian citizens, who have only rights, without obligations, are violators of the principle of equality. If this is the case, justice demands that they do not vote in elections, referenda and polls. Justice to obligations, justice to rights, for all Bulgarian citizens who contribute to the state of Bulgaria, because democracy requires it.

In the welcoming speech on the occasion of May 1, 2023 - the Day of Labor and International Workers' Solidarity, the President of the Republic of Bulgaria defines our common task as: *"to defend the cause of social justice so that Bulgarians can confidently plan and build their future in their own our country"... Only in solidarity and united, working for the interests of Bulgaria, can we successfully overcome the trials of today and tomorrow."*[5]

Bulgarian citizens living and working outside the borders of Bulgaria do not pay tax on their wages and do not pay pension and health contributions, which is a solidarity tax for every Bulgarian citizen, due to the lack of income in Bulgaria, but they have all the rights - to vote, to determine for us, those that are permanently living in the homeland Bulgaria, who will govern us on our behalf in local, parliamentary and MEP elections. Where is the justice? Where is the equality? Where is the democracy?

The health system is solidarity. We all bring in, and those who need it use it. Almost 2 million do not pay tax because they have no income in the country, and on the other hand, 2 million pensioners also do not pay because the state takes care of them.. The state takes care of these pensioners and the children, the civil servants, until it goes completely bankrupt in conditions of political instability, which society calls "the political crisis of the assembly".

According to unofficial data, a Bulgarian born and completed his education in Bulgaria, and then emigrates, costs the state more than 50 thousand bulgarian leva. How many are these and how much are they costing the state: the lost benefits, the vitality of labor for the economy, development, progress, prosperity and demographic problems.

Guided by these considerations, it is time to subject for public discussion the expansion of the characteristics of Art. 65, para. 1 of the Constitution, which limits the right of a Bulgarian citizen to be elected as a national representative, if he has another citizenship. On this basis, to supplement Art. 65, paragraph 1 of the KRB: to ban the right to vote in all statutory elections, referenda and hold public office, if in the last 10 years, there is no permanent contribution to the economy, tax and health legislation.

When it comes to democracy, scholars and researchers often look to Plato from the 4th century BC for the types of government systems and aspects of the Roman Republic for democracy. In modern history, the first country to adopt a democratic constitution was the Corsican Republic in 1755, which introduced suffrage for women and focused on public education. Three decades later, France adopted the Declaration of the Rights of Man and of the Citizen. In the US after 1840, restrictions on white citizens to vote were lifted and the system evolved from a Jeffersonian democracy to a Jacksonian democracy. Full voting rights of citizens were achieved with the Voting Rights Act of 1965.

The First World War and the collapse of the Ottoman and Austro -Hungarian empires created favorable conditions for the emergence of new nations in Europe, slightly democratically oriented. The Great Depression planted fascism and dictatorial regimes in Europe, such as Nazi Germany, Italy, Spain, Portugal.

The Second World War led to a change of regimes and the creation of the Soviet Bloc. India's independence was defined as the largest democracy in the world during this period. Europe united and create a European Union of countries with different levels of democratic foundations and economic development.

In modern Bulgaria, democracy began after the November plenum of the Central Committee of the Bulgarian Communist Party (BCP) with the parliamentary elections for the Seventh Great National Assembly in 1990, and in 1991 it adopted the current Constitution of the Republic of Bulgaria as a parliamentary republic with independent executive, legislative and judicial power.

In 2007, Bulgaria and Romania joined the European Union. Bulgaria crosses the threshold of European democracy, weakly democratized and economically weak, but with high levels of comprehensive corruption in all spheres of public life and unstable political and managerial orientation. The following years are difficult for Bulgaria, placed under surveillance by the European Commission under the Cooperation and Verification Mechanism (CVM), for corruption, organized crime and reforms in the judicial system. The mechanism has been temporarily suspended, but not terminated, by the European Commission due to the introduction of a common

[5] Standard working hours, health insurance, paid leave and pensions are today rights won at the cost of many sacrifices. Their quality and compliance are an indicator of the maturity of our society. Our common task is to defend the cause of social justice . https://epicenter.bg/article/Radev--Demokratsiyata-i-razvitoto-obshtestvo-sa-nemislimi-v-otsastvieto-na-sotsialna-spravedlivost/314688/2/0

mechanism for corruption in all EU member states. In 2023, the Cooperation and Verification Mechanism was finally terminated, but this did not prove to be enough to give our country a clear record for Schengen admission, which hinders Romania as well, which reports a significantly better performance of the indicators.

In November 2021, the EU launched the Team Europe initiative to increase support and impact for democratization worldwide, through common approaches and broad alliances. In this direction is the participation of the EU member states in UN and Organization for Security and Cooperation in Europe (OSCE) forums, with the main task being focused on the promotion and protection of democracy. In the same year, the European Commission participated in a US-led Democracy Summit to promote democratic renewal and to encourage leaders to respond together to the global trend away from democracy.

Since 2006, there has been a worldwide mechanism for evaluating democracy, called the "democracy index", based on 60 indicators and four regimes:

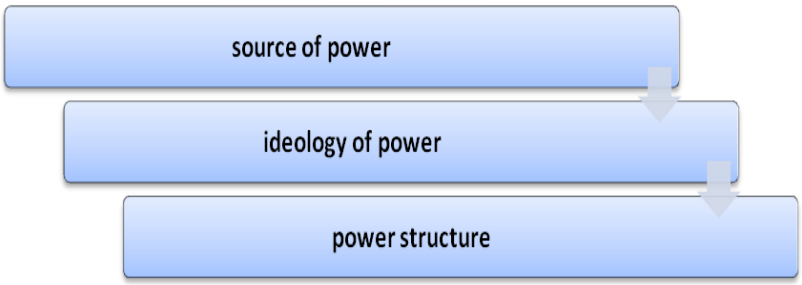
- full democracy;
- insufficient democracy;
- hybrid modes and
- authoritarian regimes.

For 2018, Bulgaria is ranked 46th with an index of 7.03 out of a maximum of 10. For 2022, it occupies 57th place out of 167 countries, which trend of retreating from democracy by 11 points answers all questions about the quality of the electoral and political system and the difficult control of entrenched corrupt practices in all spheres of public life.

The process of democratization can be influenced, even driven by:

- economic growth;
- transparency;
- accountability;
- bearing responsibility;
- freedom;
- equality;
- fair elections and
- active civil society.

Democracy is based on three basic forms of government:



Democracy also has its critics regarding its effectiveness. The leading motive is the so-called irrational voter. Voters who are grossly uninformed on a wide range of political and economic issues. At the same time, citizens have strong preconceptions on issues about which they have knowledge. Milton Friedman professes this ideology, not without valid arguments. In this direction are the positions, independent of each other, of the Italian philosophers of the twentieth century Vilfredo Pareto and Gaetano Mosca , that democracy is illusory and intended to cover up the reality of elite rule - an ideology they call an elitist oligarchy, but accept as a feature of human nature **that leads to apathy towards voting and to an ever-increasing division of the masses** .

Ideology is defined by philosophers as an organized system of views and ideas of a given social group, political party, even class, to express and defend its interests and goals. Elitism arose in Italy at the beginning of the 20th century motivated by Machiavelli's ideas on state governing. According to elitism, society consists of an elite and others. The democratic society which grants the right to vote to every citizen is denied, on the grounds that universal suffrage is unable to prevent the creation of an oligarchy, and that in turn of a ruling class, enabling the election of the permanent-eternal deputy, i.e. democracy makes oligarchy elective!

As an ideology , elitism is opposed to egalitarianism , which in its meaning has two main essences. On one hand, it supports the thesis that people are equal as an ideological doctrine - economic, social and civil rights, and on the other hand, it is the social philosophy of eliminating economic inequalities and equal opportunities to manage material goods.

The last decade has highlighted the criticism of democracy as not offering enough political stability, which has led to frequent policy changes, both locally and nationally. Keeping one government in place for a longer period of time leads to protesting opposition, strong criticism, which often ends in unexpected political

change, and the change in deterring and limiting economic growth. These arguments and criticisms define as the reason for imposing in developing countries with low economic growth the great poverty and high corruption.

According to Albert Camus **" *Democracy is not the law of the majority, but the protection of the minority* ."** Camus' view of democracy hardly fits into the theory that democracy means government on behalf of all the people and according to their will. Because of these differences of opinion, two essential questions and a solution arise:

- How is it managed on behalf of the Bulgarian citizens, if 2/3 of all those entitled refuse to fulfill their constitutional obligation to vote, or vote with "I do not support anyone"?

- How is it managed according to their will, after no party or coalition has asked the people for 30 years what their will is, at least on important public issues, which gives an answer to why five parliamentary elections and two rounds of elections are held in Bulgaria in two years, also presidential elections, and there is no stable government, despite the will of the people to form one?

According to the World Forum for Democracy, there are 120 electoral democracies in 192 countries, which is 58.2% of the world's population, with 85 countries with liberal democracies that respect basic human rights and the rule of law, representing 38% of the world's population.

Election observation is an essential EU tool for supporting democratic change, human rights and the rule of law, which not only contributes to, but also ensures the maintenance of peace and the limitation of conflicts. The established EU Election Observation Mission (EOM) is a short-term/long term observation mission observation mission, and the results are reflected in a report with conclusion and recommendations, which is publicly available.

The parliamentary elections held showed the factual reality of the state of the country, democracy and the response of the civil society to the governance, freedom, equality and well-being of the citizens expressed through their voice.

Table No. 1. Voter activity

no	Parliamentary elections - date Presidential elections - date	Voters-number	Number of voters who voted	Percentage difference	Difference Total
1	April 4, 2021 for the National Assembly	6,588,372	3,334,283	50.61 %	3,254,089
2	July 11, 2021 for the National Assembly	6,578,716	2,775,410	42.19 %	3,803,306
3	0October 02nd , 2022 for the National Assembly	6,602,990	2,601,963	39.41 %	4,001,027
4	April 02nd, 2023 for the National Assembly	6,594,593	2,683,606	40.69 %	3,910,987
	Presidential elections				
5	1st round - November 14, 2021	6,594,593	2,683,606	40.69 %	3,910,987
6	2nd round – November 21, 2021	6,632,375	2,310,903	34.84 %	4,321,472

From the data published by the CEC on voter turnout in the six consecutive elections held over two years, of which 4 were parliamentary and 2 for president and vice president, the level of voter turnout is undisputed and extremely disturbing. The result is also a sign of people's confidence in electoral representative democracy, which is helpless and with an exhausted charge to achieve its goal of forming a government.

The average voter turnout for the National Assembly is 43.2%, or in absolute numbers there are 3,742,351 people who defiantly refuse to fulfill their constitutional obligation to vote, in the case of compulsory voting. The other hypothesis that is gaining more and more popularity is that signals in all spheres of public life are corrupt electoral practices, followed by parties running the same candidates for decades, who have gained a lot of negativity from wrong decisions and policy statements without seeking the opinion and the will of the citizens.

The same analytical conclusion can be drawn in the election for president and vice president. There is a drastic difference between the number of people who voted in the first round and those in the second round of 37.7%, as well as with the elections for people's representatives, where the average of the four elections is 43.2%.

The threats to representative democracy, after these 6 elections in just 2 years, and their results are reminiscent of Mark Twain - ***"If elections changed anything, they would ban them!"***

No, you can't ban elections, because it's like banning equality, freedom, the right to choose, but also to be elected, which the distorted form of representative democracy does not allow. This niche has long been mastered, conquered, even occupied by oligarchs , monopolies, politicians, rulers, appointed persons, lobbyists and institutions that prevent the possibility of a person being elected as a deputy without being represented by a party. This is just one of the legitimate symptoms of removing representative democracy as an already exhausted democratic mechanism.

The European Commission prioritizes the promotion of democracy and monitoring of elections worldwide, so that people can fully exercise their human rights and achieve long-term stability, according to Art. 2 and 21 of the Treaty on European Union.

The solution for the Bulgarian civil society is to convince itself and believe that it has the strength and can impose its will, but not by refusing to vote, but on the contrary - by mass voting!

European and national priorities in transport policy

Tsanko Sotirov
Master's at UNWE

Abstract.
The European transport policy covers a 7-year period 2021-2027 for guaranteed development of safety, efficiency and free movement of people and goods. EU policies for the development of transport priorities, through planned European funds under thematic projects, have been studied. The introduction of transport services in Europe is tracked through the adopted European strategy for a single European transport area, cyber security and technology development in the individual transport fields, the digital single market, climate protection, security and the achievement of a European Green Deal in the field of transport and the ones investigating achievements of Bulgaria.

Keywords: transport, European policy, strategy, investigation.

The European strategy as the basis for the immediate introduction of services across Europe. It is closely linked to the program for jobs, growth, investments and Single European Transport Area targeting the Digital Single Market, climate protection and the Energy Union Strategy.

The European Union's Multiannual Financial Framework (MFF) sets spending ceilings for each year of the 7-year period 2021-2027, in different policy areas, with the aim of predictability within agreed limits, through flexibility mechanisms in exceptional circumstances and political priorities. Its adoption requires the consent and unanimity of the Parliament and the Council. One of the important areas for the Union is transport policy.

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The visionary transport policy of the European Union (EU) is aimed at the guaranteed development of safe, efficient, trouble-free and free movement of people and goods within the boundaries of the entire Union through integrated networks in land, rail, water and air transport. The goal is to achieve mobility and create conditions for competitive industry, growth and new jobs. Transport is listed as a key strategic policy by the Treaty on the Functioning of the European Union.[6]

For the economic recovery of the member states, the European Union invested nearly 2.2 billion euros in 140 key projects related to transport, to build transport links, sustainable transport and jobs. The financing of the projects is carried out under the Connecting Europe Facility (CEF) for the provision of grants for the development of transport infrastructure.

According to Transport Commissioner Adina Vălean:

"EU funding of €2.2bn for this vital transport infrastructure will boost the recovery. We expect it to attract investments in the amount of EUR 5 billion. The projects we invest in are very diverse: from inland waterway transport to multimodal connections, from alternative fuels to large-scale railway infrastructure. The Connecting Europe Facility (CEF) is one of our main tools for building a crisis-resilient and stable transport system, which is crucial not only for now, but also in the long term."

During the 7-year period, the European Commission will support 55 railway infrastructure projects along the Trans-European Transport Network (TEN-T) route for 1.6 billion euros. The future is focused on projects to strengthen the railway network, through cross-border connections and connections to ports and airports. The interoperability of the railway lines in the European Union and guaranteeing its quality and speed are covered by the European system for the management of railway traffic and control, through nine projects for over 49.8 million euros.

Nearly 142 million euros will be invested in 19 projects for the transition to greener transport fuels. It is planned to build 17,275 charging points for road transport under the infrastructure project for alternative fuels. In maritime transport, the projects focus on short distances and the use of alternative fuels, as well as on improving

[6]Article 4, paragraph 2, letter g and Title VI (Articles 90-100) of the Treaty on the Functioning of the European Union.

multimodal connections with the road and railway network. This budget provides hope for achieving the goals set out in the European Green Deal for the climate.

The relevance and development of ITS requires that on March 13, 2018 in Strasbourg, the European Parliament adopts a Resolution on a European Strategy on Coopeartive Intelligent Transport Systems (2017/2068(INI), as "*A milestone on the way to joint, connected and automated mobility", as "For the sake of human life: increasing cars' safety in the European Union*" and on Internet connectivity for growth, competitiveness and cohesion*: "European society in the era of gigabit internet and fifth generation (5G) technologies",* defines The European strategy as the basis for the immediate deployment of services across Europe. It is closely linked to the agenda for jobs, growth, investment and a single European transport area focused on the Digital Single Market, climate protection and the Energy Union strategy. Its focus is on -safer, more efficient, sustainable and multimodal transport and overcoming the fact that 92% of traffic accidents are due to human error, the use of CITS technologies is of great importance to assist drivers, reduce transport noise, greenhouse gases and air pollutants.

Other main arguments are the cybersecurity of CITS, accountability and transparency of algorithmic processes, which will generate huge economic potential, especially with the new technologies - the European navigation satellite systems "Galileo" and EGNOS. To all this, one should add the mandatory commitment of the European Union to respect the Charter of Fundamental Rights, regulated in Art. 7 and Art. 8, regarding the right to privacy and protection of personal data.

The general framework of the Strategy creates the reasoned basis for the immediate introduction of CITS services throughout Europe - Directive 2010/40/EU in order to guarantee the continuity of services, the operability of the system and the related business models.

The European Commission has declared 2021 the European Year of Railway Transport. The goals are to achieve a European Green Pact in the field of transport, as a sustainable, innovative and safe type, both for people and the economy, the climate, reducing carbon dioxide emissions, even speed. The vision is to create a single European railway area without borders – a functional network across Europe by 2050 and a 90% reduction in emissions. 75% of inland road freight transport is projected to be diverted to railway and inland waterways.

10 years ago, Bulgaria adopted an Ordinance on the terms and conditions for the implementation of intelligent transport systems in the field of road transport and for interfaces[7] with other modes of transport, effective from January 29, 2013, amended and supplemented in 2015 and 2022. The goal is to achieve compliance with the specifications for applications and services regarding Intelligent Transport Systems (ITS)[8] and standards adopted by the European Commission, in the following priority areas:

- optimal use of road data, traffic on them and travels;
- continuity of services in traffic management and freight transport;
- facilitating cross-border electronic exchange of data among relevant public authorities and interested parties and relevant ITS service providers;
- road safety and security policy. Equipment for emergency call centers and data provided by cars;
- connecting a vehicle with the transport infrastructure;
- cooperation with EU member states in priority areas;
- protection of personal data when using applications and services;
- introduction of an eCall flag mechanism in the used networks and telephone 112;
- improving the safety and comfort of vulnerable road traffic participants. Measures to provide information services for places for safe and secure parking of goods vehicles, in particular in service areas and roadside rest areas;
- an obligation for the Minister of Transport and Communications to inform every three years the EC about progress on national activities and projects in relation to priority areas.

In 2020, by a decision of the Council of Ministers of the Republic of Bulgaria, a multimodal body for the investigation of transport safety accidents, the "National Board for the Investigation of Accidents in Air, Water and Rail Transport" (NBIAAWRT) was established under the Council of Ministers and the Rules of Procedure were adopted.

The functions of investigating accidents in railway transport are listed in the Law on Railway Transport (LRT), Ordinance No. 59 of 05.12.2006 on the management of safety in railway transport. From 11.04.2023, the NBIAAWRT has signed an "Agreement on interaction in the investigation of accidents and incidents in air, water and rail transport between the Prosecutor's Office of the Republic of Bulgaria, the Ministry of Internal Affairs. The annual report includes data on the railway accidents and incidents investigated in 2022, including

[7] An "interface" is an intersystem device providing the means by which systems can connect and interact.

[8] "Intelligent Transport Systems (ITS)" are systems where information and communication technologies are applied in the field of road transport, including infrastructure, vehicles and users, and in traffic management and mobility management, as well as for interfaces with other modes transport.

the reasons for their occurrence and recommendations for improving safety in railway transport to the National Safety Authority - Executive Agency "Railway Administration" (EARA).

NBIAAWRT also interacts with other bodies and institutions in the investigation process. The national railway network in the Republic of Bulgaria by 2022 - total expanded length of the railway network – 6,446 km, of which with a gauge of 1,435 mm – 6,293 km.

Railway related events with caused damages in recent years[9]:

-In 2013, compared to 2012, the damage/BGN deviation was +206,902 BGN (+105,787 EUR);

-In 2014 compared to 2013, the damage/BGN deviation was +5,402,000 BGN (+2,762,000 EUR);

-In 2015 compared to 2014, the damage/BGN deviation was – 4,842,076 BGN (–2,472,591 EUR);

-In 2016 compared to 2015, the damage/BGN deviation was +863,286 BGN (+440,452 EUR);

-In 2017 compared to 2016, the damage/BGN deviation was – 136,200 BGN (–69,597 EUR);

-In 2018, compared to 2017, the damage/BGN deviation was + 1,641,141 BGN (+839,115 EUR);

-In 2019 compared to 2018, the damage/BGN deviation was – 74,728 BGN (–35,135 EUR);

-In 2020, compared to 2019, the damage/BGN deviation was +1,156,291 BGN (+592,970 EUR);

- In 2021, compared to 2020, the damage/BGN deviation was + 1,020,277 BGN (+517,524 EUR);

-In 2022, compared to 2021, the damage/BGN deviation was + 1,645,950 BGN (+839,770 EUR);

On July 20, 2022, a National Plan for the development of combined transport in Bulgaria until 2030 was approved, which includes a package of measures to stimulate combined transport and finance the planned measures in accordance with the policy of the European Union.

[9] Source: Report of the National Railway Accident Investigation Board for 2022 chrome-extension://efaidnbmnnibpcajpcglclefindmkaj/https://www.mtc.government.bg/sites/default/files/documents/2023-09/GodDoklad -2022-BG.pdf -

Statistics and a mathematical model of the phenomenon of oddness in palindromes of European and oriental languages

Dr. Yasir Z. Abo Rass
E- mail: abo.rass@gmail.com
Sakhnin Academic College
Dr .Saleh Y. Abo Romi
E- mail: salh.aboromi@gmail.com
Elzahraa Elementary School - Tamra

In 2004 - in "Science and Life"- they spoke about a strange linguistic phenomenon: 95% of the palindromic words in the Russian language have an odd number of letters. The following investigation showed a similar phenomenon also in other languages which use letters of the alphabet. In English, French, German, Spanish and Polish, the percentage of odd palindromic words is between 73% and 98%. The phenomenon of oddness is also characteristic of palindromic expressions in these languages. 70%-90% of the palindromic expressions have a central letter by contrast to 10%-30% with a central space.

They succeeded in giving a mathematical explanation to this phenomenon with the help of the theory of discrete groups and the "Antia" function.

As a basis to the data, a list of palindromic words was taken from Russian which includes 196 words and derived words. Derived words included inflections of nouns, adjectives, verbs, participles, gerunds in various times. First names were included in the list (Anna, Ella) and also abbreviations like M"M (deputy).

A list which is almost full of these words is found in "Science and Life" no. 11.

Below are the most common words from the list:

1.And-, for-, in-, from-,…

2.M"M, …

3.Alla, Abba (father), Ima (mother), (Aya) Was, David, (Ana) Anna, Bob,…

4.Madam, (Shabash) disrupted,….

The average number of letters in the words is 4.1 with a standard deviation of 1.6.

An imbalance stands out in this list between words of an even length and words of an odd length.

Two research problems were formulated due to this:

1.To try to construct a mathematical model for palindromic words; to find an analytical function that describes them.

2.To test what happens in other languages using an alphabet of letters, chiefly in European languages.

Mathematical model

Distribution in this problem is not similar to any other distribution (Normal, Poisson, exponential,….).

We started in the simplest situation- words composed of one letter and afterwards gradually we added symmetric forms from both sides.

We will formulate the problem.

Combination with n letters (n>0) is a chain of n "seating places" for letters comprising a possible word. Each letter can "sit" in any place (of course in language this is not so, but here only an estimate)

There are 33^n combinations (there are 33 letters in Russian).

A form with n letters is a palindromic combination with n letters. We will pay attention, that meanwhile a logical word is not concerned.

A form with one place or two can seat only one letter.

A form with 3 or 4 places can seat a maximum of two letters.

Etc.

Therefore, only $33^{\left\lfloor \frac{n+1}{2} \right\rfloor}$ forms are possible. A ratio of forms with n letters to combinations with n letters is $33^{\left\lfloor \frac{n+1}{2} \right\rfloor}=33^n: 33^{\left\lfloor \frac{n+1}{2} \right\rfloor - n}$

Hereafter are the initial values of the function $y = \left\lfloor \frac{n+1}{2} \right\rfloor - n$

n							
y		1	1	2	2	3	3

33 $\left[\frac{n+1}{2}\right]-n$		.3	.3	.001	.001	.00003	.00003

In a mathematical result as it is customary it is important to emphasize the existence of "horizontal steps". They delay reduction of ratio of forms with n letters when this ration decreases inasmuch as the number of letters in the form increases.

These steps are a factor for the increase of the number of odd palindromes with 2n-1 letters in relation to even palindromes with 2n letters.

In continuation, we will adopt the following conjecture:

The ratio of palindromes to normal words is approximately like the ratio of forms with n letters to combinations with n letters. Meanwhile we can test this conjecture only for Russian.

Table 2: Distribution of palindromes in Russian according to number of letters: True- row 3 and hypothetical- row 4.

Number of letters, n	1	2	3	4	5	6	7	8
Number of words in dictionary (Russian)	11	159	826	2144	4465	7077	10778	14645
Number of palindromic words in dictionary	11	3…1	33	1	23	1	1	0
Number of palindromic words in dictionary (conjecture)*	11	4,8	25	2	4	(0,2)	(0,3)	(0,01)

Dictionary with 130 thousand letters does not contain all the derivatives about which we spoke at the start.

As we see from table 2, a mathematical model gives local extremums when n is odd.

And this is a main result. This result deals with palindromes in every language serving in a letter alphabet.

It is possible to see convergence in initial values n=1,2,3,4.

When n=1, there is overlap (according to definition).

When n-=2, only one word appears in the dictionary.

A single palindromic word exists with 4 letters in the dictionary- ummu.

The dispersal (5 times more) when n=5 depends on the fact that there are many palindromic words in the language with 5 letters (absolute maximum) while the ratio of normal words with 5 letters is smaller.

When n=5 modal points tend to 0 like the number of logical palindromic words.

The law is kept: there are more odds than even.

What happens in other languages- Meet, see, esteem!

For a comparison, palindromic words were taken from the internet from English (75) and French (81). Also palindromic expressions were selected: 500 from English, 19 from French, 200 from German and 134 from Spanish.

Apart from this we alone (from memory and with the help of normal dictionaries, as we did not find palindromic words on the internet) we recorded palindromic words from German (40), Spanish (43) and Polish (58) which is approximately half of their quantity in these languages.

English:

Two lists of palindromic words appear on the internet (they appear in table 3) as (a) and (b).

A first list contains 75 useful words including abbreviations:

a, aha, BB, Bab, bib, Bob, boob, bub, civic, dad, deed, deified, denned, dewed, did, dud, DVD, eke, ere, eve, ewe, eye, gag, gig, hah, huh, huh-uh, i, kayak, kook, level, ma'am, madam, mom, mum, noon, nun, o, oho, pap, PCP, peep, pep, Pip, poop, pop, pull-up, pup, put-up, racecar, radar, redder, refer, repaper, reviver, rotator, rotor, sagas, sees, sexes, shahs, sis, solos, SOS, stats, tat, tenet, tit, TNT, tot, toot, tut, tut-tut, wow,ZZZ.

A second list contains 207 words. We will present several examples. A lost contains old, dialectic words:

desesed= disseized, devoved=deuoued=devoted, evitative, gnipping, goog (Australian)=egg, semitimes= half times; words which were taken from other languages like Geographic names:

Anahanahana, Kanakanak, Wassamassaw, Glenelg (Шотландия), Akasaka, Krк, etc.;

There are innovative words and "words at the appropriate moment" (nonce words):
beeb (BBC), deleveled, finnif (5$), redivider, tattarratta;
Scientific names of animals:
aidemedia, allenella, arara, biib, sunnus, ugogu, wow-wow, peeweep, tottot, etc.;
Chemical terms: xitix, detartrated, detannated.

At the end we will stress the word **aibohphobia**= fear from palindromes (this word appears also in Spanish). Apparently the word is created thus: they took the word **phobia** which means fear and attached the opposite to it from it.

According to a main list (a) the ratio of words with an odd number of letters equals **81%** = 0.1= 60/74
And according to a secondary list (b) 64% =0/4= 132/207.
Equal average values (a) 3.9 and (b) 6.2. The standard deviation: (a) 1.4, (b) 1.8.

Table 3: distribution of words- palindromes according to the number of letters (n) in Russian, English, French and Polish.

Language	n=1	2	3	4	5	6	7	8	9	10	11	12
Russian	11	3	57	5	67	2	5	0	5	0	0	0
English	3 (א 0 (ב	1 0	37 1	9 25	16 67	4 36	5 35	0 10	0 24	0 3	0 5	0 1
French	4	0	24	5	32	8	6	0	3			
German	5	0	15	5	7	5	2	1	1			
Spanish	5	0	20	2	12	2			1		1	
Polish	7	0	28	1	20	0	2					
Arabic	**14**	**1**	**115**	**20**	**196**	**1**	**10**	**0**	**0**	**0**	**0**	**0**
Hebrew	**3**	**37**	**116**	**8**	**20**	**1**	**0**	**0**	**0**	**0**	**0**	**0**

(Inflections of nouns, verbs, verbs at different times are included).
We will bring a short list of palindromic expressions from English:
A dog! A panic in a pagoda!
A man, a plan, a canal: Panama!
Beware era web!
Bosnia ... pain ... sob.
Bosnia gasps again--sob!
Bombard a drab mob.
Borrow or rob?
Cain, am I maniac?
Debate with girl last; if it's all right, I wet a bed.
Devil never even lived.
Diaper sin is repaid.
Do geese see god?
Dogma: I am God.
Don't nod.
Eros saw I was sore.
God damn! Mad dog.
God lived as a devil dog.
No Garden, One Dragon.
Now, Sir, a war is won!
On a clover, if alive, erupts a vast, pure evil; a fire volcano
Oozy rat in a sanitary zoo
Rise to vote, sir.
Sex at noon taxes.
Star sees rats.
Too hot to hoot.
Was it a bar or a bat I saw?
Was it a car or a cat I saw?

We panic in a pew.
Won't lovers revolt now?
Zeus was deified, saw Suez.

At the end of the list we will bring a magnificent palindrome Never odd or even! As if especially for this article.

French:

(1) a, à, ô, y; (3) Ada, aga, ana, ara, asa, axa, Bob, ère, été (היה**), été (**קיץ**),eue, gag,ici, non, oxo, pep, pop, sas (**מסנן**), sas, ses, sis, sus, tôt, tût; (4) elle, erre, erré, esse, réer; (5) anona, aviva, étête, kanak, kayak, lebel, nagan, nanan, Laval, radar, rotor, rêver, sagas, salas, sanas, sapas, semés, senés, seres, sexes, seves, shahs, sidis, solos, sonos, stats, stots, talat, tapat, tarat, tatat, taxat, (6) sassas, selles, sennes, serrés, taggat, tallat, tannat, tassat, (7) Nauruan, réifier, retâter, sémames, sememes, snobons, (9) essayasse, malayalam, ressasser**.

The list contains 82 words (not including abbreviations which are very widespread in this language). By contrast to Russian in French the number of words with double consonants in the center is large. The ratio of words with an odd number of letters is equal to

84%= 0.84= 69/82. The average number of letters in words is 4.5, the standard deviation is 1.7. The mark of oddness in French: 70%=0.07=13/19.

Examples of palindromes in French:
Esope rèste ici et se repose
Un roc cornu.
L'ami naturel? – Le rut animal.
Ce satrape repart à sec.
Eluparcettecrapule.

German:

(1) a, o, u, v, s. (аббрев.см.); (3) aha, Bub, Ede, Ehe, nun, oho, Ovo, Pop, rar, Tat, tat, tät, tot, tut, Uhu; (4) Anna, Esse, esse, Otto; (5) Kajak, Nagan, neben, neuen, Radar, Rotor, stets; (6) Neffen, nennen, netten, Renner; (7) Rentner, Rotator; (8) Reittier; (9) Geistsieg.

Oddness: 73%=0.73=29/40. Average number of letters in word 4.2, the standard deviation is 2 letters.

Several examples of palindromic expressions in German:
Ein Neger mit Gazelle zagt im Regen nie.
Gras mit Niere vereint im Sarg.
DieliebeTote! Beileid!
Minimum - An, am, um, in, im...?
Nie reime, da kann Akademie rein!
O Vogel, leg ovo!

Spanish:

(1) **a, e, o, u, y; (3) aca, aja (**опозорил),**aja** (межд.), **ala**, **Ala (**Аллах**), ama, ara, asa**(жарил)**, asa** (ручка), **asa (**видсока**), asa (**так**…), ata, eje, ese, ojo, oro, oso, oto, oyo, sus; (4) alla; (5) ajaja, alala, anona, radar, rajar, rapar, rasar, rayar, rever, somos, sosos, sotos; (6) sallas, solos; (9) reconocer, (11) aibohphobia.**

Ratio of words with odd number of letters equals **90%** ≈ 0.9 ≈ 37/41. The average number of letters in words is 3.9, the standard deviation is 1.9. The ratio of the number of palindromes with an odd number of letters 90% ≈ 122/134.

Several examples of palindromic expressions in Spanish:
La ruta nos aportó otro paso natural.
Somosonosomos?
Nodeseoesedon.
Lamoral? claro, mal.
Etna da luz azul a Dante.

Polish:

Polish is an interesting Slavic language for comparison with Russian. The list of words:

(1) **a, à, i, o, u, w, z; (3) aha, asa, bab, bib, bób, cyc(**כותנה**), cyc (**שד**),dud, gig**, **jaj**, **jej** (her), **jej**, **kok** (תסרוקת), **kok** (טבח), **lal, mam, mim, nań, oho, oko, ono, oto, owo, pip, pop, pup, rur, udu; (4) Anna; (5) kamak,łamał, łapał, madam, magam, makam, maram, masam, matam, mazam, molom, mytym, nagan, nizin, radar, reper, rotor, ususu, zakaz, zaraz; (7) rotator, tartrat.**

The average number of letters in a word is 3.6, the standard deviation 1.4. Almost all the palindromic words have an odd number of letters. A ratio of oddness **98%**=0.98= 57/58. If you also took into account abbreviations like **SS, mm,** then the ratio will be equal to that in Russian. Palindromic expressions are not familiar to us. Therefore we will only bring two combinations composed from two words: kobyly, bok; Nysy syn. We think that to write palindromes in Polish is harder and their number is smaller by contrast to Russian.

The reason for this is that many consonants in the language are expressed by two or three letters, and their reflection gives unfamiliar combinations in the language.

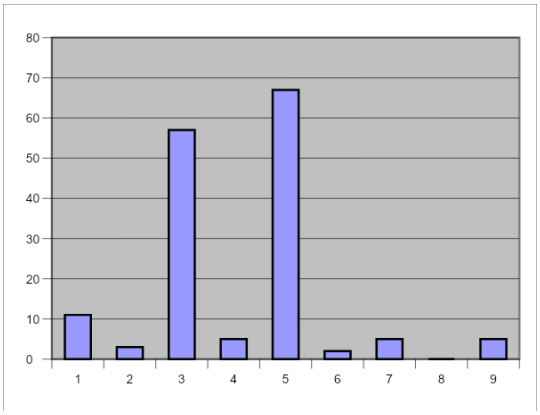
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Observation of the phenomenon of oddness in two Slavic languages, two German languages and two Roman languages enables us to claim, that the phenomenon of oddness is universal to every language using a letter alphabet.

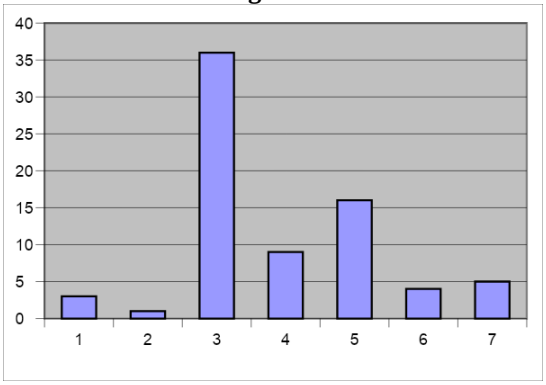
Drawings:

Histograms of distribution of the number of words on the number of letters in Russian, English (A- main list, B- secondary list), French, Spanish, German and Polish. For comparison also a histogram of the distribution of normal words is given according to a dictionary from a Russian dictionary containing 130 thousand words.

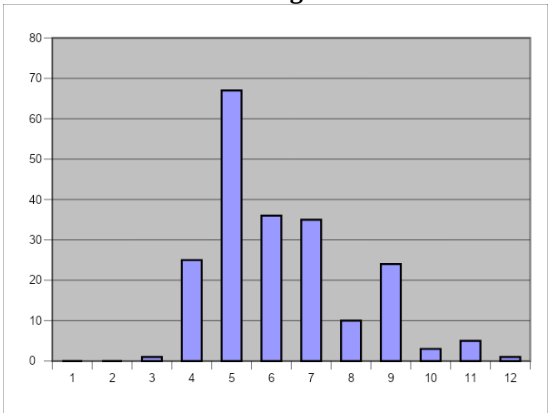
Russian



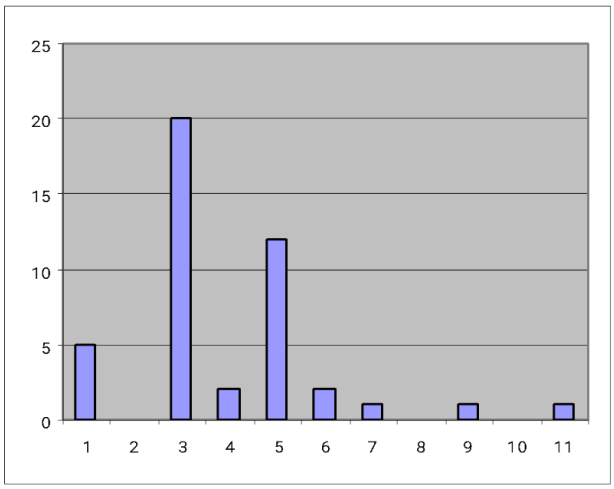
English-A



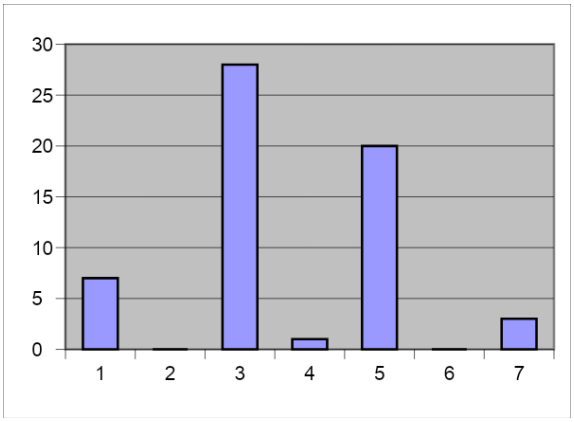
English-B



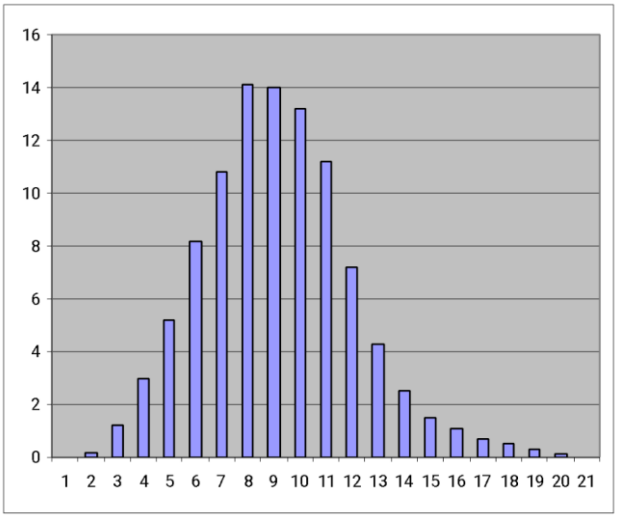
Spanish



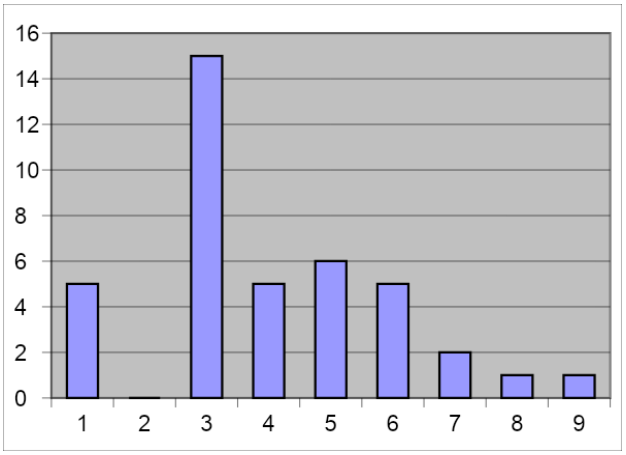
Polish



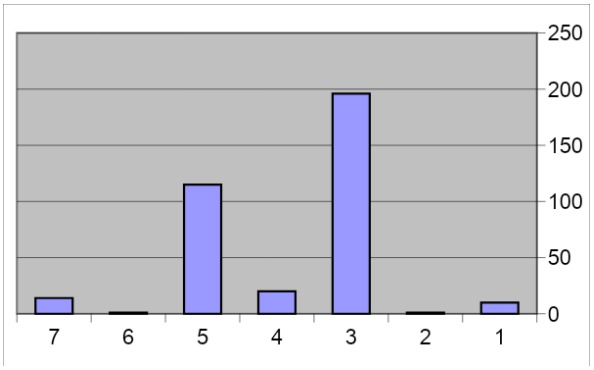
Russian- normal words



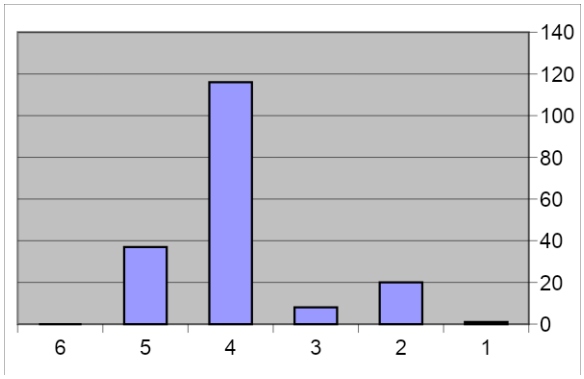
German



Arabic



Hebrew



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The Influence of Distance Learning on Academic Achievement

Dr. Yasir Z. Abo Rass
E- mail: abo.rass@gmai1.com
Sakhnin Academic College
Dr .Saleh Y. Abo Romi
E- mail: sa1ihaboromi@gmai1.com
Elzahraa Elementary School - Tamra

Abstract

This study investigates the implementation and impact of e-learning in mathematics education, with particular emphasis on students' academic achievement, learning experiences, and attitudes toward online instruction during the COVID-19 pandemic in Israel. The study adopted a qualitative case-study approach supported by a web-based survey consisting of 15 structured questions. Data were collected through non-random sampling from students representing different educational levels, including secondary school, college, and university, as well as diverse age groups and educational institutions across Israel.

The survey focused on two main dimensions: students' academic performance in mathematics and their perceptions and experiences of e-learning. In addition, various online learning platforms were reviewed in order to examine their role in supporting mathematics instruction during the lockdown period. The findings indicate that e-learning provided several important advantages, including greater accessibility, flexibility, and opportunities for independent and self-paced learning. At the same time, students encountered a number of difficulties, particularly technical problems, decreased motivation, and reduced interaction with instructors and peers.

The results suggest that although e-learning can serve as an effective alternative to traditional classroom instruction, its success in mathematics education depends largely on the quality of technological infrastructure, instructional design, student engagement, and opportunities for meaningful interaction. The study therefore highlights the need for well-designed digital learning environments that combine flexibility with effective pedagogical support. These findings contribute to a better understanding of the role of e-learning in mathematics education and provide insights that may assist educational institutions in improving online and blended learning practices in higher education.

Keywords: E-learning, Distance Learning, Mathematics Education, Higher Education, Academic Achievement, Online Learning Challenges, COVID-19.

Introduction

Mathematics is regarded as a fundamental academic discipline taught at both secondary and higher education levels and represents a central component of formal education. Achieving proficiency in mathematics requires learners to cultivate analytical thinking skills and become familiar with a range of problem-solving strategies. These competencies are essential for organizing mathematical knowledge and applying it effectively to practical and real-world situations.

However, the outbreak of the novel coronavirus disease (COVID-19), first identified in Wuhan, China, in late 2019, caused unprecedented disruption to conventional education systems across the world. As the virus rapidly spread to numerous countries, including Israel, governments introduced strict preventive and containment measures in an effort to limit transmission [1, 2].

Consequently, educational institutions were required to identify effective alternatives that could ensure the continuity of the learning process while safeguarding the health of students, teachers, and administrative staff. Remote learning became one of the most practical and extensively adopted solutions during the pandemic [3, 4]. Nevertheless, the transition to online education presented a number of challenges, as its effective implementation required appropriate planning as well as sufficient technological, instructional, and organizational support for both teachers and students [5].

In Israel, the Ministry of Education and Culture emphasized the use of online platforms to support learning from home. This approach was intended to provide students with meaningful learning opportunities while avoiding excessive pressure to immediately fulfill all academic requirements related to grade advancement. The Ministry also stressed the need to protect teachers' health by enabling them to deliver instruction remotely from their homes [6].

Distance learning, which refers to the delivery of education through Internet-based technologies, represents a form of distance education that enables students to access learning materials beyond the boundaries of the conventional classroom. One of its main advantages is flexibility, as learners are able to engage with educational content according to their own pace, regardless of time or geographical location [7]. Salamat et al. [8] further explained that online learning supports communication and interaction between teachers and students through digital platforms, thereby allowing educational activities to continue even when the two parties are physically separated.

The widespread adoption of e-learning during the COVID-19 pandemic can be attributed to its ability to provide flexible and accessible learning opportunities. Research has highlighted multiple benefits of online learning, including increased student motivation, broader access to educational resources, enhanced learning skills, improved academic outcomes, and more efficient management of the educational process [9]. Moreover, e-learning supports independent learning, allows students to access high-quality learning materials, and fosters self-directed study habits. Beyond academic benefits, digital learning environments can promote social interaction, build interpersonal relationships, and enhance collaboration among students [10].

Nevertheless, while e-learning served as a vital solution during school closures, it cannot fully replace the value of face-to-face interaction between students and educators. In-person communication remains crucial for developing deeper understanding, social engagement, and real-time feedback [11]. Therefore, the integration of online learning should be viewed as a complementary approach to traditional teaching, providing flexibility and accessibility while maintaining the essential elements of direct student-teacher interaction.

It is understood that learning technology is a new education technology that can be executed using telecommunications systems for active communication between teachers and students. The term e-learning is very new for the Israelian education sectors and carries a number of novelties in modern data and Communication Technologies in the education area using innovative software, communicative media, broadband, etc [12; 13]. But learning is not for everyone because it is different from traditional classroom learning. Online learning is favourite for students who cannot take regular courses at a school or college for various reasons. Most schools and higher education organizations around the world are now shut down as a result of the COVID-19 disaster. Many countries globally have educated their schools/universities and Their member colleges start to learn classes, but students in urban areas where the Internet speed is only good can benefit. It is difficult for students in remote rural areas to contribute in an online class session due to a various cause. In the absence of infrastructure for e-learning courses, teachers and students face challenges and crises.

Baki [17] explored the use of web-based learning resources to support the teaching of the concept of functions and the solution of practical mathematical problems in secondary schools over a five-week period. Students in the participating schools were divided into experimental and control groups. Initial analysis showed no significant differences between the two groups in terms of prior knowledge. The experimental group used educational websites during mathematics lessons twice a week and also accessed them for additional learning activities at home.

Sande [14] investigated students' behavior in online mathematics discussions, with particular attention to the nature of their mathematical activity when asking questions and responding to the support they received. The study aimed to characterize how students formulated mathematical queries and how different forms of assistance influenced their subsequent engagement.

The researcher analyzed 100 questions and responses related to the limits of step functions, as well as another 100 questions and responses concerning the application of derivatives. The findings showed that approximately half of the students demonstrated active mathematical engagement when posing questions, as they attempted to express their own reasoning, ideas, or approaches to the problem. The second-largest group consisted of students whose questions showed little or no mathematical activity. These students generally sought immediate assistance because they were unable to understand the problem or determine how to begin solving it.

An important finding was that the type of support provided influenced students' subsequent participation. When assistance was offered through guiding questions rather than direct answers, students tended to become more actively involved in the problem-solving process and were more likely to develop their own ideas. These findings highlight the importance of the form of instructional support provided in online mathematics environments and suggest that carefully structured guidance can promote greater student engagement, independence, and mathematical thinking.

Mulenga and Marbán [15] examined the use of digital learning in mathematics education during the COVID-19 pandemic. Their study collected data from 102 mathematics lecturers at Copperbelt University and reported generally positive attitudes toward e-learning during the period of institutional closure. The findings also indicated a strong interest among participants in the development of an official university-based virtual platform specifically designed to support mathematics students.

Owusu-Fordjour et al. [16] investigated the impact of the COVID-19 pandemic on students in Ghana, with particular emphasis on the challenges associated with online education. Their study highlighted issues related to students' access to technological resources and the extent to which parents were able to provide the

necessary digital support. The authors also discussed several limitations of online learning, particularly those associated with unequal access to devices and Internet connectivity.

Although the study was still in progress at the time of reporting, teachers observed higher levels of motivation, confidence, and engagement among students who used the web-based resources. Post-test results indicated that the experimental group achieved significantly better outcomes, particularly in their understanding of multiple representations of mathematical functions. Teachers also evaluated the interactive features of the websites positively and emphasized the importance of visualization and animation in facilitating students' conceptual understanding.

Building on these previous studies, the present research investigates the role of e-learning in mathematics education across different age groups during the COVID-19 pandemic. It examines how various online learning platforms were used to facilitate communication and interaction between students and teachers, as well as how students perceived their experiences with online mathematics learning.

Research Methodology

This study employed a mixed-methods research approach to investigate the impact of online learning on mathematics education among students enrolled in upper secondary schools, colleges, and universities in Israel. The study sample consisted of 200 students taking mathematics courses across two secondary schools, two colleges, and one university. Participants were selected using a non-random sampling technique.

Data were collected through a combination of an online questionnaire and semi-structured online interviews in order to obtain both quantitative and qualitative information regarding students' experiences with e-learning. The questionnaire consisted of 15 structured items designed to examine students' perceptions of online mathematics learning, with particular attention to academic achievement, engagement, accessibility, and overall learning experience.

Google Forms was used to distribute and administer the questionnaire, enabling efficient collection and organization of participants' responses. In addition, online interviews were conducted through Google Meet to obtain more detailed information about students' experiences, perceptions, and challenges related to digital mathematics instruction. The interviews provided an opportunity for participants to elaborate on issues that could not be fully captured through the structured survey items.

The integration of survey and interview data allowed for a more comprehensive examination of the effectiveness and limitations of e-learning in mathematics education. Quantitative data obtained from the questionnaire provided an overview of general patterns and trends among participants, whereas qualitative data from the interviews offered deeper insights into students' individual experiences and perspectives. The use of these complementary methods therefore strengthened the overall analysis of the impact of digital learning tools on mathematics education.

Results

The COVID-19 pandemic significantly disrupted conventional face-to-face education, requiring both teachers and students to transition rapidly from classroom-based instruction to distance learning. During this period, e-learning emerged as one of the most practical alternatives for maintaining educational continuity because of its flexibility, accessibility, and ability to support teaching without physical interaction. Nevertheless, the sudden transition to online education required teachers to adapt quickly to unfamiliar technologies, digital platforms, and new instructional approaches.

Despite the advantages associated with e-learning, its implementation created several challenges for educators. Teachers were required not only to become proficient in using digital tools but also to modify their teaching strategies to maintain student participation, motivation, and effective communication in virtual learning environments. Previous studies have identified several factors that may influence the successful implementation of e-learning, including student-related, teacher-related, institutional, curricular, and parental factors [18–20]. These factors can affect both the quality of online instruction and teachers' ability to effectively manage the learning process.

The findings of the present study demonstrate extensive use of electronic learning platforms among students. As illustrated in Graph 1, 92% of university students reported using various online learning platforms, followed by college and secondary-school students. Previous research has suggested that the actual use of e-learning systems may be influenced by users' self-efficacy, whereas the intention to continue using such systems can be associated with factors such as social influence (SI), effort expectancy (EE), and performance expectancy (PE). The increasing availability of educational technologies has therefore contributed substantially to the

expansion of e-learning in higher education, supporting combinations of face-to-face teaching, online instruction, and distance-learning practices [21].

The results also revealed differences in students' preferences regarding the digital platforms used for specific educational activities. For online examinations and course management, learning management platforms, particularly Google Classroom, were among the most frequently used tools, while audiovisual conferencing platforms such as Zoom represented another major option (see Figure 1). Email and Webex, in contrast, were used by comparatively fewer students.

For mathematics instruction, especially lectures and the explanation of mathematical topics, students showed a preference for synchronous and interactive platforms such as Zoom and Google Meet, in addition to Google Classroom. YouTube and WhatsApp were also used as supplementary learning tools, each accounting for approximately 16% of reported use. These platforms may support different aspects of mathematics learning by enabling students to attend live sessions, access instructional videos, communicate with teachers and classmates, and review educational materials outside scheduled class time.

Several factors influenced the selection of particular media and platforms for e-learning. Practicality was one of the most important considerations. Both students and instructors tended to favor platforms that were user-friendly, easily accessible, free of charge, quick to operate, available without strict time limitations, and capable of organizing learning materials and practice activities efficiently. Such characteristics support the broader functions of educational technology by facilitating instructional delivery, lesson sharing, content development, assessment, and feedback [11].

Familiarity with technology was another important consideration. Platforms that students had previously used or already had access to were generally easier to integrate into the learning process. From the teachers' perspective, however, the use of multiple platforms may create additional demands, including the need to develop technological competence, redesign instructional materials, manage online interaction, provide timely feedback, and address students' varying levels of digital literacy. Consequently, successful e-learning implementation depends not only on the availability of technological tools but also on adequate teacher training, institutional support, reliable digital infrastructure, and appropriate pedagogical strategies.

Another important factor influencing the choice of an e-learning platform was students' familiarity with the technology. In many cases, students were already accustomed to using the selected platforms and had access to them prior to the implementation of online learning. By contrast, the influence of school administration approval and orientation was comparatively limited and represented the lowest proportion among the factors affecting platform selection.

The study also identified several challenges experienced by students during online mathematics learning. Among the participants, 27% (67 students) reported difficulties in connecting with their peer group, while 22% (55 students) experienced problems integrating with other groups of students. In addition, 20% (49 students) indicated that they found it difficult to keep pace with their classmates during online instruction.
Technical and software-related difficulties were also evident. Approximately 26% of students (66 participants) reported challenges in using unfamiliar online software tools selected for mathematics instruction. Furthermore, 39% (97 students) indicated that they required additional training before they could use these digital tools effectively. Internet connectivity represented another major concern, as 35% of participants (87 students) experienced poor video quality resulting from weak Internet signals, which negatively affected their learning experience.

Despite these challenges, 53 students reported that they did not encounter any of the difficulties mentioned above. This finding suggests that while a considerable proportion of students experienced technical, social, and instructional barriers during e-learning, others were able to adapt successfully to the online learning environment.

Some results did not match our estimates. We believed that no straight interaction with educators would be considered the main difficulty and, ultimately, the students' votes put it in tertiary position (Table. 1). For pupils, the main drawback of electronic learning would be a lack of communication with their colleagues. Overall, lack of direct interaction is considered the biggest issue in online learning. The fact that working long hours on the computer may be detrimental is the major drawback. Its demonstrates that pupils are committed to the protection of their strength and the atmosphere. Students admit the Internet and the computer as a means of learning, of getting information, of interacting with one another, but the students distinguish that there must be bounds to the use of information technology.

Students reported various positive aspects of e-learning in mathematics. According to the survey: 88% of students indicated that e-learning was beneficial because there were no time limitations on learning. And 45% of students stated that they had enough time to study independently. Also 39% of students considered e-learning effective because it did not require tuition fees at their school. And 18% of students found e-learning helpful because it provided easily visualized content. Also 15% of students appreciated the availability of multiple online resources to support their learning. Many students have taken advantage of the e-learning platform (Table. 2). The scores were consistent with our expectations. Stay away from home, family, friends, especially for city

students, but also avoid traffic jams, traveling were maybe vital when indicating the most important benefit of electrical learning and because of this, most students chose online learning. Then follows the opportunity of discovering all the resources in the same place that is much easier than searching in bookshops or borrowing resources from elders. This is a pleasing wonder that many acknowledged electronic learning as a benefit for public with reduced movement. Then there is easy access to data and the absence of fixed learning terms, which gives students a sense of liberty. The latter benefit can easily turn into a difficulty if an educator fails to manage a student via goals or mandatory reports to the educator [22].

As we can see, the e-learning exercise allowed learners to practise self-employment, combined learning, making them use their additional time, making students to be technological friendly, etc. This combined learning has therefore improved constructive learning. This should be encouraged and we should refrain from generalising the new system by saying that it has not gone beyond the conventional system using only one experiment. Therefore, the necessity of testing several successive treatments and a diversity of courses can be the future.

The pandemic takes us to an uncommon life, particularly on learning math at university. The results of this analysis are certainly not a reference for learning in normal situations. In addition, this investigates attentions on learning math where the application of e-learning offerings new tasks for teachers and students because of problems in elucidating online mathematical concepts [23; 24]. Next, it shows that teachers prefer to use widely available online learning platforms (Google Classroom), video conferencing (zoom) rather than using e-learning industrialized by college or universities. The result indicates the speakers are not gratified with the aspects and services of e-learning at the university. The researchers suggesting, there is an attending system that can be verified correctly and can be transferred in the procedure of Excel, and the presence of video conferencing aspects. That suggestion makes a lot of sense, because it does make sense when you learn [25; 26; 27].

The questionnaire for this study was designed to explore students' experiences, preferences, and challenges with e-learning in mathematics. Participants were asked about the types of digital learning tools they find most effective, including recorded lectures and video conferencing platforms. Questions also addressed their overall experience with remote learning, the methods that best motivate them, and the digital collaboration tools that allow them to complete tasks comfortably. Students were asked which approaches personally engage them in online learning and how they prefer to clarify doubts, whether through direct interaction with instructors, discussion forums, or other online resources. The survey further investigated students' attitudes toward e-learning as a modern learning approach, reasons for missing classes or online sessions, and satisfaction with the amount of time spent interacting with instructors. Additional questions focused on the technical challenges and ease of using distance learning technologies such as computers, tablets, video calls, and educational applications, as well as their ability to access the Internet for academic purposes. Finally, students were asked to reflect on their overall interest in courses and to identify any current academic difficulties or obstacles they face in the online learning environment.

Teachers highlighted that online instruction is fundamentally different from traditional classroom teaching. They emphasized the need for specialized training on the effective use of customized mathematical software, which can enhance the learning experience for students at both primary and higher education levels. In addition to training, teachers noted that reliable high-speed internet and high-resolution cameras are critical to ensure smooth online instruction and support bidirectional interaction between educators and students.

From the students' perspective, effective online teaching requires a measured pace that allows for proper comprehension of the material. They stressed the importance of educators being proficient in the use of customized mathematical programs and recommended more effective utilization of interactive tools, such as digital whiteboards and screen-sharing technologies, to facilitate engagement and understanding. Students also suggested that all learners should receive training on the use of online mathematical software to maximize the benefits of digital learning platforms.

Although e-learning was a necessary solution to maintain education during the COVID-19 pandemic and ensure student safety [15], it also presented several challenges for both teachers and learners. Students reported difficulties in understanding complex mathematical concepts through online platforms, citing the abstract nature of mathematics and the high level of logical reasoning required as barriers to effective comprehension. Technical and financial issues were also significant obstacles, including inconsistent internet access, high electricity and data costs, and lack of access to appropriate digital devices [28].

Furthermore, many students expressed that e-learning did not fully meet their educational needs, which led to decreased motivation and engagement. The absence of in-person interaction with peers and educators contributed to feelings of isolation and reduced collaborative learning opportunities. These factors collectively impacted students' learning capacity and experience, highlighting the importance of addressing technical, financial, motivational, and social barriers to improve the effectiveness of online mathematics education.

Discussion and Implications

The findings of this study indicate that students generally held positive attitudes toward online education, although several challenges were also identified. The study highlights the potential of e-learning as an effective instructional approach that can be incorporated more extensively into academic environments. Given the flexible nature of online learning, understanding students' experiences, perceptions, and attitudes toward digital platforms is essential for improving the design and delivery of online education.

Student feedback can also provide valuable guidance for the development of online learning materials and future instructional strategies. In particular, the results may support the adoption of blended learning models that integrate face-to-face instruction with online learning components. Nevertheless, further research is needed to examine the challenges associated with e-learning from both students' and teachers' perspectives and to identify effective and sustainable approaches to mathematics instruction, particularly at the secondary-school level.

The survey findings revealed several perceived advantages of online learning in mathematics education. Students reported that e-learning enabled them to learn at their own pace and provided a more flexible and comfortable learning environment. Faculty-led video conferencing sessions were viewed positively because they allowed instructors to explain relevant topics and support students' understanding of mathematical concepts. Online courses were also considered beneficial because they provided convenient access to educational resources, including presentation slides, recorded materials, and other digital content.

Another reported advantage was the reduction of common classroom distractions, which may contribute to improved concentration and greater learning efficiency. Students also valued the opportunity to ask questions and seek clarification during online sessions, as this helped enhance their understanding and encouraged active participation in the learning process.

To improve the effectiveness and accessibility of online education, educational institutions and policymakers should address both technological and instructional requirements. All students should have adequate access to computers and reliable Internet connectivity to ensure equal opportunities for participation. Educational authorities should also establish well-organized virtual learning platforms through which students can access course materials and instructional resources before and after online sessions.

In addition, reliable digital infrastructure is necessary to minimize connectivity problems and interruptions during virtual classes. Teachers should receive appropriate training and pedagogical support to enable them to use online tools effectively, while parents may also require guidance on how to encourage students' participation and motivation, particularly at the school level. Addressing these technological, pedagogical, and organizational factors can contribute to the development of a more accessible, inclusive, and effective online learning environment.

Overall, the findings suggest that e-learning has considerable potential to support mathematics education when it is accompanied by appropriate technological resources, effective instructional practices, and sufficient opportunities for interaction. Rather than functioning solely as an emergency alternative to conventional instruction, online learning may serve as an important component of future blended and technology-enhanced educational models.

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Formation of Thinking and Scientific Language in the Primary Classes

Dr. Yasir Z. Abo Rass
E- mail: abo.rass@gmail.com
Sakhnin Academic College
Dr .Saleh Y. Abo Romi
E- mail: salihaboromi@gmail.com
Elzahraa Elementary School - Tamra

Abstract.

Purpose: This study examines the preferences of elementary school students in using inductive considerations when given arithmetic claims, and when they review inductive reasoning as a mathematical proof to an arithmetic claim, as well as teachers' attitudes toward types of reasoning.

Methodology: A survey in which participated 267 pupils from the Arabic sector in three different elementary schools in Israel, in grades 4 to 6. The survey, based on the math reasoning tasks by Healy and Hoils (1998), is comprised of Algebra and Geometry reasoning tasks. Alongside the task, a semi-constructed interview was administered to 12 math teachers in these schools.

Results: The study findings support the research hypotheses that (a) There will be a difference in the students' preferences towards the types of thinking, between grades 4 and 6; (b) Sixth graders will be less likely to accept tautologic and inductive reasoning than fourth graders; (c) Elementary school pupils tend to prefer empirical arguments (such as inductive and example) as their approach rather than the arguments that they believe will receive the highest scores from their teachers. However, findings do not support the hypothesis that there will be a difference in teachers' preferences towards different types of thinking. The research findings and their practical implications are discussed together with recommendations for teachers and educators in the field of mathematics and teacher training.

Introduction

While studying mathematics at school, pupils are often required to formulate and test assumptions, to explain and justify conclusions and to prove general theorem or claims. The proof is the mathematical tool through which, by argumentation, the correctness of a mathematical claim is established and given universal validation, or the opposite confirming that the claim is false thus refuting it (Hanna, 1989).

An argumentation, the building block of the proof, is a daily act that is naturally faced in everyday life. For example, we know how to explain why we chose to learn a certain subject, why to close the door when going out, and why we buy at a certain shop and so on. A claim is a series of hypothesis (namely, information from which we can make conclusions), along with a conclusion that we can make in one or more deduction procedures. An argumentation comes in order to persuade ourselves and others about the correctness of a hypothesis.

An argument consists of a claim and a conclusion. A claim is a statement that the addresser asks the recipient to accept as a truth or a modus operandi, and the addresser must prove it (Toulmin, 1969). Claims refer to the discursive methods of science and include the expression and justification of the claims, observation in opposite attitudes and evidences, and the social negotiation about data and theories (Sadler & Fowler, 2006). The text of the claim is bound to lead to a conclusion, and therefore presents assumptions that lead to it (Antaki, 1994, p. 140). This text differs from the expository text, because it presents facts and ideas - interprets historical events and explains social phenomena (Makar, Bakker & Ben-Zvi, 2015).

The argument structure represents a variety of ways (Makar, Bakker & Ben-Zvi, 2015). According to the logical structure of the thinking processes, the argument helps the claimant to present his words logically: to express his opinion, to prove it, and sometimes even to end it with a solution proposal. Moreover, a high level of argument expresses a high level of literacy (Glassner & Schwartz, 2001). Students in the elementary schools apply external justification methods, empiric techniques of justification and an analytic justification technique (Flores, 2002).

A few definitions

At this point a few definitions are required:

A Claim is an assertion with arguable justification, correctness, verity or validation. A claim might be determining attitude, opinion, certain decision, assumption, conclusion, command, theory or certain solution for a problem (Neuman, Glassner & Weinstock, 2004).

Reasoning is an assertion brought to support and establish a claim. For example, **A reasoning of the kind "evidence"** answers the question: "how do I know that the claim is true?" whereas **a reasoning of the kind "explanation"** answers the question: "what are the factors, justification or reasons for the claim?" (Glassner & Schwartz, 2001).

Simple argumentation is an assertion composed from a claim and the reasoning that supports it (Toulmin, 1969).

Wide argumentation is an argumentation that contains two discrete argumentations or more contradicting one another (Toulmin, 1969).

Reserved or conditioned argumentation is an argumentation that its claim is reserved or conditioned (for example, "this theory is correct only if condition A is met") (Toulmin, 1969).

Developing critical thinking

One of the elementary school's curriculum goals is to foster critical thinking skills in students. Critical thinking is a balanced reflective thinking focused on the decision what to believe and how to operate. The argumentation is usually involved with identifying relevant conclusions and hypothesis of a given problem. Moreover, very often it involves identifying conflicts and consequently, the need observe advantages and disadvantages of certain conclusions (Flores, 2002).

Developing critical thinking skills is a condition for consuming information and significant processing of it that enables implementing the knowledge. Argumentation skills are part of the critical thinking skills set and constitute preliminary and essential background for activating a process of decision making. Young students can develop mathematical claims of high potential to be called proofs in elementary grades (Stylianides, 2007b). Each time they are asked to reason, explain, validate, claims and make conclusions, we are fostering and optimizing their thinking abilities. Unfortunately, many times, students' replies to these questions are poor due to a variety of reasons. Some of which originate from the development process of verbal and lingual skills and others stem from cognitive and intellectual development processes that are age dependent.

Nevertheless, the more we empower this essential skill among students, the better we provide them with tools for coping with innovative information and for understanding new data technology which are abundant in our society. The involvement and experience in proving methods can also empower elementary students to probe mathematical assumptions, thus providing them with a strong base for conceptual understanding (Stylianides & Ball, 2008).

Furthermore, the argumentation activities require both criticism and independence, thus learning while applying different skills leads to significant learning. Argumentation activities engage the learner, channel the teacher's desires with the learner's desire (and vice versa), expose the goals of learning and enable them to be understood.

In my opinion as a teacher for several years in elementary schools in Israel, resources need to be invested in developing teacher's ability and a systematic ongoing approach for teaching that uses proofs in the elementary school. I think that this approach must include support for pupils in order to examine the available declaration definitions, and try to prove and refute assumptions in the classroom by using legal and appropriate claim means and representation of claims in a correct way in accordance with their knowledge level in the elementary school. Furthermore, teachers' educators must encourage them to focus on different characteristics of thinking ways that encourage pupils to evaluate and use correct and proper terms, in order to train their pupils for the examination (to prove/refute) of a certain claim correctly.

In addition, it is very important to inform teachers of pupils' inductive tendency and their reliance on examples when asked to prove or give reasoning to a claim. According to this, it is very important for teachers to develop more generic as well as visual examples that will suit the thinking and cognition capacities of pupils in elementary school. These teaching methods will serve as the basis in more advanced grades later on for deductive proofs, and for relations between different proofs that were provided for the same assumption.

In my opinion, seminars and collages for teachers' training, as well as new teachers' educators must be aware of the challenges facing teachers in the subject of mathematical proofs. They need to assume the main role in assisting teachers to develop an ability to evaluate different kinds of thinking among pupils in order to develop appropriate tools to learn this important subject already in the elementary school. An emphasis must be put as well, on pupils' false perceptions concerning this subject and how to fix these false perceptions.

Conclusion

The importance of this study is in examining the inductive tendency of elementary school pupils in the Arab sector in Israel, in an effort to shed light on the developmental process of argumentation and reasoning in

these ages. This research differs from prior researches in two aspects: the first is the student's population age. This paper will include elementary school pupils in grades 4-6, whereas most researches in Israel included only high-school students. Second, it will examine students in the Arab sector exclusively, which were not included in prior researches. It is expected that this research's findings will contribute to teachers' training as well as the formulation of teaching methods and materials, in light of new information regarding the thought process of proof and reasoning.

Summary

Introduction. Mathematical studies as early as elementary school require students to validate assumptions, general theorem or claims, by means of proving or refuting them through a series of arguments. While these tasks demand a high level of literacy, argumentation and logic, elementary school students most frequently use deductive and empirical reasoning when asked to prove or refute a claim. This gap between potential and practice originates from age dependent development process of verbal and lingual skills as well as cognitive and intellectual development processes.

Rational. The purpose of this study is to examine the inductive tendency of elementary school pupils in the Arab sector in Israel, in an effort to shed light on the developmental process of argumentation and reasoning in these ages. According to the research literature in the field, the study's hypotheses are that there will be a difference between the preferences of fourth and sixth graders when they are required to explain mathematical arguments, so that the younger students are based on empirical arguments and examples. We also hypothesized that there would be a fundamental difference in the arguments they provided and the consistency of their thinking.

This research adds to prior studies by including elementary school pupils in grades 4-6, while most prior studies in Israel included only high-school students. In addition, this study examines only students in the Arabic sector, which were not included in prior researches. In order to provide a comprehensive account on the issue, the study also included a qualitative analysis of teachers' attitudes and perceptions about the abilities and preferences of elementary school students when they are required to prove mathematical and geometric claims. This study's findings contribute to teacher-training as well as the formulation of teaching methods and materials.

Methodology. This research is comprised of two studies conducted in three different elementary schools in the Arabic sector in Israel. The first is a quantitative study, based on the math reasoning tasks by Healy and Hoils (1998), in which 267 in grades 4 to 6 participated. The pupils were asked to perform algebra and geometry reasoning tasks of explaining and proving mathematical claims. The second study was qualitative study, based on a semi-constructed interview which was administered to 12 math teachers of the participants of the first study.

The analysis of the quantitative data in Study 1 was carried out using the Kai-square test, while the information collected through the semi-structured interviews in Study 2 was analyzed using qualitative methods of textual analysis. Study 3 contains further statistical analysis designed to test the validity of a scheme that describes the evolution of thinking.

Results. The study findings support the research hypotheses that (a) There will be a difference in the students' preferences towards the types of thinking, between grades 4, 5 and 6; (b) Sixth graders will be less likely to accept tautologic and inductive reasoning than fourth graders; (c) Elementary school pupils tended to prefer empirical arguments (such as inductive and example) as their approach rather than the arguments that they believe will receive the highest scores from their teachers. However, findings do not support the hypothesis that there will be a difference in teachers' preferences towards different types of thinking.

The qualitative findings suggest that teachers are aware of their student's difficulties in performing mathematical reasoning tasks. The research findings and their practical implications are discussed together with recommendations for teachers and educators in the field of mathematics and teacher training. In order to improve the teaching of mathematical critical thinking and logic, it is necessary to adapt the teaching methods in elementary school curriculum and in the training of teachers so that they become aware of the developmental, cognitive and linguistic process that underlies the development of the skills to prove and refute claims.

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Security indeces of some contemporary poles

Pavel Stoynov
Perun R&D Academy, Sofia, Bulgaria
Faculty of Social sciences, Department of History
pavel_todorov_stoynov@yahoo.com

Abstract.
New realities take place at the beginning of XXI century in the international relations. The world changes to multipolar and new relations appear between the old and the new powers – global or regional.
The article is continuation of the work done by Stoynov (2022) and presents contemporary poles and some their characteristics based on indeces.
Keywords: multipolarity, poles, international relations, geopolitics, geoeconomics.

Introduction

At the beginning of XXI century the world is transformed to multipolar and new relations appear between the old and the newly formed centers of power which we call in this article "poles".
In Stoynov (2022), the definition and the types of the poles were presented.
In this article which is a continuation of Stoynov (2022), we define Economic Security Index (ESI) and Political Security Index (PSI) and calculate them for the poles.

Security indeces

An Economic Security Index (ESI) is defined as a combination of the following indicators: GDP, GDP PPP, GDP growth, population, territory, degree of openness and debts.
The main index of economic security is calculated according to the formula:

$$I_{ESI} = \frac{P_R + P_N}{2*10^{12}}(1+g) + \frac{N}{10^8} + \frac{A}{10^6} - \frac{(E+I)}{10^{12}} - \frac{D}{10^{12}},$$

where P_R is the real GDP (PPP), P_N is the nominal GDP, g is the growth of the economy in percents, N is the population, A is the territory, in square kilometers, E is the export, measured in currency, I is the import, also in currency units, D is the total debt, measured in currency, such as the dollar.

The sub-indices here are: production and growth index $I_P = \frac{P_R + P_N}{2*10^{12}}(1+g),$ population index $I_N = \frac{N}{10^8},$ territory and resource index $I_A = \frac{A}{10^6},$ degree of openness of the economy defined as $O = \frac{(E+I)}{10^{12}},$ the degree of indebtedness of the economy $I_D = \frac{D}{10^{12}}.$

The production and growth index is an indicator of the economic strength and competitiveness of a country. A country is more protected from economic risks, the larger its economy. This index includes growth as the main economic value.
The population index is related to the provision of the economy with labor resources. It can be supplemented with a study of the age structure of the population, the share of the labor force and employment.
The territory index is related to the provision of the economy with natural resources. Its study can be supplemented by a study of the geographical position, the access to the seas, the size of the territorial waters and the exclusive economic zones in the adjacent seas and oceans, the natural resources on the territory and the density of the population living on this territory.
The Economic Openness Index is a measure of how dependent a national economy is on the economies of other countries for its functioning. The presumption is that during serious international crises and confrontation, a country's dependence on imported goods and services and on markets for the realization of its own production abroad can create serious difficulties for the economic system in the event of a disruption in supply and distribution chains.

It is this vulnerability of economies that is exploited in the imposition of economic sanctions and other forms of economic confrontation. By stopping or limiting the inflows and outflows of goods and services to a country, the enemy disrupts the economy and weakens the country's economic potential.

Therefore, the openness of the economy is considered a weakness of the economy during wars and conflicts and is taken with a minus sign when determining the economic security index.

The indebtedness index is also taken with a minus sign because it presents debts as a potential weakness for the economy.

The first three summands in the formula for the index of economic security form the index of domestic economic strength:

$$I_{EPI} = \frac{P_R + P_N}{2*10^{12}}(1+g) + \frac{N}{10^8} + \frac{A}{10^6}.$$

It follows that the index of economic strength is equal to the index of economic security, adjusted so as not to take into account the degree of openness and the degree of indebtedness.

The measurement of the relevant indicators is usually done by the national statistical institutes of the respective countries or by various international organizations.

The Political Security Index (PSI) of the country is based on the indicators: number of armed forces, production of the military-industrial complex, population, territory, import of armaments.

The main index of political security is calculated according to the formula:

$$I_{PSI} = \frac{P_R + P_N}{2*10^{12}}(1+g) + \frac{N}{10^8} + \frac{A}{10^6} + \\ + \frac{M}{10^6} + \frac{H}{10^3} + \frac{1}{2}\left(\frac{S_1}{10^6} + \frac{S_2}{10^2}\right) + \frac{C}{10^3},$$

where M is the number of armed forces, including regular army, reserves and paramilitary units, H is the number of nuclear warheads, S_1 is the total tonnage of warships, S_2 is the total number of warships, C is the total number of military aircraft in the military of the respective. The subindex

$$I_{PMPI} = \frac{M}{10^6} + \frac{H}{10^3} + \frac{1}{2}\left(\frac{S_1}{10^6} + \frac{S_2}{10^2}\right) + \frac{C}{10^3}$$

here is called the index of military-political power and is denoted by I_{PMPI}.

Several sub-indices are included within the military-political power index as follows: military staff index $I_M = \frac{M}{10^6}$, nuclear forces index $I_H = \frac{H}{10^3}$, navy index $I_S = \frac{1}{2}\left(\frac{S_1}{10^6} + \frac{S_2}{10^2}\right)$ and air force index $I_C = \frac{C}{10^3}$.

Security indeces of China

As an example, we can define the two main indices for China.

The product and growth index for 2021 is

$$I_P = \frac{P_R + P_N}{2*10^{12}}(1+g) = \frac{15801910980000 + 27312548290000}{1000000000000}1.081 = \\ = \frac{43{,}1}{2} * 1{,}081 \approx 23{,}455 \approx 23{,}5.$$

The population index for 2021 is

$$I_N = \frac{N}{10^8} = \frac{1425887337}{100000000} = 14{,}2588 \approx 14{,}3.$$

The territory and resources index is:

$$I_A = \frac{A}{10^6} = 9{,}5907 \approx 9{,}6.$$

The degree of openness of Chinese economy for 2020 is

$$O = \frac{(E+I)}{10^{12}} = \frac{265000000000 + 1550000000000}{1000000000000} = 4{,}2,$$

The indebtedness of China for 2020 is

$$I_D = \frac{D}{10^{12}} = \frac{2750000000000}{1000000000000} = 2{,}75.$$

So, for the index of economic security (ESI) of China for 2020-2021 we have the estimate

$$I_{ESI} = \frac{P_R + P_N}{2*10^{12}}(1+g) + \frac{N}{10^8} + \frac{A}{10^6} - \frac{(E+I)}{10^{12}} - \frac{D}{10^{12}} =$$
$$= 23{,}5 + 14{,}3 + 9{,}6 - 4{,}2 - 2{,}75 = 47{,}4 - 6{,}95 = 40{,}45.$$

The index of political security is

$$I_{PSI} = \frac{P_R + P_N}{2*10^{12}}(1+g) + \frac{M}{10^6} + \frac{N}{10^8} + \frac{A}{10^6} +$$
$$+ \frac{H}{10^3} + \frac{1}{2}\left(\frac{S_1}{10^6} + \frac{S_2}{10^2}\right) + \frac{C}{10^3} =$$
$$= 23{,}5 + 14{,}3 + 9{,}6 + \frac{2500000}{1000000} + 0{,}35 +$$
$$+ \frac{1}{2}\left(\frac{708886}{1000000} + \frac{777}{100}\right) + \frac{1991}{1000} =$$
$$= 47{,}4 + 2{,}5 + 0{,}35 + 4{,}3 + 2 \approx 56{,}6.$$

Security indeces of USA

As a next example we define the security indeces for USA.

The index of productivity and growth for 2021 is

$$I_P = \frac{P_R + P_N}{2*10^{12}}(1+g) =$$
$$= \frac{23000000000000 + 22996100000000}{1000000000000}1.057 =$$
$$= \frac{46}{2} * 1{,}057 \approx 23{,}455 \approx 24{,}3.$$

The population idex of USA for 2021 is

$$I_N = \frac{N}{10^8} = \frac{338289857}{100000000} = 3{,}3828 \approx 3{,}4.$$

The index of territory and resources of USA is:

$$I_A = \frac{A}{10^6} = 9{,}8266 \approx 9{,}8.$$

The degree of openness of the economy of USA for 2021 is

$$O = \frac{(E+I)}{10^{12}} = \frac{207700000000 + 2834000000000}{1000000000000} \approx 4{,}9,$$

The external indebtedness of USA for 2021 is

$$I_D = \frac{D}{10^{12}} = \frac{23930437000000}{1000000000000} \approx 23{,}9.$$

So, for the index of economic security (ESI) of USA for 2020-2021 we have the estimate

$$I_{ESI} = \frac{P_R + P_N}{2*10^{12}}(1+g) + \frac{N}{10^8} + \frac{A}{10^6} - \frac{(E+I)}{10^{12}} - \frac{D}{10^{12}} =$$
$$= 24{,}3 + 3{,}4 + 9{,}8 - 4{,}9 - 23{,}9 = 37{,}5 - 28{,}8 = 8{,}7.$$

At first sight this index is somehow supprising about the USA, the world economy leader. The main reason for its small value is the huge debt of USA. Officially, the external debt of USA is over 31 trillion dollars in October 2022. The main objection of the experts against this so small value is that USA never could be forced to return their debts. As they are the hegemon, they can annulate its debt at any time and there is no power which could enforce them not to do this. But as the USA is the only country which could behave in this way at the international scene, in order to apply unified approach to all countries, we take the indebtness into account.

The index of the political security of USA is

$$I_{PSI} = \frac{P_R + P_N}{2*10^{12}}(1+g) + \frac{M}{10^6} + \frac{N}{10^8} + \frac{A}{10^6} +$$
$$+ \frac{H}{10^3} + \frac{1}{2}\left(\frac{S_1}{10^6} + \frac{S_2}{10^2}\right) + \frac{C}{10^3} =$$
$$= 24{,}3 + 3{,}4 + 9{,}8 + \frac{1400000}{1000000} + 5{,}6 +$$
$$+ \frac{1}{2}\left(\frac{3415893}{10^6} + \frac{490}{10^2}\right) + \frac{5217}{10^3} = 53{,}9.$$

Security indeces of Russia

As a next example, we consider the ideces for Russia.

The productivity and growth index for 2021 is

$$I_P = \frac{P_R + P_N}{2*10^{12}}(1+g) =$$
$$= \frac{1480000000000 + 41336084000000}{2*1000000000000}1.047 =$$
$$= \frac{5{,}61}{2}*1{,}047 \approx 2{,}924 \approx 2{,}9.$$

The population indexfor 2021 is

$$I_N = \frac{N}{10^8} = \frac{144000000}{100000000} = 1{,}44 \approx 1{,}5.$$

The index of territory and resources is:

$$I_A = \frac{A}{10^6} = 17{,}098 \approx 17{,}1.$$

The degree of openness o economy of Russia for 2021 is

$$O = \frac{(E+I)}{10^{12}} = \frac{547741272400 + 247161000000}{1000000000000} \approx 7{,}9,$$

The external indebtness of Russia for 2021 is

$$I_D = \frac{D}{10^{12}} = \frac{410280000000}{1000000000000} \approx 0{,}41.$$

So, for the inex of economic security (ESI) of Russia for 2020-2021 we have the estimate

$$I_{ESI} = \frac{P_R + P_N}{2*10^{12}}(1+g) + \frac{N}{10^8} + \frac{A}{10^6} - \frac{(E+I)}{10^{12}} - \frac{D}{10^{12}} =$$
$$= 2{,}9 + 1{,}5 + 17{,}1 - 7{,}9 - 0{,}41 = 37{,}5 - 28{,}8 = 13{,}19.$$

The index of political security (PSI) of Russia is

$$I_{PSI} = \frac{P_R + P_N}{2*10^{12}}(1+g) + \frac{M}{10^6} + \frac{N}{10^8} + \frac{A}{10^6} +$$
$$+ \frac{H}{10^3} + \frac{1}{2}\left(\frac{S_1}{10^6} + \frac{S_2}{10^2}\right) + \frac{C}{10^3} =$$
$$= 2{,}9 + 1{,}5 + 17{,}1 + \frac{1014000}{1000000} + 6{,}3 +$$
$$+ \frac{1}{2}\left(\frac{845739}{10^6} + \frac{603}{10^2}\right) + 3{,}9 =$$
$$= 21{,}5 + 1 + 6{,}3 + 0{,}7 + 3{,}9 = 33{,}4.$$

Security indeces of India

As a next example we consider the two indeces – ESI and PSI - for The index of productivity and growth for 2021 is

$$I_P = \frac{P_R + P_N}{2*10^{12}}(1+g) =$$
$$= \frac{1022000000000 + 3170000000000}{2*1000000000000} 1{,}089 =$$
$$= \frac{13{,}39}{2} * 1{,}089 \approx 7{,}290855 \approx 7{,}3.$$

The population index of India for 2021is

$$I_N = \frac{N}{10^8} \approx \frac{1380000000}{100000000} \approx 13{,}8.$$

The index of territory and resources is

$$I_A = \frac{A}{10^6} = 3{,}287263 \approx 3{,}3.$$

The degree of openness of the Indian economy for 2021 is

$$O = \frac{(E+I)}{10^{12}} = \frac{335440000000 + 495830000000}{1000000000000} \approx 0{,}8,$$

The external indebtness of India for 2021 is

$$I_D = \frac{D}{10^{12}} = \frac{620700000000}{1000000000000} \approx 0{,}62.$$

So, for the index of economic security of India for 2020-2021 we obtain the estimate

$$I_{ESI} = \frac{P_R + P_N}{2*10^{12}}(1+g) + \frac{N}{10^8} + \frac{A}{10^6} - \frac{(E+I)}{10^{12}} - \frac{D}{10^{12}} =$$
$$= 7{,}3 + 13{,}8 + 3{,}3 - 0{,}8 - 0{,}62 = 24{,}4 - 1{,}42 = 22{,}98.$$

The index of political security (PSI) is

$$I_{PSI} = \frac{P_R + P_N}{2*10^{12}}(1+g) + \frac{M}{10^6} + \frac{N}{10^8} + \frac{A}{10^6} +$$
$$+ \frac{H}{10^3} + \frac{1}{2}\left(\frac{S_1}{10^6} + \frac{S_2}{10^2}\right) + \frac{C}{10^3} =$$
$$= 7{,}3 + 13{,}8 + 3{,}3 + \frac{1455550}{1000000} + \frac{156}{1000} +$$
$$+ \frac{1}{2}\left(\frac{317725}{10^6} + \frac{285}{10^2}\right) + \frac{1715}{1000} =$$
$$= 24{,}4 + 1{,}46 + 0{,}15 + 1{,}61 + 1{,}7 = 29{,}32.$$

Comparing security indeces of the main poles in 2021-2022

The comparison between the indexes of economic security (ESI) and political security (PSI) of the main poles are presented in Table 1.

Table 1. Comparing security indeces of the main poles in 2021-2022

Pole	ESI	PSI
China	40,45	56,6
USA	8,7	53,9
Russia	13,19	33,4
India	22,98	29,32

As expected, the absolute poles in real economic terms – China and India – considerably outperform the strong poles USA and Russia, but still China is about twise stronger economically than India.

As of political strength, there is still parity between the absolute pole China and the strong pole USA. This discrepancy could involve turbulency in international relations in case USA decides not to give up its political leadership to China. Also, the strong pole in real terms Russia still is politically stronger than the absolute pole India and still has potential to resits to pressure for the other strong pole, USA, which could lead to turbulency in international relations in case Russia decides not to give up its leadership in Europe to USA.

Conclusion

The indeces considered here are firstly introduced in Stoynov(). These indeces enabele:

1. To obtain a security snapshot for a country.
2. To dynamically track security changes for certain periods.
3. To make an analytical-structural quantitative analysis of the economic and military-political risks at the state and international level.
4. To quantitatively analyze the strategies and results of actions during crises and conflicts in the economic and military-political spheres at the state and interstate level.

References

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