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Организация различных форм работы учащихся на уроках физической культуры

Тлеулов Ербол Эрнстович
магистр педагогики, учитель физической культуры НИШ ФМН г. Шымкент

Физическая культура и спорт играют важную роль в жизни человека, и уроки физической культуры в школе предоставляют отличную возможность в формировании здорового образа жизни, в укреплении здоровья и развитию двигательных навыков у школьников. Они не только способствуют развитию физических качеств, но и учат дисциплине, сотрудничеству и командной работе. Для максимальной эффективности уроков физической культуры необходимо организовывать различные формы работы учащихся, чтобы обеспечить разнообразие и интерес к занятиям.

Организация различных форм работы учащихся на уроках физической культуры является одной из важнейших задач учителя. Парная, групповая и индивидуальная формы работы предоставляют учащимся различные возможности для освоения материала, развития коммуникативных и когнитивных навыков, а также позволяют индивидуализировать обучение.

Групповая форма работы организуется на уроке для активизации учебно-познавательной деятельности обучающихся в ходе выполнения учебной задачи. В зависимости от целей обучения учащиеся объединяются в группы (4-6 человек) на основе дифференцированного подхода. В процессе учебной коммуникации в группах расширяются познавательные границы каждого из учащихся и создается положительная эмоциональная среда.

При изучении нового материала целесообразно строить групповую работу на основе кумулятивной беседы (методы «Джигсо», «Карусель» и др.). Для углубления понимания учебного материала обсуждение в группе строится на основе исследовательской беседы и методов критического мышления. На стадии закрепления и обобщения учебного материала возможно использовать дискуссии, дебаты, ролевые игры, рефлексию и др. Наряду с уроком, углубленное изучение раздела/темы предмета реализуется во внеклассной работе через проектную деятельность в группах.

Групповая форма работы требует тщательной предварительной подготовки. Необходимо продумать:
- инструкцию совместного выполнения задания и распределение ролей;
- формат конечного результата работы (например, постер, презентация и др.) и сценарий демонстрации;
- сценарий по включению учащихся класса в обсуждение на основе выработанных критериев к заданию (самооценивание, взаимооценивание);
- время выполнения задания;
- формат подведение итогов (рефлексия).

Групповые упражнения способствуют развитию сотрудничества и командной работы. Ученики могут выполнять различные упражнения и игры в командах, что помогает им развивать навыки коммуникации, взаимопонимания и взаимодействия. Примерами групповых упражнений могут быть игры в футбол, волейбол, баскетбол, эстафеты и другие виды спорта.

Парная форма работы обеспечивает высокую включенность учащихся в процесс взаимообучения, направлена на развитие речевой деятельности, навыков активного слушания и формирование межличностных отношений в ходе выполнения учебной задачи. В процессе обучения могут быть организованы динамические пары и пары сменного состава, где каждый ученик работает по очереди с другим в роли обучаемого или обучающего.

На всех этапах урока целесообразно строить парную работу на основе исследовательской беседы и методов критического мышления для углубления понимания учебного материала.

При организации парной формы работы рекомендуется:

- продумать инструкцию по выполнению задания;
- установить четкий лимит времени на выполнение задания;
- продумать сигнал перед тем, как начать и завершить парную работу, например, можно использовать колокольчик, таймер со звуком или визуальный тайм-аут руками;
- убедиться, что инструкция доступна и понятна учащимся. Например, попросить повторить инструкцию учащимся, чтобы убедиться в понимании или продемонстрировать с волонтером-учеником, что должны выполнять учащиеся в паре;
- расположить пары в учебном пространстве для их комфортного диалога на фоне рабочего шума процесса обучения;
- перемещаться учителю по классу и своевременно оказывать скаффолдинг.
- подводить итог парной работе (рефлексия).

Парная форма работы могут включать в себя упражнения, требующие сотрудничества двух учеников. Например, партнеры могут выполнять упражнения на растяжку, поддерживать друг друга во время балансирования или помогать при подтягиваниях. Эти занятия помогают развивать доверие, ответственность и взаимную поддержку.

Индивидуальная форма работы основана на дифференцированном подходе и способствует выстраиванию индивидуальной учебной траектории развития обучающегося. Наряду с групповой и парной формами работ индивидуальная учебная деятельность обучающихся акцентируется на развитии внутренней учебной мотивации. Индивидуальную форму работы целесообразно сочетать с активно-адаптивными методом на основе обучающих платформ.

Индивидуальную форму работы целесообразно строить на этапах углубления учебного материала и формирования мыслительных навыков высокого порядка с учетом индивидуальных и учебно-познавательных особенностей обучающегося.

При организации индивидуальной формы работы рекомендуется:

- учитывать психолого-педагогические особенности развития познавательной деятельности каждого учащегося;
- использовать активно-адаптивные метод обучения;
- установить четкий лимит времени на выполнение задания;
- убедиться, что инструкция доступна и понятна учащимся, для этого попросить повторить инструкцию учащихся, чтобы убедиться в понимании;
- перемещаться учителю по классу и своевременно оказывать скаффолдинг;
- подводить итог парной работе (рефлексия).

Индивидуальные упражнения предоставляют учащимся возможность работать над своими физическими навыками в одиночку. Это может включать в себя забеги, прыжки, упражнения на брусьях, отжимания и многое другое. Индивидуальные задания позволяют каждому ученику работать над своими индивидуальными целями и прогрессировать в своем физическом развитии.

Одним из самых эффективных способов организации уроков физической культуры является использование игр. Игры и соревнования делают уроки физкультуры увлекательными и стимулируют учащихся к активному участию. Они могут быть командными или индивидуальными и способствуют развитию координации, силы, выносливости и тактического мышления. Важно выбирать игры и соревнования, которые подходят к возрасту и уровню физической подготовки учеников. Например, футбол, волейбол, баскетбол и другие командные виды спорта позволяют детям разнообразить уроки и развивать социальные навыки. Соревнования могут включать в себя бег, прыжки, метания, а также игры, такие как флорбол, фрисби и многие другие.

Небольшие физические упражнения, проводимые во время перерывов между уроками, могут значительно улучшить концентрацию и активизировать детей. Физкультминутки могут быть организованы в виде коротких забавных игр или упражнений, которые помогут размять мышцы и оживить детей.

Проведение комплексных тренировок на уроках физкультуры способствует развитию всех групп мышц и улучшению общей физической формы учащихся. Это может включать в себя разнообразные упражнения на силу, гибкость и выносливость.

Если позволяет погода, уроки физкультуры можно проводить на улице. Это создает учащимся возможность наслаждаться свежим воздухом, что положительно влияет на их здоровье и настроение. Для разнообразия уроков можно применять спортивное оборудование, такое как гимнастические кольца, скакалки, мячи и даже турники. Это поможет детям ощутить разнообразие видов физической активности и выбрать наиболее интересные для них.

С использованием современных технологий можно организовывать интерактивные уроки физической культуры. Мобильные приложения и игры могут стать полезным инструментом для мониторинга физической активности и мотивации учащихся.

Формативное оценивание проводится непрерывно, является текущим показателем успеваемости учащихся, обеспечивает оперативную взаимосвязь между учителем и учащимся, позволяет своевременно корректировать и совершенствовать учебный процесс на основе обратной связи.

Любое задание, которое выполняется на уроке и в качестве домашней работы, может быть использовано для формативного оценивания. По итогам оценивания учитель предоставляет комментарии (*обратная связь*) на работы и ответы учащихся в письменной форме (*в тетрадях, бумажных/электронных дневниках, листах ответов и др.*) или устно. Такая информация должна демонстрировать, на каком этапе обучения находятся учащиеся, куда стремятся и как им достичь поставленной цели.

Учитель самостоятельно определяет форму, содержание и частоту предоставления обратной связи с учетом потребностей учащихся, виды и формы учебной деятельности. Также важно формировать у учащихся навыки само- и взаимооценивания, используя дескрипторы.

В результате формативного оценивания, используя полученную информацию для принятия решений по улучшению преподавания и обучения, учитель корректирует процесс обучения, устраняет возможные пробелы знаний учащихся.

По предмету «Физическая культура» процесс формативного оценивания осуществляется через выполнение упражнений, различных заданий практического характера согласно теме раздела, предусмотренного учебной программой. Для оценивания разрабатываются критерии, задания и дескрипторы.

Организация различных форм работы на уроках физической культуры играет важную роль в формировании физической активности и здорового образа жизни среди учащихся. Вариативность в подходах позволяет учиться не только эффективно, но и с удовольствием, что способствует формированию положительного отношения к физической активности на долгосрочной основе.

ISSUES RELATED TO WOMEN'S EDUCATION IN GEORGIA IN THE XIX CENTURY

Tinatin Kapanadze
PhD (Doctoral) Student, Batumi Shota Rustaveli State University, Batumi, Georgia

Abstract In the sixties of the XIX century, one of the main subjects of the scientific work of the great Georgian thinkers who appeared in the public arena was the thorough study of pedagogical views and issues related to women's education at that time. Giorgi Tavzishvili was one of the first researchers who, during the monographic study of this issue, paid special attention to the current state of women's education in Georgia at that time. In addition to the thoughts of famous public figures, in his monograph he also collected many examples from the pedagogical thoughts of lesser-known people to our society, how they actively arose to raise the level of women's education and to cancel the existing discriminatory conditions in this regard.

Key Words: Georgia, Women, Pedagogics, History

In the sixties of the XIX century, one of the main subjects of the scientific work of the great Georgian thinkers who appeared in the public arena was the thorough study of pedagogical views and issues related to women's education at that time. Among them, whose merits in the deep and thorough study of the mentioned issues are highly emphasized, we must name Giorgi Tavzishvili, an outstanding researcher of Georgian pedagogical science.

Giorgi Tavzishvili's fundamental and systematized history of Georgian pedagogical thought, together with many other circumstances, determines the importance of the fact that he understood and evaluated the pedagogical views of great Georgian teachers and figures not only in the historical context but also in relation to the actual problems of education of his time.

First, it is from this point of view that he analyzed the creative heritage of such representatives of the great generation of the Georgian "Sixties", such as Ilia Chavchavadze, Akaki Tsereteli, Jacob Gogebashvili, Niko Nikoladze, Giorgi Tsereteli, and others.

Giorgi Tavzishvili, as a historian of Georgian pedagogic thought, has a very important merit in that, along with studying the pedagogical views of these great masters of Georgian writing and the educational field at a high scientific level, he was one of the first to thoroughly analyze the works of such great pedagogues of the second half of the XIX century and the beginning of the XX century pedagogical ideas such as Niko Tskedadze, Luarsad Botsvadze, Ivane Rostomashvili, and others.

Giorgi Tavzishvili's scientific research was given special importance by the fact that during the study and evaluation of their pedagogical heritage and practical educational work, he not only presented the role of the mentioned figures in the history of Georgian pedagogical thought but also made the practical importance of their educational ideas a subject of attention in relation to the reality of his time.

Based on all the above, below we will try to argue the assessment that Giorgi Tavzishvili gives to the attitude of the above-mentioned great Georgian patriarchs working in the second half of the XIX century regarding such a principal issue as the attitude of the mentioned figures to the issue of women's education.

Despite the profound respect and non-discriminatory attitude from the point of view of rights that Georgian society has always shown towards women, the situation in XIX century

Georgia was not completely satisfactory in this regard, and women, along with other legal restrictions, were also in discriminatory conditions in terms of education.

One of the clear manifestations of this was the fact that the first women's school opened in Georgia with state funding in 1830 in Tbilisi. Initially, it was opened under the name Noble Women's Boarding House". In 1838, a women's boarding school was founded along with the mentioned educational institution, and the mentioned educational institution was named "Women's Institute of this part of the Caucasus" (Telia, 1987: 70).

We will not be mistaken if we say that this circumstance was due to the caring attitude towards women shown by the authorities of the Russian Empire at that time. Because Georgia was a country conquered by Russia at that time and its educational system was completely subordinated to the education policy existing in Russia at that time, unfortunately, the women living in our country also had to live in such a discriminatory environment.

Giorgi Tavzishvili was one of the first Georgian researchers who deeply studied the current situation with women's education in Georgia at that time, and in addition to the thinking of famous public figures, there are many examples of how they thought in a progressive way and actively worked to raise the level of women's education and the pedagogical thinking of people less known to our society. In this sense, to cancel the existing discriminatory conditions.

For example, to clarify all of the above, Giorgi Tavzishvili for the first time paid attention to a completely unknown person who worked in the second half of the XIX century, Petre Charekishvili from Kutaisi, and based on the analysis of his extensive letter published in the fifth issue of "Tsiskari" magazine in 1862, he clearly showed the active efforts of the progressive part of our society at that time on the path of women's education to overcome limitations.

The value of Petre Charekishvili's letter is determined by the fact that improving the educational level of women and raising it to the desired level would be possible only if this process were conducted in compliance with the three most important principles: the harmonious combination of "physical, moral, and intellectual forces" (Journal “Tsiskari", 1862: 303).

The comparison of such opinions expressed by Petre Charekishvili and other Georgian figures working at that time in relation to the mentioned issue and the actual situation convinced Giorgi Tavzishvili once again that the educational institutions of that time "were completely unable to fulfill the task of rational education of women, neither physical nor moral nor mental education— in terms of education" (Tavzishvili, 1977: 30).

Most of our contemporary figures were aware of this shortcoming of our educational system, and as we are convinced by the publications verified in this part of Giorgi Tavzishvili's research, they did everything to overcome it. They were deeply convinced that the education of women and boys should be based on the principle of equality, and there should be no restrictions between them in this direction. According to Giorgi Tavzishvili, along with other important matters, the "active struggle for the practical implementation" of this idea was laid in Georgia in the sixties of the XIX century (Tavzishvili, 1977: 27).

According to Giorgi Tavzishvili, the fact that from the sixties of the XIX century, several types of women's schools were established not only in Tbilisi, but also in other regions of Georgia, is the result of the activity of the Georgian figures of that time. In 1860 - the first women's school in Tbilisi; in 1865, the women's elementary school in Kutaisi, in 1865, the first open state school for women in Tbilisi, in 1867, - E. year "Nasadilev's classes" for women near Gori market school (Tavzishvili, 1977: 32-33).

In addition to the named educational institutions, several workshop schools for women were also established in Georgia during the mentioned period. One of them was a women's workshop department for fifty students opened in 1868 near the Nikolozi school in Tbilisi, where, along with receiving elementary education, the students also learned to sew clothes, bed linen, gloves, and other small crafts (Tavzishvili, 1977: 34).

Despite such successes achieved in the establishment of women's educational institutions, Giorgi Tavzishvili finally quite rightly concluded that the women's schools established in Georgia at that time "were still very weak and helpless both from a scientific and practical point of view" (Tavzishvili, 1977: 36).

In addition to the fact that Giorgi Tavzishvili gave such an assessment of the current level of education and upbringing in women's schools as a result of analyzing the existing documentary materials and training programs related to the current educational process in them, in this case it was also based on the critical publications published in the Georgian press at that time.

For example, according to the correspondent of the "Droeba" newspaper, despite the fact that "these educational institutions have existed for a long time, they have not given to society: not a single mother, an outstanding, wise educator, not a single teacher, with remarkable courage, rightness, and benevolent action, not a single figure of our writing and literature" ("Droeba", 1881, #85).

Similarly, the newspaper "Iveria" (1891 #117) gave a strict evaluation to the mentioned educational institutions. According to the evaluation of the creative team of the newspaper, the expectations related to the women's schools that existed in Georgia at that time, that through these educational institutions "truly educated Georgian women with a democratic orientation would grow up," "remained in vain. Not a single hope in society was fulfilled. These educational institutions did not raise real intelligent Georgian mothers, but some distorted Rusynkas, who neither knew Georgian well nor were proficient in Russian, who almost hate their homeland and, of course, do not care about humanity."

The negative attitude expressed with such strictness and selfishness by the editors of the mentioned periodicals towards the women's schools of the time was especially acute given the fact that behind these opinions stood such editors of the mentioned newspapers as Ilia Chavchavadze, Giorgi Tsereteli, Niko Nikoladze, Sergey Meskhi, and others.

Finally, based on all of the above, we will not exaggerate if we conclude that Giorgi Tavzishvili, as a highly qualified researcher of the history of Georgian pedagogical thought and one of the first creators of the systematic course of this scientific discipline, thoroughly studied the current situation regarding women's education in Georgia in the 1960s, and it clearly showed us the active role of the Georgian figures of that time in overcoming the shortcomings in this direction.

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A qualitative study of novice teachers

Gulhayat Matlab Abdullayeva
ASPU, senior teacher

Abstract

The present research attempts to define the challenges brand-new teachers face throughout their first academic year. According to the results of the study, new teachers face a number of challenges during their first year of employment, including issues with lesson planning and implementation, classroom management, relationships with society and adapting to the physical environment, relationships with coworkers, administrators, parents, and mentor teachers, as well as the school's lack of physical infrastructure.

A novice teacher is only beginning to use the instructional strategies they have learned and form their own unique viewpoint. A more seasoned teacher need to be able to control the classroom and employ a variety of teaching methods. The novice must understand the rules, procedures, and culture of the school while becoming familiar with the curriculum, exams, and institution. Students with different academic levels, the pace of education, the workload, and parent-student communication are some other difficulties in the classroom setting. Beginning teachers need time, encouragement, and guidance in order to develop their skills. Giving new teachers the right assistance and guidance throughout their formative years is essential for their personal growth as well as the development of teaching as a profession.

Keywords: Novice teacher, beginning teacher, first year in teaching, challenges

Introduction

An ongoing problem in public education is teacher attrition, which is defined as instructors quitting or choosing not to pursue the teaching profession after finishing a teacher education program (Grissmer, 1997). In the 1970s and 1980s, studies began to suggest that there was an issue with teacher attrition. According to Heyns (1988), a follow-up study of the National Longitudinal Study from 1972, 25.2% of individuals who completed teacher education programs never began teaching in primary or secondary schools.

Whitener, Gruber, Tingos, and Fondelier (1997) found that the majority of teachers who leave the field do so within the first three years. I refer to these instructors—those who have been teaching for 0–3 years—as inexperienced teachers when analyzing overall teacher attrition. Because of their exit from the industry, qualified teachers are becoming more difficult to acquire and retain (Murnane, Singer, Willett, Kemple, & Olsen, 1991; Petty, 2007). The growth in the number of persons choosing to become teachers has been the aim of attempts to address this problem. Even if the goal of these projects is to expand the number of teachers, long-term high levels of teacher quality retention are not given reasons for the instructors' early departure.

New teachers are generally given the most difficult tasks, and their classes are frequently full with failing or uninterested students. When they have a large number of students and many classes to prepare for without much assistance, new teachers face the risk of abandoning their positions early. Inexperienced teachers usually misunderstand what teaching takes, continued Odell. The clearest explanation was provided by Lortie (1975), who stated that new teachers spend several years in a "apprenticeship of observation" (p. 62), but that this was insufficient preparation for understanding why instructors behave in the manner they do.

Effectiveness of new instructors can be judged by their ability to justify their conduct (Hussar, 1999). Effective instructors are able to convince their students, parents, and fellow faculty members at the school of the necessity of their teaching methods and the importance of the information they are covering. They are able to identify connections between teachings from yesterday, today, and tomorrow as well as how specific topics fit into the larger curriculum. Unfortunately, when trying to enhance their education and deal with the demanding demands of their job, new teachers confessed feeling alone (Britzman 1991, Lortie 1975, Rosenholtz 1989). It was necessary to look at the matter of rookie instructors being kept on.

Novice Teacher Retention

It's crucial to retain new teachers when they first start the profession in order to develop and maintain qualified educators. The Thomas B. Fordham Foundation (1999) asserts that there aren't enough qualified new teachers interested in working in public schools nowadays. Research claims that 50% of newly hired teachers leave their positions within the first three years of beginning their professions (Ingersoll & Smith, 2003). In the first three years of their careers, 20 to 30% of teachers in public school systems leave their jobs, and those percentages rise even more in disadvantaged and rural areas (Berry, 2004; Bradley & Loadman; 2004; Darling-Hammond, 2003; Johnson & Birkeland, 2003).

The startling statistics surrounding the retention of new teachers are putting pressure on policymakers, educators, and other stakeholders in the field of education (Berry, 2004; Billingsley, 2004; Bradley & Loadman, 2005; Brown, 2003; Dove, 2004; Hunter & Kiernan, 2005; Inman & Marlow, 2004; Johnson 2005; Johnson & Birkeland, 2003; Kajs, 2002; Woullard & Coats, 2004). Failure to retain new instructors results in decreased student performance levels, insufficient graduation competency, and insufficient educational opportunities for children (Billingsley, 2004). According to the Alliance for Excellent Education (2008), hiring and retaining highly educated new teachers will continue to have an impact on whether or not students learn and reach more demanding academic standards.

This research's goal is to pinpoint linguistic and lesson-planning problems and provide suggestions on how to deal with them with college students throughout their first few years of study. The author is invited to visit some of the fourth-year students who are now doing their practicum in teaching at some of the province's schools in addition to his obligations as a member of the faculty teaching staff and the director of the English department. For fourth-year students seeking a B.A. in English, this practical training has been a requirement. At the allotted time, nine of the students were supposed to meet with the author.

Newly certified teachers who want to begin their careers as teachers are known as novice teachers. A teacher with fewer than two years of teaching experience is referred to as a novice. Given their inexperience, teachers must undoubtedly come up with solutions to the problems they encounter. According to Richards, beginning teachers confront a variety of issues, but the hardest is "to acquire the basic classroom skills needed to present and navigate their lessons." In this study, fourth-year English department students who are doing their practice at their schools are referred to as novice teachers.

Teachers' development

Any teacher would find it difficult to teach for the first time. As a result, new teachers' initial lessons are shaped by their passion and background. According to Bartell, a novice teacher's experience in the classroom is shaped by their prior motivation and the new setting in which they are teaching. The beginning (inspiration), middle (direction), and end (practice) are the three stages of learning that students and teachers should go through. Therefore, gaining teaching experience requires ongoing development and improvement. According to Sato, "for innovation to happen, we must find ways to help teachers become lifelong learners in a collaborative environment."

Studies about novice teachers

Numerous studies on new teachers in diverse settings have been conducted. A study done in the UAE found that novice teachers struggle to control the classroom and deliver the lesson as intended. Another study examined the challenges new instructors faced and the tools they needed to advance their education. The research recommends that school administrators create opportunities to encourage new student experiences and preserve their self-esteem. Similar research on the challenges brand-new teachers encounter in the classroom was conducted. The poll found that untrained teachers had trouble managing their class.

It also illustrated the lack of assurance and expertise among new teachers. The study concentrated on the difficulties new instructors have while managing their classrooms, teaching the courses, or figuring out what kind of help these teachers need. This research, however, focuses on the language difficulties that novice teachers have as well as the difficulties they encounter when setting up their lesson plans and putting them into action. Therefore, it is necessary to observe and handle the problems faced by new teachers through educational mentoring.

Educative mentoring

Educational mentors are a group of seasoned educators that oversee rookie teachers. Their job description is to "Interact with novices in ways that foster an inquiring stance." They cultivate the skills and routines that enable novices to learn via practice. The winning teacher award provides a number of insider hints that may help brand-new educators, including: Give them advise on efficient lesson preparation; provide ongoing counsel on classroom management; and provide them with guidance and support as they choose their career paths. Don't forget to introduce new pupils to the normal school procedures.

Methodology

Readiness for purpose is a concept that "is governed by the design of research." Any study's design should take the objectives and types of data that will be obtained to answer the research questions into account. In this study, a qualitative research design was used. A qualitative inquiry is often conducted when there is little information in the literature on the study's challenges and the researcher is unaware of the variables to seek. The researcher therefore has adequate understanding of the problem.

Overuse of native language

The more that English is misused in the classroom, the less it is used. In view of the observed instructors' performances, nobody has stated an aim that English teaching should enhance students' communication abilities. Thus, whether training grammar or language abilities, as well as during the warm-up time and in the classroom, native language is used. Learners are exposed to their native language rather than English.

Losing class-time

Teachers must arrange their time as soon as possible. A chunk of the lesson is lost for every minute that is lost. Before summoning students to the front of the class to write the information on the board, several of the observed teachers were observed asking students about the previous lesson or the date and day for more than five minutes. Similar to this, it was found that lecturers would spend an excessive amount of time on some sections of the lecture before the session ended without their finishing it.

Misuse of language

According to the observation, several inexperienced teachers were unable to properly apply even the most fundamental English grammar in their classes, for instance: *Are you done now? *What is the mean time concept?

Defects in teaching objectives

The objectives of the lesson plans created by the same teachers who were observed have been found to be either vague or overly ambitious. In these situations, the teachers are at a loss for what to do and what to accomplish in the allotted time. Others appear to have a variety of goals, making it difficult for them to decide which ones should receive greater attention.

Warming up is minimized

One of the most crucial components for successful class preparation and teaching is warm-up exercises. I will greet the kids and ask them about the time and date, as was the case in the majority of the assessed lesson plans. As a result, warming up is reduced to just asking students the time and date. Teachers don't encourage students to share their prior knowledge or connect it to the current lecture by focusing on their past knowledge.

Through activities, the learning objectives are digested and given life. According to the plans that have been assessed, either the activities are insufficient for achieving the learning goals or the students aren't given enough time to participate in them or work on their language skills.

The transition into the teaching profession can be challenging for new teachers. Dickson (2014). In order to better understand the linguistic difficulties novice teachers have as they guide their students through the course processes, this study has looked into the major weaknesses in lesson design. The majority of new instructors, according to the poll, have pronunciation problems, which, if addressed, will be transmitted to the pupils. The overuse of local lingo was the new instructors' second major problem.

Ineffective time management is another issue throughout the lesson phases. There aren't nearly enough activities used in each session, and assessment is rarely done. The survey also revealed that novice teachers had trouble coming up with lesson ideas. These problems start with the vague teaching objectives and the condensed warm-up activities that only involve asking the class the time and date of the day. Similar to this, the exercises fall short of achieving the lesson's goals, and in the end, neither the manner nor the specifics of the evaluation are provided for each instructional phase.

The major objective of a qualitative study of novice teachers is frequently to understand the experiences, challenges, and perspectives of persons who are new to the teaching profession. These studies usually make use of qualitative research methods including observations, interviews, and examination of documents or artifacts. It is crucial to acquire in-depth insights into the experiences and perspectives of rookie instructors in order to investigate a variety of aspects of their professional development and the factors that influence their teaching practices.

Some common topics that may emerge from qualitative studies of novice teachers include:

Induction and support:

Effective induction programs and support networks for new instructors are frequently emphasized by research. These studies may look at the many kinds of assistance offered, such as mentorship, chances for professional growth, or cooperative networks, and how these affect the growth and retention of teachers.

Classroom management and instructional practices:

Qualitative research may examine how new instructors create techniques for education and classroom management. They could look into how new teachers deal with issues including lesson planning, student engagement, behavior control, and tailoring instruction to the requirements of various student populations.

Professional identity and teaching-related beliefs:

The formation of new teachers' professional identities and teaching-related beliefs may be studied by researchers. It may be interesting to look at their motivations for becoming educators, opinions on what makes for effective instruction, and how their identities and worldviews evolve over time.

Problems and coping techniques: Studies may identify the challenges that recently hired teachers have, such as managing their workload, dealing with student behavior issues, or fulfilling the expectations of many stakeholders. They might also have a look at the coping strategies used by brand-new teachers to overcome these challenges and build resilience early in their careers.

Growth and reflection qualitative research usually focuses on how new teachers employ reflective practices and professional growth. This may include looking into their self-reflection techniques, getting feedback, and applying it to improve their teaching strategies.

It's critical to remember that the specific topic matter and findings of a qualitative study of novice teachers will depend on the inquiry's methodology, setting, and research goals. To get the most recent information on a particular issue, I suggest conducting a literature search using academic databases or looking at recent publications in the fields of education or teacher development.

Conclusion

This research focused on the linguistic barriers that new teachers encountered as well as their ability to run classes and teach at their schools efficiently. The current study's findings indicate that novice teachers struggle to finish the class within the allocated time and in line with the prepared lesson plan. However, this study found that the novice teachers had a number of difficulties when actually teaching. The majority of them have considerable difficulty pronouncing words. Such problems put them and their pupils in a challenging predicament. They should assess their own language use and listening habits to see if they are excessive. The researcher makes a connection between the lecturers' poor pronunciation and their passivity in the BA program. Therefore, it is advised that college lecturers forego the traditional teaching methods.

The study showed that beginner students overused the word "native" in English lessons in addition to their pronunciation issues. "It is obviously important that English is used as much as possible during the English lessons," write O'Neill, Snow, and Peacock. However, there are times when using native is appropriate and important for both teachers and students. Thus, using a local language is only preferred in situations where expressing the meaning or following classroom directions in English is difficult or would waste class time.

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Внедрение в учебный процесс blockchain технологий в обучение

Кабытаев Айдос Галымбекұлы
Преподаватель ассистент высшей школы естество знаний Жетысуского Университета им.Ильяса Жансугурова
Ибраимова Динара Тохтаровна
Магистрант 2 курса

Аннотация

В данной статье исследуется роль и потенциал blockchain технологий в образовании. Автор анализирует, как blockchain может улучшить прозрачность и безопасность процессов управления образовательными данными, а также способы использования данной технологии для создания инновационных образовательных платформ. Рассматриваются преимущества и вызовы, связанные с внедрением blockchain в учебный процесс, и предлагаются практические рекомендации для учителей и образовательных организаций.

Ключевые слова

- Blockchain технологии
- Образование
- Управление данными
- Инновации
- Прозрачность
- Безопасность
- Децентрализация

Введение

Blockchain, изначально созданный для обеспечения безопасности и надежности цифровых транзакций в криптовалютных системах, нашел свое применение в различных областях, включая образование. В данной статье мы рассмотрим, как blockchain технологии могут трансформировать образовательную сферу, обеспечивая прозрачность, безопасность и инновации в учебном процессе.

Раздел 1: Преимущества blockchain в образовании

1.1. Прозрачность и подлинность документов

Blockchain позволяет создавать цифровые записи, которые невозможно подделать или изменить. В контексте образования это означает, что академические документы, сертификаты и дипломы могут храниться в блокчейне, обеспечивая подлинность и прозрачность.

Пример: Студенты могут легко проверить подлинность своих дипломов, а работодатели - квалификации соискателей.

1.2. Децентрализованные образовательные платформы

Blockchain позволяет создавать децентрализованные образовательные платформы, где ученики могут контролировать свои данные и успехи без посредников. Это способствует более гибкому и индивидуализированному обучению.

Пример: Платформы, использующие смарт-контракты на базе blockchain, могут автоматически адаптировать учебные материалы под уровень и потребности каждого ученика.

Раздел 2: Вызовы и риски

2.1. Техническая сложность

Внедрение blockchain технологий требует высокой технической готовности образовательных организаций и учителей. Это может стать преградой для небольших учебных заведений.

2.2. Конфиденциальность данных

С увеличением прозрачности данных существует риск утечки личной информации. Блокчейн должен обеспечивать адекватную защиту конфиденциальности.

Раздел 3: Практическое внедрение

3.1. Электронные портфолио

Учителя могут использовать blockchain для создания электронных портфолио студентов, которые будут храниться безопасно и могут быть предоставлены работодателям.

3.2. Сертификация и аттестация

Образовательные учреждения могут выпускать сертификаты и дипломы на blockchain, что упростит процедуры аттестации.

Заключение

Blockchain технологии предоставляют уникальные возможности для улучшения образования, сделав его более прозрачным, безопасным и инновационным. Однако внедрение этой технологии требует тщательной подготовки и учета потенциальных рисков. Развитие blockchain в образовании обещает улучшить качество учебного процесса и укрепить доверие к образовательным учреждениям.

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Use of information communication tools in the training process

Sevda İslam gizi Abbasova
Doctor of Philosophy in Pedagogy, Associate Professor of the Department of Azerbaijani Language and its Teaching Technology of the Faculty of Philology of Azerbaijan State

At the current stage of the development of our republic, the main task of the education policy is to ensure the quality of modern education based on the compliance with the current and future needs of the individual, society and the state. Education, which is based in general education schools, is intended to be focused not only on the development of certain knowledge by students, but also on the development of personality, cognitive and creative abilities.

General education schools should form an integral system of universal knowledge, skills, habits, as well as experience of independent activity. Formation of modern competences defined as "universal knowledge, skills, as well as independent activity experience and personal responsibility system" in order to evaluate the quality of the content of education at the state level in the educational standards adopted in recent years. and suggested using them effectively.

The content of modern education is full of innovations, and therefore teachers face the task of revising some elements of the pedagogical process, creating new content, forms and methods. All this is designed to ensure the efficiency of the educational process aimed at the education, development and upbringing of the student.

In modern society, the flow of information is increasing rapidly. The knowledge that students receive in the classroom is not enough for general development. Thus, there is a need for continuous self-education, independent knowledge acquisition. However, not all students can acquire knowledge on their own, for this, certain forms and methods of the teacher's work are required.

A feature of the modern school is that it works in conditions of a rapid increase in the volume of educational resources. Since the information opportunities for students are limited, they can no longer receive high-quality education services in the traditional education system. At the current stage of scientific and technical progress, in the transition to the information society, the school faces the important task of creating conditions for students to realize their potential in various fields of knowledge.

Today, the content of humanitarian education is updated, especially in the field of linguistics, radical transformation is observed. The current stage of teaching the Azerbaijani language is characterized by new approaches to determining the goals of education. Strengthening the skills-based approach is one of the strategic directions in the development of the modern school course of the Azerbaijani language.

Achieving the goals set by Educational Standards is carried out in the process of formation of linguistic, communicative and linguistic skills.

The application of the concept of "competency" to the methodology of teaching the Azerbaijani language at school is connected with the search for a more precise and strict definition of learning goals, with the determination of language knowledge levels, in other words, with the answer. to the question of how the student speaks his mother tongue. Competency-based approach is focused on the acquisition of knowledge and the formation of practical skills and abilities. Such a two-component description of competences in the teaching of the Azerbaijani language is sufficient.

At the same time, it is necessary to take into account that the school education system solves the problems not only of teaching, but also of upbringing. As a result, the goal is not only the assimilation of knowledge and the formation of skills, but also the development of the student's personality, his intellectual and creative abilities, value orientations. Therefore, the consideration of competencies in the teaching of the Azerbaijani language at school necessarily includes the third component - the goals to be achieved in the development of the student's personality.

It is clear that the main thing at the present stage is the education of a person who tries to realize his potential to the maximum, is open to the perception of new experience, and is capable of making conscious and responsible choices in various life situations. In order to educate such a personality, first of all, it is necessary to form students' attention and interest in speech, language, its laws of action, which is most successfully carried out in the conditions of creative interaction between the teacher and students. It is known that, for example, knowing the expression of rules does not in itself lead to literate writing.

Learning to spell with the help of a rule is not the same thing. The rule should be brought to the student's mind in such a way that it can serve as a tool for determining spelling, and not as a burden on the memory. The use of multimedia tools in Azerbaijani language classes helps to form basic competencies in linguistics, especially language.

The processes of integration and informatization of school education are aimed at solving a number of objective contradictions that are currently occurring. Let's mention some of them:

- conflict between the increased volume of training content and the limitation of the training period;
- contradiction between the amount of acquired knowledge of spelling and punctuation and the low possibility of their practical application;
- conflict between the amount of knowledge acquired at school and the amount of knowledge required for further education.
- conflict between society and state order (formation of basic competences) and insufficient level of competence formation, including language knowledge, in a graduate of a general education school.

There is also the problem of insufficient formation of students' language skills, the reasons for which may be as follows:

- Sophisticated level of theoretical material in existing textbooks in the Azerbaijani language;
- the reproductive nature of assignments and tasks in educational materials that do not contribute to the formation of language competence;
- sufficiently individual approach to students;
- low level of students' interest in Azerbaijani language classes;
- insufficient use of available information resources.

The need to eliminate the above-mentioned contradictions determines the relevance, goals and tasks of this work. The main goal is the formation of language competence of 5th-9th grade students using multimedia tools in Azerbaijani language classes.

For the implementation of this goal, a system of tasks is defined. Thus, to determine the place of lessons for the development of students' language competence based on the use of multimedia in the general system of lessons;

- to develop the system of lessons using the possibilities of multimedia tools that facilitate the assimilation of the material and help to increase the interest of students in Azerbaijani language lessons; to prepare didactic material for lessons aimed at the formation of practical skills in the application of acquired knowledge;

- to strengthen work on implementation of individual approach to students; In the process of forming the language competence of 5-9 grade students, it is planned to prepare a system of tests to check the efficiency and appropriateness of using multimedia tools.

Let us briefly inform about the role and importance of multimedia in the formation of language competence in students. The term "language competence" was first used by N. Chomsky in the middle of the 20th century. This term has been semantically contrasted with the term "language use". The difference between the meanings of these terms was revealed as "the difference between the knowledge of the speaker and the listener about the language and the use of the language in the practice of communication and human activity. In an attempt to stay within the framework of serious linguistic research, N. Chomsky tried to abstract from real speech acts and insisted that he meant the "ideal speaker-listener".

He evaluated the native language with all its speech features as an object of psychological, sociological, didactic research, not linguistic. Later there was a "transfer" towards the human factor. It was no longer about an abstract native speaker, but about a concrete linguistic personality with a certain speech experience. In school practice, it is necessary to teach language as a speech activity, to combine work on language and speech concepts in each lesson.

When teaching grammar and spelling material, the teacher should create speech situations to ensure the motivation of speech activity, consider all language phenomena at the level of a coherent text, include creative exercises in the structure of the lesson, create a "speech environment" for students with a high level of speech culture, i.e. to psychologically motivate language work, to develop a continuous and conscious need for linguistically competent writing and speaking, effective listening and reading.

Long-term memorization of numerous rules, development of short-term skills related to their application (valid only when working on a specific topic or section) cannot give long-term results. The success of the formation of spelling and punctuation skills depends on the level of understanding the linguistic essence of each spelling or punctuation situation and the ability to conduct linguistic and syntactic analysis in the writing process.

The results of the work show that students distinguish one spelling or puntogram from another, group words according to given spellings and puntograms, act according to the appropriate algorithm. But all this knowledge is not required when the students are in the situation of explaining a certain language situation or independent choice of independent writing.

Today, the teacher faces such a question: how to organize the teaching of the subject, what forms and methods should be used so that the process of acquiring certain knowledge gives way to the process of conscious application of this knowledge in specific conditions?

To achieve this, the teacher's use of multimedia tools in the training process can give good results. Informatization of education is an important means of forming students' language competence. This process changes the content, methods and organizational forms of education.

The process of informatization of general education makes it possible to supplement the variety of familiar teaching aids with new ones. With their help, pedagogical situations can be implemented in classes where the activities of teachers and students are of a research and search nature, which helps in the formation of students' language competence. A modern educational school should form an integral system of universal knowledge, skills, habits, as well as the experience of independent activity and personal responsibility of students.

The teacher's main problem is "the search for means and methods for the development of students' educational competencies as a condition that ensures high-quality mastering of the program." It should be noted that educational competencies are a set of knowledge, skills, and habits of a student in relation to certain objects of reality, which are necessary for the implementation of productive activities of individual and social importance.

Computer technologies have taken a strong place in the organization of the educational process of various subjects. A few years ago, they only talked about the methods of working with computers in classes. There was no unanimity regarding the widespread use of telecommunications in the field of teaching subjects. In modern language classes, there is not passive assimilation of information using a computer, but its active processing, which helps not only to master the material on the subject, but also to learn to apply it in practice by choosing the best ways. The tasks facing the language teacher in the application of information technologies differ from the goals and tasks of other subject teachers in many aspects. These tasks include working with text, fiction, and books.

The Azerbaijani language teacher should form strong spelling and punctuation skills in students, enrich students' vocabulary, teach them to master the norms of the literary language, and give children knowledge about the language. Information and communication technologies help the teacher in solving problems. Today, in the classes of Azerbaijani language and literature, the computer is a means of learning life. It helps the teacher create a new working environment in the classroom that is open to the whole world, and also changes the mindset of today's students to meet the needs of tomorrow.

We cannot say that preparing and conducting lessons using a computer requires a lot of time and patience from the teacher, especially when preparing for the lesson. In addition, they raise some concerns of an organizational nature. With all this, such lessons bring great satisfaction to the teacher and benefit to the students. L. N. Tolstoy said that "the easier it is for the teacher to teach, the more difficult it is for the students to learn." The harder it is for the teacher, the easier it is for the student. The more the teacher learns himself, thinks about each lesson and measures it against the student's strength, the more he follows the student's train of thought,... the more the student learns. it will be easy."

The role of a creative teacher is not limited to the application of existing computer technologies to the teaching process. The teacher himself, who is "at the forefront" of the scientific and technical process, has the opportunity to choose a work method to create the author's methodology, from being a developer and tester of an arsenal of new teaching materials to the development of a new lesson.

The subject of the Azerbaijani language in the secondary school course is quite complex and, of course, the duty of each teacher is to fully master the basics of this subject to his students, to teach them to consciously apply the acquired knowledge in practice. In order to create conditions for the formation of students' language competence, the teacher has to choose the means and methods of training.

The modern teaching of the Azerbaijani language should be conducted in such a way that the students' interest in knowledge is awakened, the need for fuller and deeper assimilation increases, initiative and independence in work develop. During the training process, students should not only master the established system of scientific knowledge, skills and habits, but also develop their cognitive abilities and creative abilities. For this, it is necessary to have a special place in the school for such forms of training that ensure the active participation of every student in the lesson, increase the influence of knowledge and the individual responsibility of the students for the results of the educational work. These issues can be solved more successfully by using multimedia in class. One of the specific features of the Azerbaijani language classes is the large number of writing tasks that must be performed in order to acquire relevant competencies. The development of information technologies made it possible to intensify the teaching of the Azerbaijani language, to increase the pace of modern lessons, to increase the volume of communicative exercises by reducing the time spent on various types of writing, and to solve the actual problems related to the teaching of the Azerbaijani language.

As a modern technical tool, the computer has unique learning opportunities:

Computer as a demonstration tool for visualization (interactive visualization). Interaction of students with dynamic tables, reference diagrams, tables is especially active. They are filled in during the conversation, independently, using reference materials. All this makes it easier to grasp and understand the grammatical material, to present the visualization of the language in a bright way, and to solve linguistic problems.

Students develop the skills that form language competence: extract information from various sources, construct diagrams using theoretical material, freely use survey literature, various linguistic dictionaries, analyze language units, various types of events. With the application of information technologies, a wider understanding of the management of the learning process of each student is associated, because we receive the necessary management information of an individual-personal character, which allows us to see the progress of education.

At the same time, the subjects of management are not only the teacher, but also the student himself.

The transition of the class-lesson system from frontal work, from the teacher's explanation to the individual work of each student, and the discussion of the results of the work as an inevitable part of the lesson should be completed collectively. Multimedia tools help a lot in this exchange of information. This has an effective effect when increasing the amount of information directly from the teacher, as well as from the student. They allow the teacher to control both the degree of mastery of the material by the student, and the speed of its presentation for each individual student, depending on the level of training, and the efficiency of using the knowledge gained by students in practical activities.

Multimedia is a technology that describes the procedure of development, operation and use of various types of information processing tools, they are;

- is an information resource created on the basis of various types of data processing and presentation technologies;

- A computer program whose activity is related to the processing and presentation of various types of data;

- is a special generalizing type of information that combines both traditional static visual (text, graphics) and various types of dynamic information (speech, music, video clips, animation, etc.).

Thus, the term "multimedia" means a series of information technologies that use various programs and technical means to have the most effective effect on the user (reader, listener, and viewer). Multimedia is a technology that uses text, sound, and images to create integrated information and educational resources. From here, the unbreakable connection between the information space of the educational institution and multimedia technologies is clearly visible.

The use of multimedia technologies in the teaching process can be in different forms and types depending on the tasks. Here we have two main advantages - quality and quantity. If we compare verbal descriptions directly with audiovisual presentation, qualitatively new possibilities are obvious.

Quantitative advantages are expressed by the fact that the multimedia environment is much higher in terms of information density. Indeed, one page of text, as you know, contains about 2 KB of information. The teacher pronounces this text for about 1-2 minutes. In the same minute, a full-screen video takes about 1.2 GB of data. Therefore, "it is better to see once than to hear a million times."

It is known that most people remember 5% of what they hear and 20% of what they see. Simultaneous use of audio and video data increases memory by 40-50%. We can characterize the didactic possibilities of multimedia technologies as follows:

- means of obtaining information;
- rationalizes the forms of presentation of educational information,
- increases the degree of visuality, makes concepts, events, understanding concrete,

- affects the qualitative perception of educational material;
- fully meets the scientific and cultural needs of students;
- creates emotional attitude of students to educational information;
- contributes to the understanding of the practical application of the acquired knowledge;
- increases interest in learning by using original new designs, technologies, machines, devices.

Didactic features of using multimedia technologies include the following: information richness; the ability to cross temporal and spatial boundaries; the ability to penetrate the essence of the studied events and processes; the development and dynamics of the studied events; expressiveness, richness of visual technique, emotional richness.

When using multimedia tools in the lesson, the structure of the lesson does not fundamentally change. It retains the main stages, perhaps only their temporal characteristics change.

It should be noted that in this case the motivation stage increases and carries a cognitive load. This is a necessary condition for the success of learning, because without interest, imagination and emotions to fill the missing knowledge, the creative activity of the student is unthinkable. All this also helps to strengthen the ability to apply the acquired knowledge in practice and ultimately creates conditions for the formation of language competence.

After the computerization program of secondary schools, we have the opportunity to use multimedia in classes. I would like to mention the advantages of this work method. This causes great interest of the students. No matter how complicated the topic of the lesson is, if everything is done in all colors, with sound and many other effects, it is impossible not to listen and watch it. Children already have an initial love of computers, so if this love is used properly, it will increase students' interest, which in turn will affect both the quality of their knowledge and their ability to apply it in school.

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The most commonly used media are: MS Office software package; electronic multimedia publications; special computer programs.

Media use cases. In our opinion, all variants of using multimedia tools to form language competence can be divided into three large groups: using a computer (or multimedia complex) in a literature lesson; Azerbaijani language lessons in the informatics office; remote use of the computer.

Many teachers who use information technologies in teaching their subject use presentations that are the product of the Power Point program, the most common or popular IT tool in the school. In this case, a computer with a multimedia projector replaces all technical and non-technical teaching aids - blackboard and book, television and video recorder, illustrative material and sound.

We have teachers who pass their classes with various presentations. This allows students to show as much interest in the subject as possible, to facilitate the presentation and mastering of the material.

Thus, students do not simply "memorize" the material, they consciously perceive it, interpret it in terms of the importance (according to the student) of each of its structural elements. This creates conditions for the formation of language competence at the stage of assimilation of theoretical material.

The formation of language competence is facilitated by the use of various reference schemes (algorithms). Support diagrams created in both Power Point and MSWord allow to systematize knowledge, develop an algorithm for the application of a specific rule, and learn to justify one's ideas in the practical application of the studied material.

At the same time, it is assumed that the same reference diagram (animated) is used in a number of lessons with different goals: for example, first to explain new material, then to consolidate it, then to check knowledge, and finally to systematize and summarize the material.

The decree signed by the head of the country on August 21, 2004 "On the approval of the Program for provision of general education schools in the Republic of Azer with information and communication technologies (2005-2007 years)" It is of strategic importance in terms of solving problems. Of course, this historical document provides important help in filling the gaps that have existed in this field until now, eliminating the shortcomings in the direction of integration into secular education, and providing a deeper education of the young generation according to modern standards.

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Театр кукол как средство развития творческих способностей детей дошкольного и школьного возраста

Ешмуратова Анар Карибаевна

PhD, старший преподаватель, Казахский Национальный Университет Искусств, г. Астана, Казахстан

Аннотация: акцентируется внимание на истории становления школьной драматургии как формы образовательной деятельности. В нем раскрывается педагогический потенциал кукольных представлений как средства развития творческих способностей молодежи, а также обобщаются и систематизируются технические аспекты организации кукольных представлений в контексте общеобразовательных учреждений.

На сегодняшний день формирование всесторонне развитой личности становится актуальной проблемой с дошкольного возраста. Единственный путь развития творческих способностей, любознательности, художественного вкуса детей – театр. Театр подарит каждому ребенку радость, веселье, незабываемые впечатления. Развивает художественный вкус, воображение детей. По мнению Ш. Айманова: “Театр - творческая семья, объединяющая людей. Сценическое искусство - это знание неоценимых реалий жизни, то есть невозможно, чтобы человек не любил сцену". Особую роль в развитии языка детей, формировании их художественного отношения к жизни играют театрализованные представления. Дети, играя героев, отдают свои поступки и поведения, и, развивая язык через игру, формируются нравственные качества. Поэтому театральные постановки ни в коем случае не отменяют своего значения для воспитанников детского сада. И. Ф. Шиллер заявляет: “Все то, что чувствует наша душа в виде смутных, неясных ощущений, театр преподносит нам в громких словах и ярких образах, сила которых поражает нас”. И поэтому роль театра в развитии творческих способностей очень велика.

Театрализованное действие это - речевое действие. Разнообразие костюмов, спектаклей, небольших представлений развивают у детей интерес к театральным играм, театрализованной деятельности.

Оказывается, черты личности человека формируются к пяти годам. Поэтому для всестороннего формирования ребенка необходимо уметь прививать хорошие, позитивные качества. Ребенок увлечен всем, любопытен, он переживает перемены, происходящие вокруг него, пытается испытать прекрасные явления. Его можно всесторонне развивать, воспитывать как личность, совершенствовать развитие языка с помощью театрализованных кукольных игр. А в театрализованные игры дети играют с удовольствием. Театрализованные игры считаются игровыми спектаклями, где большое значение имеет превращение художественных произведений для детей в сценические постановки и их участие в качестве персонажей. Разыгрывая ребенка на сцене как героя, мы всесторонне развиваем его личность. В нем мы пробуждаем страсть к литературе, культуре, искусству. Малыши учатся общаться на сцене, играя небольшие роли, красиво одеваться, правильно ходить, ладить со взрослыми и другими детьми. Зрелый диалог приводит детей к способности выражать свое мнение. Диалоги персонажей, новые роли, повышают речевые способности ребенка, его интерес. Особенно детям нравятся диалоги в виде стихов. Театр оказывает большое влияние на ребенка в реализации своей игры, возможностей, способности свободно выражать свои мысли. Роль способствует раскрытию потенциала, коммуникативного фонда ребенка, развитию творческих способностей, умению координировать двигательную деятельность нежной руки, умение координировать движения, связанные со словами в произведении.

Ритмически составленные тексты влияют на развитие речи ребенка в сочетании с существующим организмом. Выступая от имени той или иной роли, ребенок свободно вступает в общение с человеком, находящимся рядом с ним, пополняется словарный запас. Создание спектакля с детьми дошкольного и школьного возраста - увлекательное и полезное занятие. «Творческая деятельность, осуществляемая всеми вместе, привлекает и неактивных детей, способствует их взаимодействию с детьми рядом с ними. В процессе работы хорошо развивается словарный запас детей в выразительном произношении стихов, самовыражении, произношении слов героев» [1, с. 12].

Видов театров очень много. Среди них хотим выделить кукольный театр. По мнению Е.Я. Романовского: «Национальное заложено в самой природе театра кукол. Во-первых, можно говорить о том, что этот театр всегда имел региональную специфику или стремился выразить через универсальное некие уникальные качества культуры. Устремленность театральных систем к развитию художественных ценностей региональной культуры со всей очевидностью проявляется в противопоставлении натурализма (универсалистская тенденция) и традиционализма, обращенного к многонациональному народному искусству, в котором художники-кукольники находят близкую им условность, художественный примитив, сказочно-поэтическую фантастичность» [2, с. 3]. Образовательные возможности кукольных спектаклей широко используются в системе дошкольного образования и начальных школах. Однако в контексте воспитания детей старшего возраста образовательный потенциал этого вида игровой технологии недооценивается. В то же время — это кукольный театр с очень широким спектром художественных средств, который может стать площадкой для творческого самовыражения каждого ребенка. Современное общество требует от человека не только мобильности, но и способности быстро адаптироваться к меняющимся ситуациям, а также умения ориентироваться в этике и выбирать собственный путь и положение в социальном и культурном пространстве. Образовательные задачи, направленные на формирование этого качества, наилучшим образом решаются в процессе творческой деятельности. Как синтетический вид искусства, драма раскрывает и подчеркивает индивидуальные особенности человеческой личности, раскрывает внутренние возможности и позволяет вам мыслить и развиваться (актерам и зрителям). Все вышесказанное относится не только к профессиональному искусству, но и к детскому творчеству. Именно детский драматический коллектив успешно решил задачу воспитания нравственной личности.

Театр помогает преодолеть застенчивость, и оказывает психологическую поддержку тревожным детям. Это способствует формированию личностного самосознания, эмоциональной культуры и коммуникативных навыков, а также в целом воспитывает чувство меры и вкуса, профессиональную деятельность и гармоничную жизнь. Поэтому драматургические и эстетические занятия, органично включенные в образовательный процесс, являются распространенным средством развития подрастающего поколения. Синтетический характер театрального искусства создает уникальные условия для художественного и эстетического воспитания учащихся. При правильном внедрении детские театры могут занять особое место в общей системе художественного и эстетического воспитания молодежи. Обычно он объединяет не только творческие усилия молодых актеров, но и певцов, художников, музыкантов, дизайнеров по свету, организаторов и преподавателей. Методы театрального искусства, используемые в образовательной деятельности, могут расширить художественный кругозор детей, помочь сформировать общекультурные способности, обогатить восприятие красоты и развить художественный вкус. Неоспоримым преимуществом драматургии как образовательного средства является особое направление образовательной деятельности - основа драматургической педагогики. Основоположниками этого направления российской педагогики являются М.С. Щепкин, А.П. Ленский, В.Н. Давыдов.

Несмотря на устойчивый и очевидный интерес к педагогике театрального искусства как источнику и средству формирования культурной ценности, мы считаем, что кукольные представления недооцениваются.

Традиционно этот вид театра рекомендуется для младших школьников и дошкольников, но арсенал воспитательных средств кукол "выращивает" классическую аудиторию, особенно в подростковом возрасте, когда учащимся часто бывает трудно выражать себя прямо и открыто, куклы предоставляют возможности для непрямого самовыражения. Работая над художественными образами - от долгого и кропотливого создания самой куклы до эмоциональных моментов "воскрешения" на сцене - дети учатся анализировать свои эмоции. Поэтому кукольные представления не ориентированы на декоративно-прикладное искусство. Этот тип особенно актуален сегодня, когда вы можете снимать закулисные кукольные представления и размещать их в социальных сетях. Однако, несмотря на огромный образовательный потенциал кукольных спектаклей и их потенциальную привлекательность для юной аудитории, это все еще очень сложно реализовать. Пожалуй, самым важным этапом в кукольном производстве является изготовление самой куклы: поиск художественных образов, выбор техник и материалов. Очевидно, что преподавателям общеобразовательных учреждений сложно разобраться во всех тонкостях этого ремесла, поэтому в моей статье я попытаюсь сформулировать основные предложения по организации творческого процесса изготовления театральных кукол. Во-первых, давайте взглянем на историю кукольных театров. Куклы хорошо известны многим древним культурам и являются неотъемлемой частью искусства конца XX-го и начала XXI-го веков [3].

Изготовление театральных кукол - сложный и в то же время очень доступный, это одновременно и рукоделие, и творчество. Театральные куклы не только полностью соответствуют замыслу спектакля, отражают его основную идею и встроены во всю систему художественного оформления. Театральные куклы обычно делятся на несколько типов: перчаточные куклы, тростниковые куклы, теневые куклы, планшетные куклы и куклы, управляемые обществом. Каждая из этих систем имеет свою собственную историю, свое собственное время и варианты в разных странах. Перчаточными куклами называли очень большую территорию с древних времен. Существует мнение, что ее родной страной является Китай. Эта кукла везде выглядит одинаково: в ее основе лежат перчатки с тремя пальцами, вставленные в среднюю часть указательного и среднего пальцев, на них помещается голова куклы, а на крайних - большой и безымянный пальцы и мизинец – рука куклы и только в Китае, стране при огромной кукольной культуре их анатомия несколько иная - антропоморфная и пропорциональная. Куклы также очень распространены на Востоке, и они были известны в Древней Европе. Что касается будущего этой системы, то здесь трудно говорить о заимствованиях. Их широкая популярность в ранней культуре большинства людей, знавших марионеток, а также слишком очевидные различия в управлении позволили марионеткам выйти наружу. Европейские куклы марионетки идут по пути увеличения количества нитей в своем развитии, усложнения блуждающего нерва и стремления к богатству и аутентичности движений и жестов.

Конечно, процесс изготовления театральных кукол требует более подробного описания технических нюансов, но в нашей статье мы не ставили задачу разработать конкретную техническую карту. Это попытка реализовать педагогический потенциал этого вида искусства, который был забыт в середине обучения. Кукольное искусство - это особая творческая практика, которая сочетает в себе сложность и богатство методов обучения с простотой реализации.

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Economic Sciences

The effect of Exchange rate volatility on exports from European countries to Non-European countries

Alua Salykbayeva
MSc in Economics, University of Essex, UK, SCM/Business Management, Tengizchevroil LLP

Abstract

In this study, the effect of exchange rate volatility on export flow from four European countries (UK, Spain, Italy, France) to four non-european countries (Canada, India, Korea, USA) over a period from January 1996 till December 2012 was analysed. The GARCH model is employed to generate exchange rate volatility. Apart from exchange rate volatility relative price and real income in exporter country were added as explanatory variables. ADF test to check the presence of unit root for each variables in the regression. In order to find causality between export flow and these three explanatory variables OLS regression method is applied. The results of OLS regression show that exchange rate volatility has a significant positive effect on export from UK to Canada and from Spain to India. Exchange rate volatility depresses the volume of export from Italy to Korea and has no effect on trade between France and USA.

1. Introduction

The role of exchange rate volatility has increased after the collapse of Bretton Woods agreement in the spring of 1973 and switching to the floating exchange rate. High degree of exchange rate volatility leads to some problems. According to Hooper and Kohlhagen (1978) uncertainty in the exchange rate leads to ambiguity in future profits and determines risk-averse traders to export less. In this case the effect of exchange rate volatility is negative. In contrast, the effect of exchange rate volatility can be positive depending on degree of risk-aversion. Therefore, examination of the effect of exchange rate uncertainty on international trade has become the main topic among many empirical and theoretical researchers. Although earlier theoretical studies imply that exchange rate volatility should have a negative effect on the volume of trade, the results of empirical studies which are focusing on determining the relationship between exchange rate volatility and the volume of exports are indecisive and

2. Literature Review

Many empirical studies tried to examine the fact whether exchange rate risk affects the volume of international trade, using various data for different countries. The researchers reached different results, but most of them have found that the exchange rate volatility suppresses the trade flows. In this part of the article the main technique and data, which were used by empirical researches and summarize their results can be evaluated.

Thursby and Thursby (1987) provide strong evidence, that exchange rate volatility does reduce international trade flow. In contrast, Klein (1990) argues, that if the firms are risk-neutral, they can increase the value of export through the expected profits. In his survey, Klein (1990) shows significant effect of exchange rate risk on the volume of trade in six of nine categories, where the five of them are positive. To obtain this result the researcher employs sectoral bilateral trade data for the period from 1978 to 1986. Klein (1990) uses the standard deviation of the monthly percentage change in the bilateral real exchange rate as a proxy of real exchange rate volatility and fixed effect framework as an estimation technique. In his study, Chowdhury (1993) applies the standard deviation of the growth rate of the exchange rate to measure volatility and VAR model used to capture the linear interdependencies among multiple time series. The error correction model results illustrate the adverse relationship between exchange rate volatility and the volume of exports. Arize (1995) discusses the impact of exchange rate volatility on the demand for the real exports of United States. The author employs different from previous studies techniques with an eye to find a significant relationship between exchange rate uncertainty and the volume of trade. First is the introducing cointegration of variables and estimating them by applying maximum likelihood framework. Second is using error-correction technique. And the third is making use of both conditional and unconditional measures of exchange rate volatility. Arize (1995) presents that there is a negative impact of exchange rate uncertainty on U.S. real exports.

In the end, some previous studies indicate that is no real significant relationship between exchange rate volatility and the volume of international trade. Although, Gagnon (1993) presents the negative effect of exchange rate volatility on international trade constructing a theoretical model, he fails to find any significant effect using simulation analyses. The similar result is provided by Gotur (1985) who tries to test the robustness of Akhtar and Hilton's empirical results. Bailey and Tavlas (1988) are the first economists who investigate the effect of exchange rate volatility on trade and investment using the export data of United States and its main industrial trading partners over the quarterly period 1975:1 through 1986:1. The results of empirical model show that there is no significant effect of exchange rate uncertainty on trade flows and direct investments.

3. Model Specification and Data

This paper examines the relationship between exchange rate volatility and export flows from four European countries (France, Spain, United Kingdom, Italy) to chosen four non-European countries (USA, India, Canada, Korea) employing the model proposed by Chowdhury (1993), Arize (1995,1998), Arize et al. (2000), Asseery and Peel (1991), Pozo (1992).

$$\ln(X_t) = \beta_1 \ln(Y_t) + \beta_2 \ln(P_t) + \beta_3 \ln(H_t) + \varepsilon_t \,, \quad (1)$$

where $\ln(X_t)$ is the log of real exports from EU countries (United Kingdom, Spain, Italy, France) to the rest of the world (USA, Mexico, Canada, China), $\ln(Y_t)$ is the measure of real income of importer countries, $\ln(P_t)$ is the logarithm of relative prices, presented as a ratio of exporter countries to importer counties, $\ln(H_t)$ is a measure of exchange rate volatility.

The data applied in this study is a monthly data which covers a period from January 1996 to December 2012. The monthly based export volume data of each country is obtained from IMF's International Financial Statistics. The nominal exchange rate data is taken from the Pacific Exchange Rate Service and is defined as the ratio of importer country to exporter country. The second explanatory variable real income of all countries applied in this dissertation is given by the monthly real industrial production index. The relative price variable is presented by the ratio of Consumer price Index of all goods (CPI) in export countries to Consumer Price Index (CPI) of all goods in import countries. This monthly data which covers the period from 1996 to 2012 as the real income data is obtained from the website of the Federal Reserve Bank of St. Louis.

Table 1. Definition and the source of data.

Variable	Definition	Proxy	Expected sign	Source of Data
X	Export Flow	Real volume of exports	Dependent variable	IMF's International Financial Statistics
Y	Real Income	Total Industrial Production	Positive	The Federal Reserve Bank of St. Louis
P	Relative price	Ration of CPI (export country) to CPI (import country)	Negative	The Federal Reserve Bank of St. Louis
V	Exchange rate volatility	The conditional variance of the logarithm of detrended exchange rate data	Unknown	Pacific Exchange Rate Service

4. Methodology

4.1 Augmented Dickey-Fuller test

Augmented Dickey-Fuller (ADF) test and Phillips-Perron (PP) are the most popular tests for the presence of unit root. Brooks (2008) indicates that these two models usually give similar results. In parallel with this, problems linked with weak predictions while using stationary data refer to both types of tests. McKenzie and Brooks (1997) uses both types of tests in his paper, taking into account some advantages of Phillips-Perron (PP), which are the possibility of testing without lagged difference term and intercept term and trend. Ozturk and Kalyoncu (2009) also use the Augmented Dickey-Fuller test. The author applies the minimize value of Schwarz's Information Criterion (SIC) to choose the optimal number of lags. Selecting appropriate number of lags is the main part of testing procedure. Frequency of data and information criterion are offered by Brooks (2008). Kasman and Kasman (2005) emphasizes that the results of Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests in investigating the order of integration of variables including in his regression are the same.

Relying upon this research works the Augmented Dickey-Fuller (ADF) test is employed in order to test for the presence of a unit root in the time series data in this paper. Pursuant to Brooks (2008) guideline of this test is following:

H_0 : ψ = 0 series contains a unit root

H_1 : ψ < 0 series is stationary

In practise three types of ADF test are applied for large datasets. Below equations without drift and trend, with drift and with drift and time trend are presented:

1) Without drift and trend (random walk)

$$H_0 : y_t = y_{t-1} + u_t$$
$$H_1 : y_t = \varphi y_{t-1} + u_t , \varphi < 1$$

2) With drift (random walk)

$$H_0 : y_t = y_{t-1} + u_t$$

$$H_1 : y_t = \varphi y_{t-1} + \mu + u_t, \ \varphi < 1$$

3) With drift and trend (random walk)

$$H_0 : y_t = y_{t-1} + u_t$$

$$H_1: y_t = \varphi y_{t-1} + \mu + \lambda_t + u_t, \ \varphi < 1$$

Note: u_t is a white noise disturbance term, μ is a constant term.

The models can also be written by subtracting y_{t-1} from both sides of equation.

Below the critical values for Augmented Dickey-Fuller tests statistic are presented in Table 3. This test differs from previous tests. According to Brooks (2008) the results of test statistics can be significant only if u_t is a white noise. The test statistic is working in the following way: if critical values for DF tests are more negative than t-statistic then the null hypotheses is accepted. In contrast, if the absolute value of t-statistic is bigger than critical values then it is accepted the alternative hypotheses.

4.2 Generalized Autoregressive Conditional Heteroscedasticity (GARCH)

Estimation of exchange rate volatility is one of the most important and controversial part of empirical researches about the effect of exchange rate volatility on export flows. Previous studies employ various methods in order to estimate exchange rate volatility. Moving average standard deviation (MASD) model, Autoregressive integrated moving average (ARIMA) model, Autoregressive Conditional Heteroskedasticity (ARCH) and Generalized Autoregressive Conditional Heteroskedasticity (GARCH) models are the most popular technique which are used by economists as a measure of exchange rate volatility.

Moving average standard deviation (MASD) model is one of the most widely used methods of estimation exchange rate volatility.

Integrated autoregressive moving average (ARIMA) model is also a popular method of estimation of exchange rate volatility applied in previous studies. According to Becketti (2013) ARIMA model can lead to reliable forecasts by using actual values of lagged dependent variables. However, these forecasts may not always produce expected results ARCH model to determine exchange rate volatility.

Autoregressive Conditional Heteroskedasticity (ARCH) model introduced by Engle (1982) is widely employed by recent researchers as a measure of exchange rate volatility. According to Becketti (2013) ARCH model has properties to take into consideration time-varying changes in time-series data. Being renewal of ordinary autoregressive moving average (ARMA) model it requires more restriction. Caglayan and Di (2010) uses ARCH model as a measure of exchange rate volatility trying to defeat shortcomings of previous studies. Brooks (2008) states that prior lagged values of squared error are relevant to forecast and model volatility. According to McKenzie (1998) these prediction errors are not taken into account by previous methods as statistical variance, standard deviation, coefficient of variation and others. Therefore ARCH model is used by many authors as the best model to estimate exchange rate volatility. However, some restrictions due to time-varying volatility and economic aspects lead to further extensions of Autoregressive Conditional Heteroskedasticity (ARCH) model (Becketti, 2013). Generalized Autoregressive Conditional Heteroskedasticity (GARCH) model presented by Bollerslev (1986) is the extension of ARCH model and the most popular method of estimating exchange rate volatility in practice, because of some advantages which are: the GARCH model is parsimonious rather than ARCH, GARCH can annul overfitting, the GARCH model overcomes some difficulties of ARCH model related with choosing the number of lags and non-negativity constraints (Brooks, 2008). Taking into consideration these previous empirical studies, their conclusions and key ideas we employ Generalized Autoregressive Conditional Heteroscedasticity (GARCH) model presented by Bollerslev (1986) to generate conditional variance of logarithm of the detrended exchange rate data as a proxy of exchange rate volatility in this paper. According to Brooks (2008), although

GARCH (1, 1) model is very parsimonious and include only three parameters of conditional variance, it can be extended and contains adequate number of variables.

$$y_t = \mu + \varphi y_{t-1} + u_t \,, u_t \sim N\,(0, \sigma_t^2)$$
$$h_t \;=\; \sigma_t^2 \;=\; \alpha_0 + \;\alpha_1 u_{t-1}^2 + \;\beta \sigma_{t-1}^2$$

GARCH (1, 1) model which calculates conditional variance of exchange rate as a measure of exchange rate volatility contains following variables: y_t is nominal exchange rate; μ is the mean; u_{t-1}^2 is the last period of the squared residual lag; σ_{t-1}^2 last period error term; h_t is the conditional variance.

4.3 Method of Ordinary Least Squares (OLS)

The method of ordinary least squares was used to investigate the effect of exchange rate volatility on export flows. This empirical model is widely used in past and present papers: Akhtar and Hilton (1984), Medhora (1990), McKenzie and Brooks (1997) and others. Method of Ordinary Least Squares (OLS) estimator has several advantages: it is easy to regress one variable on others, each estimator provides one result and convenience of obtaining a regression line (Gujarati and Porter, 2010).

Ordinary least squares regression has following properties listed in Gauss-Markov theorem:

1) Linear – relationship between dependent variable and independent variable must be linear function (linearity must be in parameters)
2) Unbiasedness – by estimating the different sample data in the same size the expected value should be equal to the actual (true) value.
3) Consistency – properties of estimators come to the true value of parameter while data sample size increase.
4) Efficiency – is the most important property of OLS, where unbiased estimator has a least variance, which makes him best linear unbiased estimator.

According to Brooks (2008) in order to proceed to test the last assumption of classical linear regression model, where the error term must be normally distributed

In order to show whether two different values of variables are correlated to each other the Durbin-Watson (DW) test Breusch-Godfrey test is used. According to Brooks (2008) Durbin-Watson test statistic is only for serial correlation, while Breusch-Godfrey test is for each form of residual autocorrelation. In practice it is preferable to use both types of test in order to obtain a precise solution for the presence of autocorrelation. DW test statistic varies between 0 and 4. The first critical point means that there is a perfect positive autocorrelation and the last means that there is a perfect negative autocorrelation in residual series.

5. Presentation and Interpretation of empirical results

This chapter presents and discusses empirical results obtained using these methods. In section 5.1 the results of the ADF test is presented. Section 5.2 discusses the empirical results of GARCH (1, 1) model. And the last section of this chapter summarizes effects of explanatory variables using OLS.

5.1 Results of Augmented Dickey-Fuller (ADF) test

Most financial series are non-stationary. And including non-stationary variables into regression may lead to a spurious regression which is valueless. Therefore the Augmented Dickey-Fuller (ADF) test was applied to check for the presence of unit root of each variable in our regression model. The results of ADF test is shown in Table 3.

Table 3. The Augmented Dickey-Fuller (ADF) Unit Root Test (UK-Canada)

Country-pair	*export flow*	*volatility*	*relative price*	*real income*
UK-Canada	-3.219732**	-4.025739***	-0.435584	- 2.77367*
Spain-India	-1.192432	-0.827075	0.667796	-0.465120
Italy-Korea	-1.338079	-2.949070**	-1.922540	-0.899477
France-USA	-2.972033**	-4.399128***	-1.635702	-2.583268*

Note: *Significance at the level 10% ; **Significance at the level 5% ; ***Significance at the level 1%.

It can be seen from the results obtained by using ADF unit root test that most of the variables are non-stationary in levels. 5% statistical significance level is applied. Doroodian (1999: 4) states that "since many statistical procedures assume stationarity, the data needs to be transformed before beginning our analysis". There are a number of transformations, including (1) deterministic detrending (fixed trend models), (2) differencing (unit root with drift) and (3) stochastic detrending. According to Becketti (2013) first differencing a trend stationary process is not reliable due to existing unit root in the moving –average component which is not reversible. The author introduces detrending process as a better way to handle trend-stationary. Having reliance in these arguments the data transformed using the detrending method, proposed by Becketti (2013):

$$y_t - (\mu + \delta t)$$

Note: $\mu + \delta t$ is the time-varying mean; y_t logarithm of time-series variable.

5.2 Results of GARCH (1, 1) mode

The results of regression are shown in Table 4.

Canada/UK nominal exchange rate

y_t= 0.000483 + 0.983716y_{t-1} $+ \varepsilon_t$

(0.361148) (80.05190)***

$h_t = \sigma_t^2$ = 0.0000365038 + 0.083890$\varepsilon_{t-1}^2 + 0.853255\sigma_{t-1}^2$

(1.634546) (2.265087)** (13.32993)***

R^2 = 0.95 ; Log Likelihood = 759.0489 ; $\alpha_1 + \beta_1 = 0.94$

India/Spain nominal exchange rate

y_t = -0.000064196 + 0.959247$y_{t-1} + \varepsilon_t$

(-0.061541) (45.49869)***

$h_t = \sigma_t^2 = 0.00000309 - 0.085669\varepsilon_{t-1}^2 + 1.027860\sigma_{t-1}^2$

(4.782201)*** (-3.097776)*** (38.27613)***

$R^2 = 0.89$; Log Likelihood = 553.1033; $\alpha_1 + \beta_1 = 0.93$

Korea/Italy nominal exchange rate

$y_t = -0.002100 + 0.970190y_{t-1} + \varepsilon_t$

(-1.347529) (84.88989)***

$h_t = \sigma_t^2 = 0.000149 + 0.427720\varepsilon_{t-1}^2$ + 0.487881σ_{t-1}^2

(2.842386)*** (8.099648)*** (6.121517)***

$R^2 = 0.93$; Log Likelihood = 687.0870 ; $\alpha_1 + \beta_1 = 0.91$

USA/France nominal exchange rate

$y_t = 0.000983 + 0.973135y_{t-1} + \varepsilon_t$

(0.702658) (85.37572)***

$h_t = \sigma_t^2 = 0.000115 + 0.045892\varepsilon_{t-1}^2 + 0.768372\sigma_{t-1}^2$

(0.504841) (0.857870) (1.919937)**

R^2 = 0.95; Log Likelihood = 734.9965; $\alpha_1 + \beta_1 = 0.81$

Notes: numbers in parentheses are t-statistics; * is significance at the level 10%; ** is significance at the level 5%; *** is significance at the level 1%.

All the results for each pair of country obtained by GARCH (1, 1) model are presented in Table 4. As it can be seen from the results the GARCH parameters presented in parentheses are highly significant for all cases. Only in the last table (USA/France nominal exchange rate), the ARCH term is not significant. The sum of coefficients $\alpha_1 + \beta_1 \approx 1$ in the results is close to one. According to Brooks (2008) this factor specifies that estimated conditional variance using the model is highly persistent.

In other words, the results obtained using GARCH (1, 1) model indicate that conditional variance applied in this paper as a measure of exchange rate volatility is significant and it can be used it in the analyse. The log of nominal exchange rate was used to transform data before regression. After obtaining exchange rate volatility ADF test is used to check for the presence of unit root. The results of ADF test indicate that exchange rate volatility is stationary in the levels.

5.3 Results of Ordinary Least Squares (OLS) Regression

The results obtained from OLS regression are presented in Table 5

Table 5. Results of OLS regression

Country-pair	*Ln* Y_t	*Ln* P_t	*Ln* V_t	R^2	*D.W.*
UK-Canada	0.757**	0.686	19.297***	0.56	1.66
	(2.587)	(1.114)	(10.202)		
Spain-India	6.317***	-2.144***	2.775**	0.35	1.85
	(7.600)	(-4.761)	(1.992)		
Italy-Korea	0.273	-16.577***	-1.348***	0.67	1.41
	(1.315)	(-16.055)	(-3.527)		
France-USA	1.898***	3.960***	-0.291	0.58	1.87

Note: *Significance at the level 10% ; **Significance at the level 5% ; ***Significance at the level 1%.

According to the results of OLS regression in Table 5 the logarithm of real income of importer countries has a highly significant positive effect on the volume of export. The expected positive sign of coefficients of real income indicates that an increase in real income leads to an increase in the volume of exports between two countries. These results are consistent with the theoretical models. De Grauwe (1988) argues that expected increase in income causes an expected increase in the volume of exports. Arize (1995) claims that the demand for export rises with respect to increase in foreign income.

The OLS regression shows that the sign of relative price explanatory variable is positive for France and USA, United Kingdom and Canada but this coefficient is not significant for the latter. In parallel with this, the sign is highly significant and negative for Spain and India, Italy and Korea. As it can be seen from the results the 1% increase in the relative price of France and USA will increase 3.96% of export flow from France to USA. The positive effect of relative price on the volume of exports is consistent with the results of Arize et al. (2000) and Chowdhury (1993). Arize et al. (2000) asserts price limitation affected by rivalry to exporter countries and lack of effective available data lead to unexpected positive or insignificant results. In contrast, significant and negative sign of coefficients for two other pairs Spain and India, Italy and Korea means that an increase in the relative price, which is constructed as the ratio of consumer price index in export country to consumer price index in import country will decrease the volume of exports. The results presented in Table 5 shows that 1% increase in relative price will reduce 2.14% of Spain exports to India and 16.77% exports from Italy to Korea. These results are accordance with conclusions of previous studies. According to Chit et al. (2010) the export volume between two countries has a positive relationship with the price level in importer country and negative relationship with the price level in exporter country.

Finally, from the OLS regression results the impact of exchange rate volatility on export flow can be evaluated, which is the main purpose of this dissertation. As it can be seen from in Table 5 the signs of coefficients of exchange rate volatility are highly significant and positive for two cases (United Kingdom and Canada, Spain and India) and negative for Italy and Korea, France and USA, for the latter this result is insignificant. Significant and positive effect of exchange rate volatility on the volume of exports is also found by Asseery and Peel (1991), McKenzie and Brooks (1997), Klein (1990) and Franke (1991). The positive impact of exchange rate on export indicates that an increase in 1% of exchange rate lead to an increase 2.77% of Spain exports to India and increase 19.29% exports from UK to Canada. For the latter this coefficient is higher than coefficient of other variables, which means that exchange rate volatility has a higher influence and more effective on export flows than relative price and real income. The negative effect of exchange rate volatility on exports for the case of Italy and Korea means that 1% increase in exchange rate will decrease 1.34% of export flow. This result is consistent with the previous studies Chowdhury (1993), Ozturk and Kalyoncu (2009), Akhtar and Hilton (1984), Peree and Steinherr (1989). The last insignificant result indicates that change in exchange rate volatility will not affect the volume of exports from France to USA. A similar result is obtained by Gotur (1985), Bailey et al. (1986), Gagnon (1993). According to Arize (1995) insecure test structures, failure in determining of data, lack of empirical and theoretical research lead to contradictory results.

As it can be summarized from the results of OLS regression, the R-square is around 0.60 in average for all cases, which means that the goodness of fit (power of explanatory variables) in the models is quite good. The Durbin-Watson test statistic is around 2 which exclude the presence of autocorrelation in residuals.

6. Conclusion

In conclusion, all questions of this topic cannot be solved due to problems associated with lack of data and time. For further researchers, using both nominal and real exchange rate is recommended. In addition including more explanatory variables and dummy variables based on historic information can be used to determine relationship between exchange rate volatility and the volume of export more precisely. Finally, having reliance on most previous papers, it is suggested that using different methods of estimation of exchange rate volatility: MASD, ARCH, ARIMA, GARCH models can also be the key factor in order to fill the gap in this issue.

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THEORETICAL AND PRACTICAL BASES OF PERSONNEL QUALITY IMPROVEMENT

Sarieva Asemgul Kydyrbaevna
Doctoral student of Al-Farabi Business School, Al-Farabi Kazakh National University

The efficiency of the staff is important not only for the company, but also for society as a whole. Firstly, an efficient enterprise creates a social product, and secondly, it creates jobs. Therefore, the relevance of the topic under study is beyond doubt.

The theoretical basis of the research is the work of domestic and foreign authors, so the definition of basic concepts about personnel and its role in the company's activities were studied in the works of foreign authors R. Waterman "Factors of renewal. How the best companies remain competitive", P.M. Diesel, W. McKinley Ranyan "Human behavior in an organization" Gibson J.L., Ivansevich J., Donnelly J.H. "Organizations: behavior, structure, processes".

Among domestic authors N.A. Vasilyeva, T.A. Mateush, M.G. Mironov consider personnel as personnel hired by an enterprise on the basis of a contract and who are representatives of various professions.

Theoretical aspects of personnel management are studied and presented in the works of I.I. Isachenko, O.I. Elizarova, E.A. Kondrus "Human resource management", I.Y.Lenskaya, I.V. Shindryaev, V.A. Shiryaev "Personnel management of the organization", A.M. Karyakin, Yu.G. Odegova N.V., Artamonov I.G. Golovtsov in works of the same name "Personnel Management" by A.M. Karyakin "Personnel Management" and others. The process of personnel development from a management perspective is a mechanism of labor investments in the company's activities. Professional knowledge quickly becomes obsolete, not keeping up with the development of technology.

Management of human development of personnel is considered by O.Y. Bryukhova "Personnel development", V. T. Zhuravlev "Personnel management of Russia", V.M. Kolpakov "Personnel development management" O.E. Steklova "Management of social development of personnel" E.A. Mitrofanova, V.M. Svistunov., E.V. Kashtanova in the work "Personnel management: theory and practice. Organization of training and professional education of personnel" and many other authors.

Personnel development related to service and professional growth is considered in the works of A.Y. Kibanov "Personnel management: theory and practice. Management of business career, service and professional promotion and personnel reserve", O.K., Mineva, I.N. Akhunzhanova, T.A. Mordasova "Personnel management of the organization: technologies of personnel development management", E.V. Kashtanova, "Personnel management: theory and practice. Management of business career, professional promotion and personnel reserve"

The forms and methods of personnel development are considered in depth in the works of M.V. Polevoy "Technologies of personnel training and development in the organization", N. Cornelius "HR management: search, selection, training, adaptation, motivation, discipline, ethics", K.G. Kazimov "Personnel management: professional training and development", in the monograph O.L. Chulanova "Formation, development and coaching of emotional competence in the personnel management of an organization: a monograph" and in the handbook of personnel management by T.V. Lavrina, A.A.Tyutina, N.V. Bogomolova "A systematic approach in training" and other authors.

An important role in the development of personnel is the assessment of the results of employees' activities for making decisions on further measures for cooperation. This issue is considered in more depth in the following works: Berkutova T.A., Kronikovskaya N.V., Martyanova I.A., Ponomarev A.M. "Personnel assessment as a managerial task: efficiency, competencies, business communications", S.V. Kulkov "Modernization of the organization's personnel management system: efficiency assessment, improvement tools" and others. In the works of foreign authors Ulrich D. "Effective personnel management: the new role of an HR manager in an organization", Stout L.U. "Personnel management. Manager's handbook", H.K. Rampersad "Universal system of performance indicators: how to achieve results while maintaining integrity", David P. Norton, S. Kaplan Robert "Strategy-oriented organization: how organizations that use a balanced scorecard succeed in the new business environment", E. Becker, Brian, A. Huizlid, Mark, Ulrich, Dave. "Measuring the performance of the HR department. People, strategy and performance."

Personnel development activities should be carried out systematically and should be focused on improving the productivity and qualifications of employees. Personnel development activities can be called a personnel development system (Figure 1).

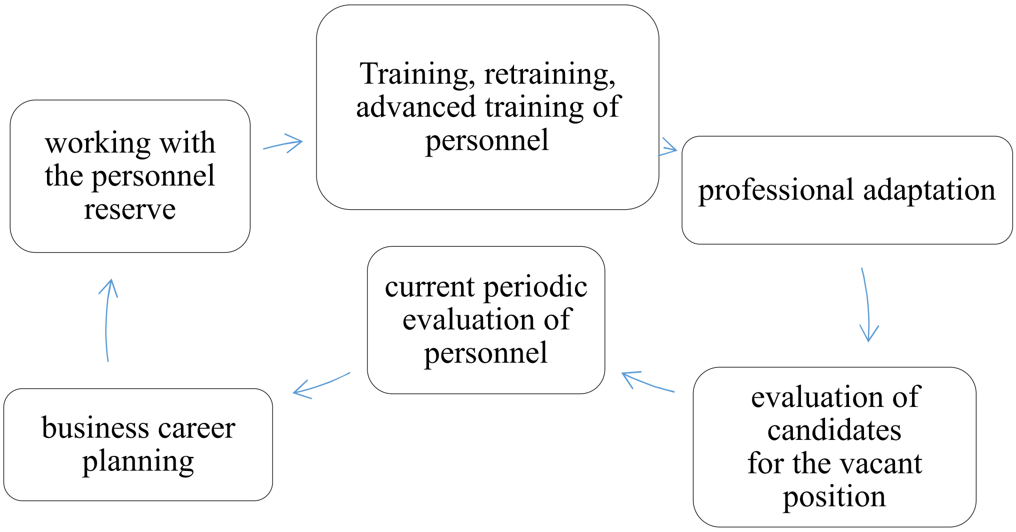

Figure 1 – Personnel development activities according to the methodology of I.I. Isachenko [1]

Presented in Figure 1, the system of measures should be reflected in the strategic plans of the enterprise. The company should be interested in conducting training seminars, professional development courses and corporate spirit.

The goals and measures for personnel development are key in the personnel policy and in general in the enterprise management system.

The goals of the company's personnel development are to increase the professional potential of employees, increase the efficiency of the work performed by employees, support young employees, the ability to adapt to innovations, motivation of employees (Table 1) [2].

Table 1 – Goals and activities in the personnel development system [2]

	Goals and measures for personnel development	
	1	2
1	Personnel development goals	– increasing the labor potential of employees to solve personal tasks and tasks in the field of functioning and development of the organization; – improving labor efficiency; – reduced staff turnover; – training of the necessary leadership personnel; – education of young capable employees; – achieving greater independence of the labor market; – adaptation to new technologies; – growth of social qualities of employees and their satisfaction with work.
2	Personnel development measures	– maintaining working capacity; – adaptation of personnel to changing conditions; – preparing employees to perform more complex tasks; – organization of psychological assistance to employees working in conditions of increased risks.

Personnel development measures include creating conditions for adaptation, maintaining the efficiency of employees, organizing personnel for complicated tasks and psychological adaptations for employees with high-risk responsibilities (Figure 2).

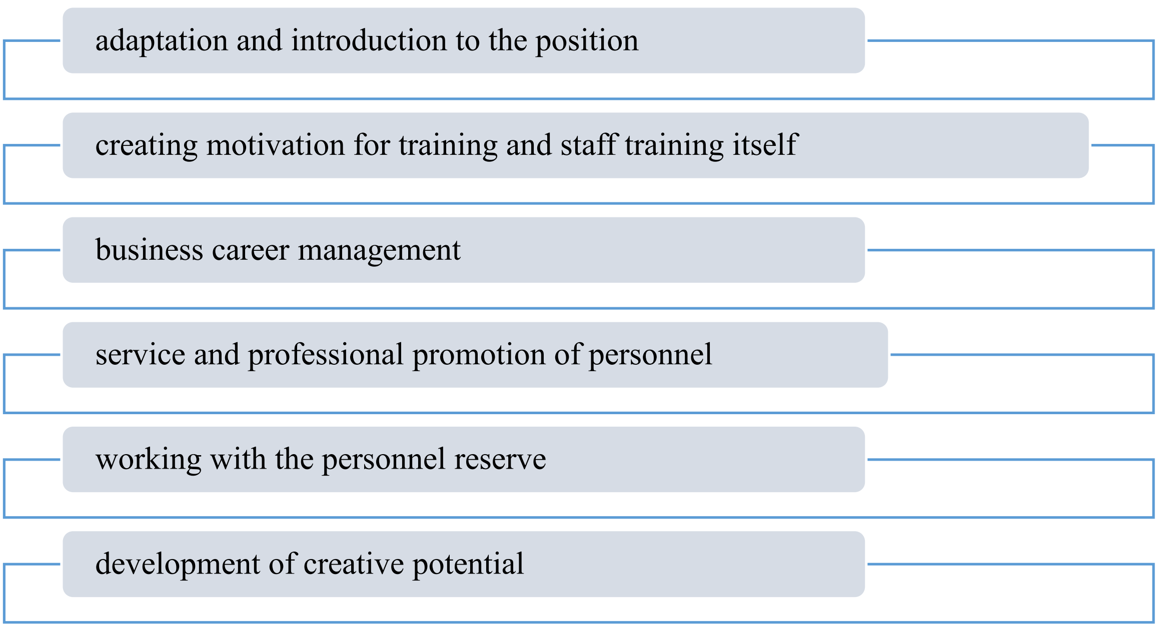

Figure 2 – Main personnel development activities

When choosing a personnel policy:

- the requirements for the implementation of ongoing work are approved;
- the financial capabilities of the enterprise, the level of expected or possible costs for personnel management are established;
- characteristics of the staff, the direction of their changes in the future;
- the situation on the labor market;
- the authority of trade unions, rigidity in protecting the interests of workers;
- the requirements of labor legislation, the reasons characteristic of the external and internal environment of the enterprise, such as the usual work culture and the hired staff, are taken into account.

Requirements for personnel policy:

- close connection with the company's development strategy;
- flexibility (combination of stability and development, joint application);
- substantiate economic;
- individual approach to employees.

The personnel policy changes depending on the economic situation in which the enterprise operates, the state of the enterprise itself.

Correctly chosen personnel policy:

a) timely collection and selection of personnel in order to ensure the smooth operation of production, timely development of invested funds;

b) formation of the necessary level of potential of the enterprise's collective with minimal costs (within reasonable limits of the costs associated with hiring employees and professional development);

c) stabilization of the collective by providing in the interests of employees, professional development and other benefits;

d) formation of incentives for high-performance work;

e) effective use of personnel in accordance with training.

Personnel management at the enterprise is carried out by personnel service units created not only at the level of medium management, but also at high and low levels.

The functions of personnel management at the lower management level (workshop, site) are performed by industry managers, as well as specialists of workshop and precinct management structures of public organizations of the workshop. They participate in the selection of personnel and provide conditions for high-performance work, the use of employees according to their abilities.

As for the creation of a personnel service in modern conditions, it is not a universally recognized form and comes from a variety of reasons, in particular, from the size of the enterprise, the volume of each type of managerial work, the management's understanding of personnel management tasks, management style and methods.

Before proceeding with proposals for improving the personnel development system, we will consider their stages and use them to identify the effectiveness of the proposed scheme (Figure 3)

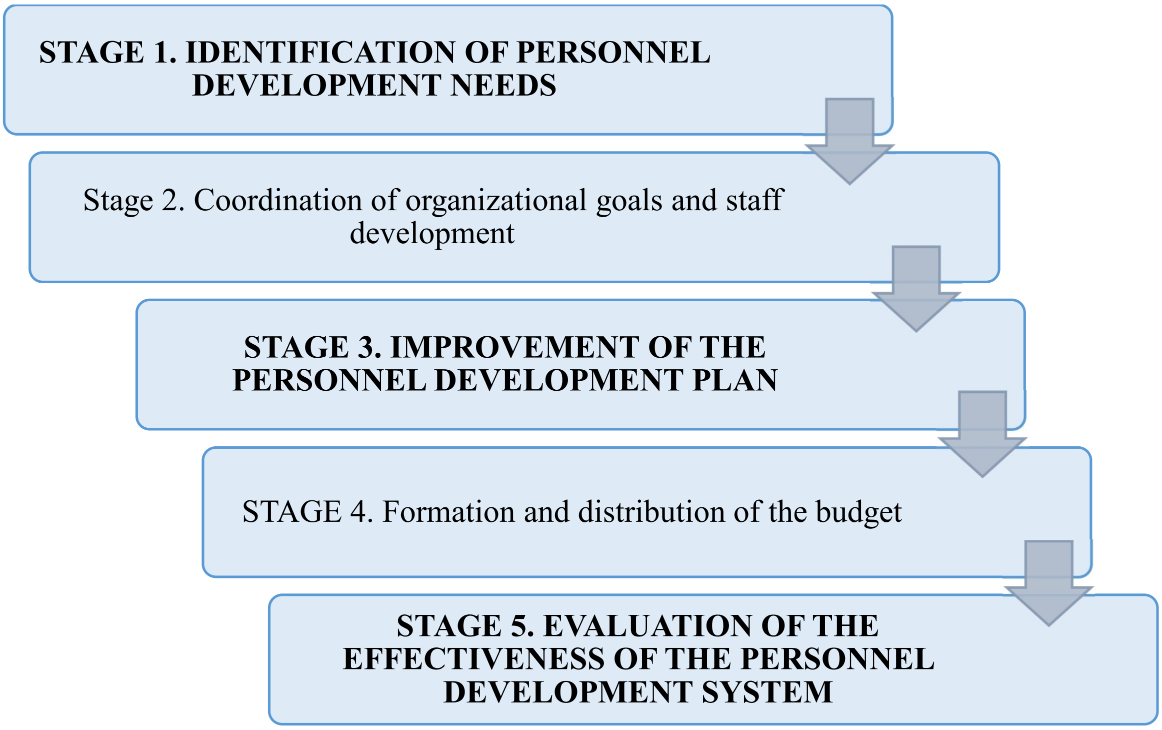

Figure 3 – Stages of determining the effectiveness of personnel development

The first, third and fifth stages are important for the Personnel development Management Department. The fifth stage is analyzed if there is information about the budget in cooperation with the accounting department.

Admission of teaching staff to the al-Farabi KazNU is carried out on a competitive basis. The rules of competitive replacement of positions of teaching staff, researchers and other categories of employees are carried out on the basis of the following requirements:

1) mandatory knowledge and compliance with the Code of Corporate Culture of a teacher and an employee of Al-Farabi Kazakh National University;
2) academic degree and academic title;
3) experience in a scientific and educational organization;
4) educational and methodological and scientific works;
5) active participation in scientific research and/or international projects;
6) knowledge of a foreign language;
7) availability of publications in scientific publications recommended by the CCSON of the Ministry of Internal Affairs of the Republic of Kazakhstan, international scientific journals included in the information bases of the Web of Science and Scopus. [3]

In order to improve the quality of the staff, Al-Farabi Kazakh National University has developed new requirements for the qualitative renewal of the teaching staff. Focusing on the models of world research universities, the criteria for hiring teaching staff are changing. The university has implemented an indicative planning system. Indicative planning makes it possible to use the rating assessment of academic productivity of teaching staff as an effective result-oriented management tool. The results make it possible to use progressive remuneration and attract qualified and highly productive teachers. Teaching staff with high performance in research activities have the opportunity to move to the position of a research professor and have a reduced teaching load, which will allow them to devote more time to research.

When hiring, the following requirements will be met:

– experience in the implementation of scientific projects and publication activity;
– level of foreign language proficiency;

- proficiency in modern digital learning and assessment technologies;
- having practical experience in specialization in the non-academic sector;
- annual publication of at least one article in rating "non-predatory" journals included in the Scopus database not lower than the Q3 quartile.

The information system of indicative planning and rating assessment of the activities of Al-Farabi Kazakh National University (hereinafter referred to as the system) is a system consisting of two main subsystems: "indicative planning" and "rating assessment".

The main modules of the "rating assessment" subsystem:

The "administration" module is designed to manage access rights and open the operating modes of the system, as well as manage the parameters of the report parameters.

The module "rating questionnaire" is intended for inclusion of indicators of rating questionnaires of teaching staff, department, faculty by structural divisions of the university responsible for the corresponding direction of scientific and educational activity.

The Rating module is designed to enter the values of the indicators of teaching staff, departments and faculties related to the role policy, and print the data of rating questionnaires.

The module "Monitoring" is designed to control the structural units responsible for the relevant direction of the scientific and educational department, for the reliability of the entered information on the indicators of teaching staff, departments and faculties, and to establish the appropriate status (correct / incorrect) to create analytics for the preparation of flexible reports in automatic mode in the future and analysis of the evaluation of the scientific and educational department university.

- Functional capabilities of the "rating assessment" subsystem:
- formation of a rating score;
- formation of a rating questionnaire;
- filling out a rating questionnaire;
- monitoring of rating surveys;
- analysis of the teacher's rating by department, faculty, type of questionnaire, etc.;
- ranking of rating questionnaires in the context of teaching staff, departments, faculties and universities;
- formation of various types of tasks. [4]

In conclusion, we note that the personnel development system is part of the personnel management system. The essence of the personnel development system is to combine related elements reflected in personnel development programs that meet the requirements of the enterprise and are able to change under the influence of external and internal factors.

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ПРОБЛЕМЫ ФОРМИРОВАНИЯ ИМИДЖЕВОЙ ПОЛИТИКИ В СОВРЕМЕННЫХ УСЛОВИЯХ И ПЕРСПЕКТИВНЫЕ НАПРАВЛЕНИЯ ЕЁ РАЗВИТИЯ В МЕДИЦИНЕ

Жумабеков Жандос Темирханович
докторант DBA, Алматы Менеджмент Университет, Республика Казахстан, г. Алматы

Аннотация

Предпосылками настоящего исследования стали проблемы, отмечаемые медицинскими организациями, полученные в результате отсутствия имиджевой политики или не включения в нее перспективных направлений развития имиджа. Подобная ситуация приводит довольно часто к тому, что в современных условиях медицинские организации не могут быть конкурентоспособными и не привлекают должного внимания со стороны своих пациентов. В то время как именно эффективная имиджевая политика, в которую включены современные инструменты, позволяют решить имеющиеся проблемы и выработать социально-психологическое пространство, в пределах которого реализуются следующие элементы: целостность, вовлечённость целевой аудитории и глубина передачи имиджевых образов и смыслов медицинской клиники. Цель исследования – анализ проблемы и современных направлений развития имиджевой политики медицинской организации. Методами исследования стали: литературный обзор, анализ имиджевой политики клиник и анкетный опрос. В результате анализа установлены проблемы и перспективы развития имиджевой политики современных медицинских организаций. Рекомендуется медицинским организациям включить имиджевую политику в стратегию развития и сделать ее элементом организационной культуры. В качестве перспективных направлений развития имиджевой политики следует использовать более активно и качественно наиболее эффективные PR- инструменты, характерные для медицинской компании, а также инновационные PR-мероприятия. Теоретическая и практическая значимость данного научного исследования включает в себя расширение объёма познаний и разработку практических предложений по решению проблем в области имиджевой политики и перспективных направлений, подтвержденных практикой развитых медицинских организаций.

Ключевые слова: имиджевая политика, медицинская организация, клиники, медицинские услуги

1. Введение

Проблема формирования имиджевой политики в современных условиях и перспективные направления её развития в медицине актуальны и своевременны, так как только современная имиджевая политика позволит медицинским организациям добиться конкурентных преимуществ: устойчивая имиджевая политика защищает от конкурентов; благоприятная имиджевая политика даёт возможность завоевать рыночные позиции и удержать их длительно; эффективная имиджевая политика обеспечивает одобрительное восприятие со стороны персонала, инвесторов, клиентов, СМИ и других заинтересованных лиц; стабильная имиджевая политика предоставляет для работы эффективные условия. Анализ и оценка проблем формирования и текущего состояния имиджа позволяет разработать мероприятия по выработке современной имиджевой политики, включающей в себя направления, по которым возможно развивать и укреплять имидж организации.

Цель исследования – провести исследования влияния имиджевой политики современной медицинской организации на повышение узнаваемости и качества оказания медицинских услуг.

Новизна заключается в том, что расширены теоретические и практические основы по установлению проблемы формирования имиджевой политики в современных условиях и определены наиболее перспективные направления её развития в медицине.

Гипотеза – имиджевая политика, основанная на современных направлениях развития, позволяет решить имеющиеся проблемы и даёт возможности для развития организации в целом.

Теоретическая и практическая значимость исследования заключается в расширении объёма познаний и разработке практических предложений по решению проблем в области имиджевой политики и перспективных направлений, подтвержденных практикой.

2. Литературный обзор

Имиджевая политика современной организации (Л.А. Вайнштейн, М.А. Кулага), в том числе и медицинской, представляет собой политику позиционирования, которая должна быть выражена в определённом документе, который определяет основные принципы представления организации или иного объекта на рынке, и включает в себя требуемые инструменты для решения задач, поставленных для его обозначения [1]. Под имиджевой политикой организации (Джи Би) понимаются условия и порядки социально-психологического плана в её имиджевой деятельности, вырабатывающие социально-психологическое пространство, в пределах которого выполняется между организацией (предприятием) и её целевыми аудиториями управление различными отношениями [2, с. 22]. Социально-психологическая структура должна учитываться при формировании имиджевой политики организации, с учётом следующих основных социально-психологических условий: целостность имиджевой политики как системы; вовлечённость целевой аудитории в отношения с организацией; глубина передачи имиджевых образов и смыслов. Именно эти три условия и определяют пространство, направленное на формирование и управление имиджем современной медицинской организации.

Относительно проблемы формирования имиджевой политики в медицине следует отметить мнение Б.А. Тхорикова (2008), который указывает на то, что медицинские организации являются важной и особенной сферой деятельности, поэтому следует учитывать их при формировании имиджевой политики, а не перекладывать полностью общий опыт [3, с. 109-112]. Наиболее значительными также, по нашему мнению, являются научные и прикладные материалы, исследующие проблемы формирования имиджевой деятельности в фармацевтических организациях. К ним отнесены работы А.А. Афанасьевой о проблематичности многих составляющих политики формирования имиджа медицинских предприятий, в том числе и PR-стратегии [4, с. 16]. Л.П. Чебаева, А.А. Хусаенова, Л.М. Насретдинова показывают в ходе исследования имиджевую политику медицинских учреждений с учётом общественного восприятия, больше проблем у государственных учреждений, по сравнению с частными [5, с. 5-7]. В работе казахстанских исследователей С. Тасжарганова и Т. Саткалиева отмечена важность определения в имиджевой политике установления обратной связи с клиентами [6, с. 170-181]. Нужно отметить, что о важности перспективных направлений развития имиджевой политики в современной медицине писали все вышеобозначенные авторы. Также исследовали возможности развития имиджа в медицине в современных условиях, с акцентом на улучшение управления качеством медицинских услуг: В.Ю. Мамаева, В.В. Мацько [7, с. 132-134], М.А. Алиева, П.В. Насрулаевой [8, с. 45-49], А.С. Ямщикова, Е.И. Маева [9, с. 28-35]. Рассматривали их важность, как особенности конкурентной среды на медицинском рынке: И.В. Оловянишникова [10, с. 207-211], С.Г. Демченко, А.Л. Файзханова [11, с. 191-197] и многие другие. Литературный обзор позволяет сделать выводы, что проблемы формирования имиджевой политики медицинских организаций приобретают всё больший интерес, так как притягивают к себе внимание как учёных, так и других исследователей. При этом всегда отмечается важность выработки перспективных направлений развития имиджевой политики в современной медицине. Также следует обозначить, что многие проблемы и перспективы развития, отмеченные обозначенными нами и другими исследователями относительно имиджевой политики современных медицинских организаций, имеют большое значение, что даёт возможность подойти более детально к исследованию по обозначенной теме.

3. Методы

Достижение обозначенной цели проведено при помощи следующих методов исследования: методы обобщения, сопоставления и сравнения; анализа и синтеза (теоретического и фактического материала), анкетный опрос.

На первом этапе проведён литературный обзор формирования имиджевой политики в медицинских организациях.

На втором этапе исследованы проблемы формирования имиджевой политики в медицине на основе анкетного опроса клиентов медицинских клиник города Алматы. Анкетный опрос основывался на мнениях опрашиваемых, что позволяет установить проблемы в имиджевой политике медицинской клиники. Приняли участие в опросе в основном женщины – 78%, а мужчины – всего 22%. По возрасту: наибольшая доля опрошенных составили респонденты в возрасте 45-55 лет – 34,8%, 18-25 и 55-65 – по 17,4%, 35-45 лет – 8,7%, в категории 25-35 лет не принимали участие в опросе. По видам деятельности: в основном пенсионеры – 32%, домохозяйки – 23%, рабочие – 18%, предприниматели – 14%. Представители творческой профессии участие в опросе не принимали.

На третьем этапе – выработаны перспективные направления имиджевой политики в медицине для обеспечения современного развития медицинских организаций.

Материалами исследования определены: научные теоретические и практические источники и материалы, отражающие практический опыт имиджевой деятельности клиники медицинских организаций.

4. Результаты

Результаты анализа имиджевой политики медицинских клиник показал, что основная доля в них в настоящее время отведена в основном проведению информирования своей целевой аудитории об организации. Для этого используются обычно официальные сайты и социальные сети. Но активной работы медицинских клиник в сетях Интернета мы не отмечаем. На сайтах клиник нет даже новостного раздела. В основном предоставляется общественности информация об услугах, для того чтобы просто рассказать, какие услуги есть в клинике. При этом клиники постоянно внедряют новые виды услуг и технологии, поэтому правильно было бы держать в курсе своих постоянных клиентов и партнёров. Нет в свободном доступе и информации, которая обычно направляется на то, что клиника стремится создавать мнение о самой компании своим потенциальным клиентам, и особенно тем, кто слышит о клинике впервые. Не установлены нами также материалы о том, как в клиниках изучается конъюнктура рынка. С этой целью проведен автором опрос среди респондентов, которые получили медицинские услуги среди стационаров республики, опрос проведен в третьем квартале 2023 года.

Результаты анкетного опроса.

Причинами выбора клиники стали: удобная локация – 34,2%; рекомендации знакомых – 33,5%, приемлемые цены за услуги – 19,4%, благоприятное впечатление – 12,9%. Незначительное число опрошенных отмечают: рекламную известность, качество предоставляемых услуг и дополнительные преимущества – по 8,7%, что является негативным показателем, характеризующим невысокий уровень имиджевой политики клиники(Рисунок 1).

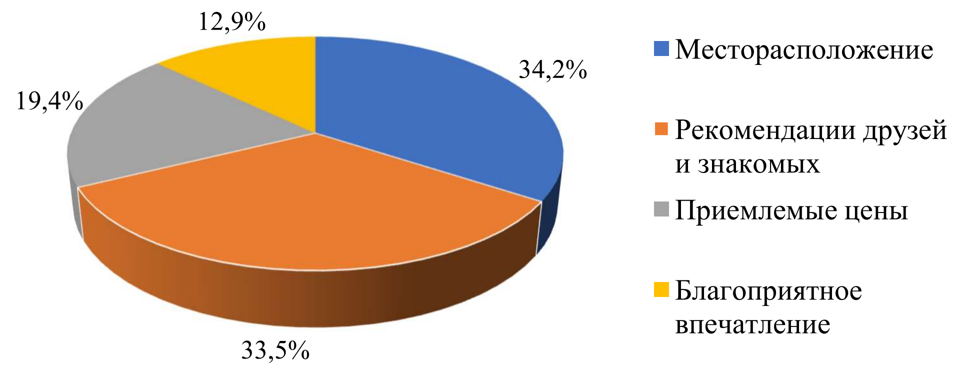

Рисунок 1 – Критерии выбора медицинской клиник среди респондентов.

Средства получения информации о клинике: 29,1% респондентов получают от сотрудников клиники, 34,8% опрошенных - через друзей и знакомых, социальные сети – 26,1%. В небольшой степени из Интернет-сайта организации – 5,7%. В наименьшей степени – из газет и журналов, наружной рекламы и радио – 4,3%. Данные показатели свидетельствуют о том, что имиджевая политика неэффективна, так как традиционные средства рекламы значительно уступают современным (Рисунок 2).

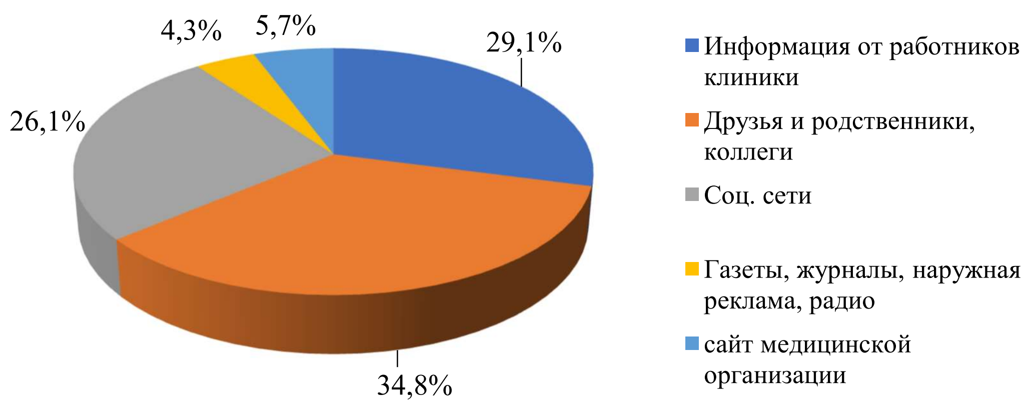

Рисунок 2 – Источники получения информации о медицинских услугах.

Результаты оценки уровня визуального имиджа клиник: 17,4% респондентов оценили на «отлично» показатель «архитектура и внешний вид помещений»; 30,4% опрошенных оценили на «хорошо» внешний вид сотрудников; 39,1% - выставили оценку «удовлетворительно» за коммуникации в контактной зоне (стойка регистрации, приветствие и вежливое отношение); 13,1% - оценили на «неудовлетворительно» наличие свободных мест на парковке.

Результаты оценки по соответствию представлений об идеальной, успешной медицинской организации, было предложено выбрать до четырех критериев: «удобство расположения клиники (локация)» – 69,6% опрошенных; «отношение к пациенту» – 29,2%; «качество оказания услуг» – 56,5%; авторитет руководства – 56,5%; «отношение персонала к работе» – 52,2% и показатели профессионализма сотрудников – 47,8%. Однако отметим, что такие показатели, как «известность на рынке», «значимость для региона» и «рекламная известность» отметили лишь 13,1% респондентов.

По соответствию представлений об идеальной, успешной медицинской организации результаты намного выше, по сравнению с уровнем оценки визуального имиджа, что говорит о том, что клинике не уделяет должного внимания внешним составляющем имиджа (элементам современного брендирования).

При оценке инструментов формирования имиджа клиники установлено, что большинство опрошенных не посещали или не подписаны на официальные страницы социальных сетей клиники (52,2% респондентов), только 47,8% - пользуются социальными сетями клиники.

Результаты ответа на вопрос «Предлагаете ли вы эту медицинскую организацию своим друзьям и родственникам, знакомым?» чуть более половины опрошенных предлагают клинику своим друзьям и родственникам, знакомым; остальные не предлагают или затруднились ответить.

5. Выводы и обсуждение

Таким образом, исходя из полученных результатов относительно процесса формирования имиджа организации медицины, отмечается, что он является сложным и многоаспектным, так как предусматривает учитывать многие факторы. В первую очередь эти факторы связаны с показателями доступности и качества оказываемых медицинских услуг, являющимися важными для пациентов.

Основными проблемами в формировании имиджевой политики медицинской организации определены:

1) не всегда разрабатываются планы стратегического развития клиники;
2) невысокий уровень маркетинговой деятельности;
3) нет единой или интегрированной власти в области имиджа;
4) рекламные кампании носят разовый характер, что приводит тому, что потребитель низко осведомлён о деятельности компании;
5) сайт и социальные сети не отвечают современным требованиям;
6) медицинский персонал не имеет единого фирменного стиля, на форменной одежде нет логотипа клиники;
7) внутренние коммуникации развиты плохо, нет современной внутренней связи между регистратурой и кабинетами, между лабораторией, регистратурой и кабинетами;
8) система активных продаж медицинских услуг в клинике отсутствует.

Результаты анкетного опроса: оценка уровня визуального имиджа клиники по соответствию представлений об идеальной, успешной медицинской организации, основанные на таких показателях, как: удобство расположения, отношение к пациенту, качество оказания услуг, отношение персонала к работе и показатели профессионализма сотрудников; большинство опрошенных не знакомы с инструментами имиджа клиники (на посещали или не подписаны на официальные страницы социальных сетей клиники; полностью удовлетворены услугами клиники только 50%.) Полученные результаты позволили нам определить имиджевую политику на рынке медицинских услуг как в среднем удовлетворительные, но требующие обязательного развития, что подтверждает выдвинутую гипотезу.

В качестве перспективных направлений развития имиджевой политики в медицине предлагается более активно и качественно использовать наиболее распространенные PR-инструменты, характерные для медицинской компании:

1) постоянное обновление сайта компании;
2) публикации в СМИ;
3) проводить постоянный мониторинг информационной среды;
4) производить рассылки в различные каналы меняющихся пресс-релизов компании;
5) проводить яркие рекламные компании;
6) участвовать в рекламных мероприятиях, проводящихся в регионе и за его пределами;
7) участвовать более активно в сетях интернета и завести блог главного врача и отдельных врачей, и другие.

Также рекомендуется использовать и более смелые эксперименты по применению инновационных PR-инструментов: проводить телеконференции; постоянно размещать видеопресс-релизы; использовать качественные «вирусные» ролики и 3D-проекции. Также рекомендуется разработать политику и стратегию развития PR-деятельности, которая должна быть «вклеена» в общую стратегию развития предприятия.

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DEVELOPMENT AND IMPLEMENTATION OF CORPORATE STRATEGY

Bermagambetov Askar
Doctoral student of Business Administration, Almaty Management University (Almaty, Kazakhstan)

РАЗРАБОТКА И РЕАЛИЗАЦИЯ КОРПОРАТИВНОЙ СТРАТЕГИИ

Бермагамбетов Аскар Рустемович
Докторант DBA, Алматы Менеджмент Университет,
Республика Казахстан, г. Алматы

Abstract

The article discusses the development of corporate strategy. The paper examines the functional strategies of organizations. Proposed model for the development and implementation of the corporate strategy of the organization.

Аннотация

В статье рассматриваются вопросы разработки корпоративной стратегии. Рассмотрены функциональные стратегии. Предложена модель разработки и реализации корпоративной стратегии компании.

Keywords: corporate strategy, business strategy, functional strategies, enterprise

Ключевые слова: корпоративная стратегия, деловая стратегия, функциональные стратегии, предприятие

Введение. Особо актуальными являются вопросы построения корпоративной стратегии предприятия. От грамотно разработанной и эффективно реализуемой корпоративной стратегии зависит успешность развития и функционирования компании.

Практический интерес могут представлять исследования по формированию корпоративной стратегии следующих авторов: Кузнецовой И.Д. [1], Молдашева Г.К., Хусаинова Б.М., Аринкина Е.А. [3], Щетининой Е.Д., Панченко С.О., Сухоруковой Л.И. [4] и др. В исследованиях авторы уделяют внимание особенностям разработки и организационным аспектам формирования корпоративной стратегии. Однако, в настоящее время изучены не все аспекты построения корпоративной стратегии, а также не сформирован простой механизм разработки корпоративной стратегии предприятия.

Целью исследования является разработка механизма построения корпоративной стратегии предприятия.

Результаты исследований. Грамотно разработанная корпоративная стратегия способствует долгосрочному устойчивому развитию диверсифицированной компании. Корпоративная стратегия определяет наиболее перспективные сектора развития бизнеса, инвестиционные приоритеты, формирует высокопродуктивный портфель хозяйственных подразделений, механизмы взаимодействия между стратегическими единицами бизнеса, укрепляет рыночные позиции. Данная стратегия высшего уровня неразрывно связана и определяет формирование стратегий более низких уровней в иерархии управления.

Для выбора стратегических направлений развития компании и разработки корпоративной стратегии для конкретного предприятия, необходимо представить выделение видов стратегий (рис. 1). Для разработки корпоративной стратегии особое внимание следует уделить такому признаку классификации стратегий, как уровень иерархии в системе управления. По уровню иерархии в управлении выделяют корпоративную, деловую, функциональную и операционную стратегии.

Корпоративная стратегия – это взаимосвязь различных составляющих экономической деятельности компании, направленных на создание потребительской ценности. Корпоративная стратегия отражается в миссии и целях развития компании и охватывает как внутренние компоненты (производство, маркетинг, финансы, персонал, логистику и т.д.), так и внешние элементы (формирование потребительской ценности для акционеров, инвесторов, потребителей, поставщиков, кредиторов и др. заинтересованных лиц) [2, с. 93].

Деловая стратегия – стратегия бизнес-единиц, отдельных хозяйственных подразделений, позволяет управлять конкретной сферой бизнеса в диверсифицированной компании. Реализует мероприятия по повышению конкурентоспособности, управлению изменениями, определяет стратегические планы действий основных функциональных подразделений.

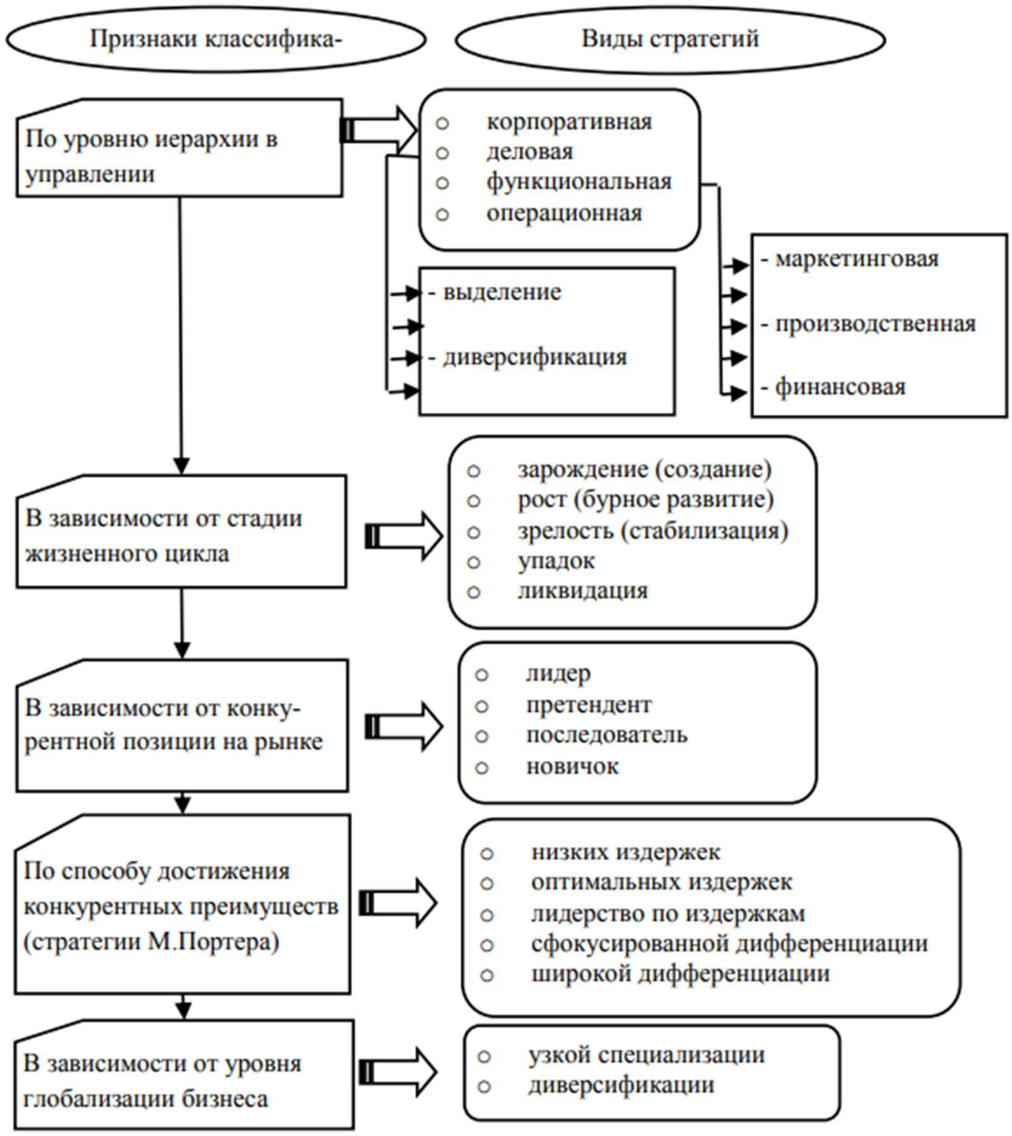

Рис. 1. Классификация стратегий предприятия

Функциональные стратегии разрабатываются для каждого функционального направления организации (маркетинговая, производственная, финансовая, организационная экологическая, стратегия НИОКР, социальная и др.). Направлены на реализацию поставленных задач более высокими уровнями стратегий в иерархии управления. Определяющей функциональной стратегией может стать любая из функциональных стратегий, в зависимости от специализации деятельности каждой бизнес-единицы диверсифицированной компании. На практике, в качестве приоритетной функциональной стратегии выступает маркетинговая стратегия, на основании которой разрабатывается производственная стратегия.

Операционная стратегия призвана решать поставленные задачи на уровне отделов функциональных направлений и отдельных структурных единиц предприятия.

Предлагается воспользоваться следующим механизмом разработки и реализации корпоративной стратегии (рис. 2). Миссия и система целей предприятия являются исходным пунктом стратегического планирования. В процессе разработки корпоративной стратегии формулируется миссия, определяются целевые приоритеты компании. На основе анализа внешней среды предприятия, внутренней среды, состояния экономического потенциала (кадровых, финансовых, материальных и нематериальных ресурсов), реальных возможностей по реализации потенциала предприятия, формируется стратегическое видение возможных вариантов будущего развития организации. На основании проведенного анализа определяются стратегические приоритеты развития компании, формируются стратегии отдельных видов бизнеса (на основе выделения функциональных приоритетов корпоративной стратегии); разрабатываются функциональные стратегии и определяются способы их эффективной реализации во взаимосвязи с операционными стратегиями предприятия. Каждый уровень стратегической иерархии имеет тесное взаимодействие. Процесс реализации корпоративной стратегии должен быть подвержен контролю с помощью постоянного мониторинга происходящих изменений во внешней и внутренней среде организации, нацеленного в итоге на удержание конкурентных преимуществ компании.

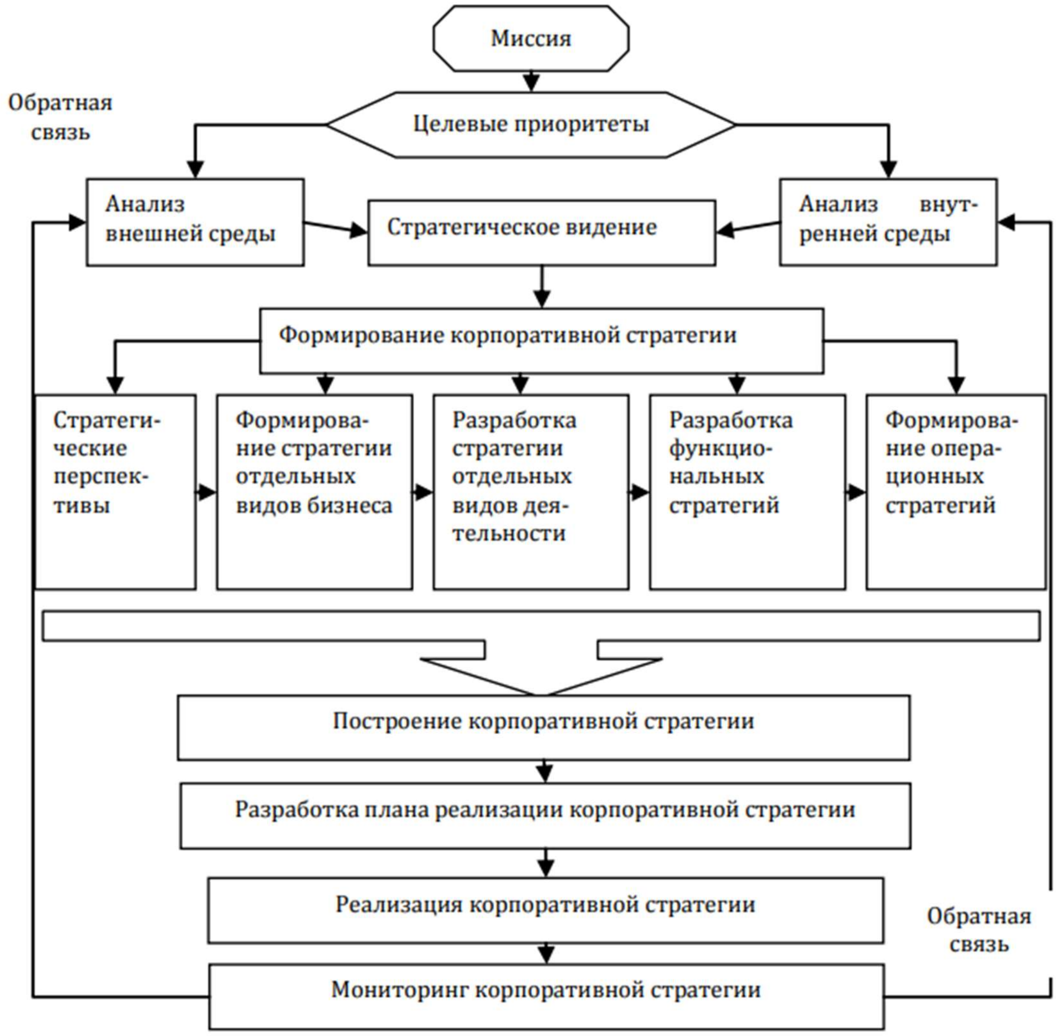

Рис. 2. Модель разработки и реализации корпоративной стратегии

Для успешного функционирования в условиях рыночной конкуренции, каждое предприятие руководствуется определенной стратегией поведения. Для правильного выбора стратегического поведения необходимо идентифицировать набор стратегических альтернатив, определив подходящую для конкретного предприятия стратегию развития с учетом имеющегося экономического потенциала и условий внешней среды.

Грамотно разрабатываемые, своевременно корректируемые в процессе регулярно происходящих изменений во внешней и внутренней средах компании, а также эффективно реализуемые корпоративные стратегии, способствуют удержанию занимаемых конкурентных позиций и повышению конкурентоспособности компании в долгосрочной перспективе.

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Budgeting and Forecasting: An Integrated Approach for Improved Financial Decision-Making

Arystanbek Aitkazinov

Bachelor degree of "University of International Business"; Kazakhstan; Almaty

ABSTRACT

Budgeting and forecasting are essential components of financial management, playing a pivotal role in an organization's ability to plan, allocate resources, and achieve its strategic objectives. This scientific article explores the intricate relationship between budgeting and forecasting, shedding light on their interconnectedness and the advantages of adopting an integrated approach to financial planning.

The article begins by delineating the fundamental concepts of budgeting and forecasting, elucidating their distinct purposes and methodologies. It delves into the traditional role of budgets as static financial plans and highlights the limitations that arise from rigid budgeting practices. Simultaneously, it emphasizes the forward-looking nature of forecasting and its dynamic capacity to adapt to changing circumstances. Furthermore, the article examines the evolving landscape of financial management, characterized by increasing complexity, volatility, and uncertainty. It underscores the limitations of traditional budgeting in addressing these challenges and emphasizes the importance of forecasting as a dynamic tool for decision support.

An integrated approach to budgeting and forecasting is presented as a solution to address these shortcomings. The article discusses the benefits of incorporating rolling forecasts into the budgeting process, enabling organizations to continuously adapt their financial plans to evolving market conditions and strategic priorities. It outlines best practices for integrating budgeting and forecasting, including the alignment of key performance indicators (KPIs), collaboration among departments, and the utilization of advanced data analytics and forecasting models. Case studies and real-world examples are used to illustrate the successful implementation of integrated budgeting and forecasting approaches in various industries, showcasing tangible benefits such as improved financial agility, enhanced decision-making accuracy, and the ability to seize emerging opportunities while mitigating risks.

In conclusion, this article highlights the evolving role of budgeting and forecasting in contemporary financial management. It advocates for an integrated approach that combines the strengths of both disciplines to empower organizations with the flexibility and insight needed to thrive in today's dynamic business environment. By embracing this integrated paradigm, organizations can make more informed financial decisions, optimize resource allocation, and ultimately achieve greater financial resilience and success.

INTRODUCTION

Budgeting and forecasting are two pillars of financial management that hold the key to an organization's fiscal success. As the economic landscape becomes increasingly complex and unpredictable, the traditional approach to budgeting, characterized by static and inflexible plans, faces significant challenges. In contrast, forecasting offers a dynamic and forward-looking perspective that is better suited to address the evolving financial realities of today's business world.

This scientific article delves into the intricate relationship between budgeting and forecasting, emphasizing their synergistic potential when integrated effectively. We explore the fundamental principles of both practices, outline their individual strengths and limitations, and present a compelling case for the adoption of an integrated approach.

While budgeting provides the framework for allocating resources and setting financial targets, forecasting offers the ability to anticipate future trends, assess risks, and adapt to changing circumstances. The evolving financial landscape demands a shift from the traditional budget-centric mindset to a more agile and data-driven approach that combines the best of both worlds. As we navigate through this exploration, we will uncover the inherent challenges in traditional budgeting, such as its rigidity in the face of uncertainty, and examine the advantages of forecasting as a tool for dynamic decision support. Through real-world case studies and examples, we will illustrate the transformative impact of integrating these practices, highlighting how organizations can achieve greater financial resilience, more accurate decision-making, and enhanced adaptability.

In this era of rapid technological advancements and global market volatility, the need for organizations to reevaluate their financial management strategies has never been more critical. The integration of budgeting and forecasting emerges as a compelling solution to address these challenges, providing the flexibility to adjust financial plans in real-time and the foresight to seize emerging opportunities while mitigating risks. In the pages that follow, we will explore the principles, methodologies, and best practices that underpin this integrated approach to budgeting and forecasting. By doing so, we aim to equip financial professionals, decision-makers, and scholars with the knowledge and insights needed to navigate the ever-changing financial landscape and secure sustainable success in an uncertain world.

1. The Fundamentals of Budgeting and Forecasting

Budgeting and forecasting are two distinct but interrelated financial management practices, each with its own set of objectives and methodologies.

Budgeting is a static financial plan that outlines an organization's financial goals and allocations for a specific period, typically a fiscal year. It serves as a roadmap for resource allocation, helping an organization control expenses, set targets, and measure performance against predefined metrics. However, traditional budgeting approaches are often criticized for their inflexibility, inability to adapt to changing conditions, and tendency to focus on short-term goals at the expense of long-term strategic objectives.

Forecasting, on the other hand, is a dynamic process that involves predicting future financial outcomes based on historical data, market trends, and other relevant information. It provides a forward-looking perspective that aids in identifying potential risks and opportunities. Forecasting allows organizations to adjust their plans in response to emerging trends, making it an essential tool for proactive decision-making.

2. The Limitations of Traditional Budgeting

Traditional budgeting methods are characterized by their fixed, yearly planning cycle, often leading to a misalignment with rapidly changing market conditions. This rigidity can hinder an organization's ability to respond effectively to unexpected events or seize emerging opportunities. Additionally, budgeting tends to be departmentally siloed, making it challenging to coordinate efforts across the organization.

Another limitation of traditional budgeting is its reliance on historical data and assumptions, which may not accurately reflect evolving market dynamics. This can result in budgets that are detached from current realities, leading to suboptimal decision-making and financial performance.

3. The Power of Forecasting in Dynamic Decision-Making

Forecasting offers a dynamic and forward-looking perspective that complements the shortcomings of traditional budgeting. Key advantages of forecasting include:

- *Real-time Adaptability:* Forecasts can be updated regularly to reflect changing conditions, allowing organizations to make informed decisions as new information becomes available.
- *Risk Mitigation:* Forecasting helps identify potential risks and uncertainties, enabling organizations to develop contingency plans and make proactive adjustments to mitigate adverse effects.
- *Strategic Insight:* By providing visibility into future trends and opportunities, forecasting supports long-term strategic planning and ensures alignment with organizational goals.

CONCLUSION

In an ever-evolving financial landscape marked by uncertainty and volatility, the traditional paradigms of budgeting and forecasting are undergoing a profound transformation. This article has explored the dynamic relationship between these two essential financial management practices, shedding light on their distinct strengths and limitations. By advocating for the integration of budgeting and forecasting, we have presented a compelling case for a more agile and responsive approach to financial planning. Traditional budgeting, with its static nature and rigid annual cycles, often falls short in addressing the demands of today's dynamic business environment. Forecasting, on the other hand, offers the capacity to anticipate change, identify risks, and seize opportunities. However, the true power lies in the synergy achieved when these practices are integrated.

The integrated approach harnesses the best of both worlds, enabling organizations to create a dynamic financial framework that adapts to emerging trends and maintains alignment with strategic objectives. Key elements of this approach include rolling forecasts, cross-functional collaboration, and advanced analytics, all of which empower organizations to make data-driven decisions in real time. Real-world examples have illustrated how integrated financial management has led to improved inventory management, optimized production schedules, and enhanced adaptability in rapidly changing markets. These successes underscore the tangible benefits of embracing a forward-thinking and collaborative approach to financial planning.

In conclusion, the integration of budgeting and forecasting represents a paradigm shift in financial management. It equips organizations with the resilience and agility needed to navigate the complexities of the modern financial landscape. By breaking free from the constraints of traditional budgeting and leveraging the predictive power of forecasting, organizations can make informed decisions, allocate resources strategically, and remain responsive to a world of constant change.

As we move forward, it is essential for financial professionals, decision-makers, and scholars to recognize the transformative potential of integrated financial management. Embracing this approach is not merely an evolution in financial practice; it is a revolution that empowers organizations to secure their financial futures and thrive amidst uncertainty. In a world where adaptability is paramount, integration is the key to financial resilience and enduring success.

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TALENT DEVELOPMENT AND INNOVATION STRATEGIES FOR ENTERPRISES IN THE DIGITAL AGE

Duman Ayitebai
EMBA, Al-Farabi Kazakh National University, Almaty, Kazakhstan

Abstract: The advent of the era of big data is driving digital transformation in enterprises, with data emerging as the most crucial asset. Consequently, businesses are placing greater emphasis on customer experience value, actively leveraging digital technologies to grasp customer needs, redesigning customer experience processes, and concurrently establishing digital business ecosystems. This facilitates collaboration and co-development between enterprises and other organizational entities, necessitating not only the full utilization of digital technologies but also a deeper evolution of business philosophies, transformation of business models, and upgrading of operational processes and organizational structures.

However, enterprises currently face the challenge of a shortage of digital talent. Addressing this challenge and effectively nurturing digitally innovative business talents have become a focal point of attention and research. In the era of big data, markets are undergoing disruptive changes, underscoring the importance of aligning digital talent development with the contemporary landscape. This entails focusing on emerging technologies and trends while actively cultivating a pool of digital talents, thus laying a solid foundation for the successful execution of digital transformation.

Keywords: Digitization, Enterprise, Management, Innovation

Positioning of Digital Talents in the Era of Big Data

Digital talents are individuals who can empower business operations with digital technology and complementary skills. They are not limited to technical professionals with expertise in Information and Communication Technology (ICT)[1]. Instead, digital talents are expected to possess the following capabilities in addition to a foundation in ICT:

Digital Strategy: They can take a macro perspective to coordinate and plan the overall strategy for digital transformation in a company. This involves assessing the current state of the enterprise, considering market dynamics, and guiding the company's digital transformation.

Digital Thinking: They excel at summarization and are capable of grasping the ideas and pathways for a company's digital transformation. They use data analysis to identify problems, discern patterns, and provide the basis for decision-making.

Digital Execution: They have agile thinking and quick responses, enabling them to coordinate and integrate internal and external resources through online remote collaboration to achieve objectives.

Digital Innovation: They have an open-minded and broad perspective, constantly learning and enriching their knowledge. They expand their personal knowledge areas and have the courage to break away from traditional models. They actively introduce new perspectives and methods in their work and seek breakthroughs during transformations.

In general, these digital talents are innovative, strategic, and interdisciplinary individuals who possess a mindset for new technologies and a sense of change. Additionally, from an enterprise's perspective, it should consider the contributions and value creation for society. In this regard, digital talents should also have a sense of social responsibility to promote mutual growth and progress for the company and society as a whole.

The Urgency of Cultivating Digital Talents in the Era of Big Data

In the digital era, the market landscape undergoes constant and unpredictable changes, amplifying the uncertainties in the business environment and competition for enterprises. Furthermore, in the digital age, many industries are being redefined, timelines are significantly shortened, product iterations accelerate, and the window of opportunity for enterprises to capture users' attention is narrowing. This presents significant challenges to a company's survival and development[2].

Talent serves as the fundamental driving force for enterprise development. For enterprises, having a highly skilled workforce of digital talents is crucial for adapting to the digital era and promoting their own digital transformation. However, the current supply of digital talents in China is severely insufficient. According to reports, there are just over 50,000 AI professionals in China, while the demand for such talent exceeds one million, resulting in a severe talent shortage.

For enterprises embarking on digital transformation, attracting digital talents is essential. Additionally, internal efforts to cultivate digital talents and enhance the digital skills of existing employees are equally important. Currently, enterprises across various sectors have urgent demands for digital talents at different levels, including:

- At the technical level, there is a strong demand for roles such as big data development engineers and big data operation engineers, with a particular shortage in the former.
- At the business level, the key roles in demand include big data project managers and big data product managers.
- At the managerial level, the need for Chief Digital Officers (CDOs) is pronounced[3]. This role is strategic in nature and can drive the digital transformation of organizational structures and operational models, shaping the future of the enterprise.

Strategies for Developing Digital Talents in Enterprises in the Era of Big Data

In order to cultivate digital talents in enterprises, it is essential to align with the backdrop of the big data era, closely integrate with corporate strategies and objectives, actively establish a system for nurturing digital transformation talents, and strengthen the digital construction of the enterprise. The primary focus should be on cultivating highly skilled, comprehensive digital talents while simultaneously enhancing the digital capabilities of employees across the organization, ultimately providing robust support for the enterprise's digital transformation. Establishing a talent development strategy for digital transformation within the enterprise should encompass the following key points:

Establish the Right Talent Development Philosophy:

- Recognize the interdependence of production and sales within the enterprise's operations. Both functions are closely intertwined, and their synergy is crucial for long-term survival and growth. To achieve this synergy, enterprises need to cultivate talents who possess both technical expertise and business acumen.
- Customize digital training based on individual employees' business modules, tailoring the development of their business capabilities to facilitate rapid progress in digital projects while also supporting their personal growth.
- Implement development programs for hybrid talents capable of blending business and digital skills, nurturing young business talents with potential, and fostering their digital capabilities. This approach helps employees harness digital tools to enhance their performance, ultimately driving business growth and enhancing the company's competitiveness.

Strengthen Digital Project Development:

- In the era of big data, enterprises embarking on digital transformation must emphasize digital project development. The success of these projects relies on extensive experience and high levels of collaboration among departments and individuals[4].

- Digital project development necessitates the creation of technological platforms and flexible organizational structures, forming the foundation for large-scale team collaboration.

- Effective teamwork strengthens mutual trust within the organization, facilitating the integration of digital talents into the workforce. Additionally, digital project development fosters collective learning and enhances the overall digital proficiency of employees.

Intensify Recruitment Efforts for Digital Talents:

- Internal talent mobilization is a critical approach for nurturing digital talents within enterprises. To facilitate this, companies should first have a foundation of digital talents.

- Enterprises should update their recruitment strategies to attract digital talents who align with the company's digital development goals, focusing not only on technical skills but also on alignment with the enterprise's digital aspirations.

- Recognizing that different companies may have varying production scales and economic capacities, flexible employment models should be considered. These models may include hiring interns, engaging part-time employees for project-based work, or rehiring experienced professionals. These approaches can help bridge the gap in digital talent shortage and support the cultivation of digital talents within the organization.

Overall, nurturing digital talents in enterprises is essential to thrive in the digital era and successfully navigate the challenges and opportunities posed by big data. Enterprises must take a strategic approach to talent development, encompassing philosophy, project development, and recruitment strategies, in order to build a capable and agile digital workforce.

Constructing a Framework for Developing Digital Talents in Enterprises

Digital transformation is a long-term strategic endeavor for enterprises, characterized by its gradual progression rather than immediate results. Therefore, enterprises must engage in comprehensive planning while placing a strong emphasis on nurturing digital talents. Actively constructing a framework for developing digital talents is crucial for continuously injecting momentum into the successful transformation of the enterprise.

Establish Digital Talent Development Standards:

- Digital talent development standards encompass the fundamental competencies, key capabilities, and behavioral requirements that digital talents should possess to contribute effectively to the enterprise. These standards provide a foundation and support for enterprises to conduct efficient and structured digital talent development.

- Constructing digital talent development standards should be based on two key factors: the positioning of digital talents and the practical digital work tasks within the enterprise. The content of digital talent development standards should encompass dimensions such as "fundamental business knowledge, digital theory knowledge, digital professional skills, digital work performance, core values," and more[5].

- Furthermore, the development of digital talent standards should involve classifying employees into different levels based on their digital experience and proficiency. This classification may include individuals with no digital business experience, those with digital business experience, digital core team members, and digital experts. This approach facilitates personalized digital talent development and leverages the roles of digital experts and core team members in the process, ultimately enhancing the efficiency of digital talent cultivation.

Establish a Digital Discipline System:

- Building on the established digital talent development standards, integrate the enterprise's actual situation, business objectives, and future development strategies to establish a hierarchical digital discipline system. This system should encompass areas such as informatization, intelligence, multimedia, and should span various aspects of enterprise operations, including technology research and development, product manufacturing, logistics and transportation, product sales, finance, and services.

- The goal is to acquire essential knowledge and practical experience, refine generic digital technologies, master core competencies, and strengthen management practices. Based on this foundation, develop a digital talent map that includes digital strategic objectives, key position talent pipeline plans, and high-potential talent development plans. This involves talent profiling meetings, assessments, and inventory of digital talents, creating an internal digital talent pool and establishing systematic and process-driven procedures for digital talent development.

Systematically Plan Digital Talent Development Programs:

- In the era of big data, the cultivation of digital talents in enterprises is forward-looking and should be based on the actual needs of enterprise production and operations. It requires systematic, comprehensive, and holistic planning of digital talent development programs.

- Predicting the enterprise's digital talent development capabilities should be based on three key elements: whether the talents' digital capabilities align with the enterprise's digital strategic value[6], whether their digital capabilities involve cutting-edge information technology, and whether their digital capabilities align with the specific professional business needs while fostering optimization and innovation.

- Additionally, enterprises need to analyze their internal strengths and weaknesses, as well as external opportunities and challenges over an extended period. These factors should be combined to systematically plan digital talent development programs and create specific decomposed charts as actionable implementation plans for cultivating digital talents within the enterprise.

Strategies for Developing Digital Talents in the Big Data Era

In the context of enterprise digital transformation, it is essential to enhance the effectiveness and feasibility of digital talent development while improving the efficiency of talent cultivation. To achieve this, practical measures should be taken based on the actual business operations and talent requirements of the enterprise. Digital transformation of enterprises requires an understanding of their value chain and leveraging advanced digital technologies for transformation. The development of digital talent should also align with this approach, and the construction of a structured development system is essential.

(1) Promoting Digital Transformation in Human Resources Management:

- Building a digital talent development system and vigorously cultivating digital talents through various educational and training modes ultimately aims to facilitate enterprise digital transformation. This ensures that enterprises have sufficient digital human resources to support their survival and development in the age of big data.

- Similarly, promoting digital transformation in human resources management is crucial as it serves as a driving force and support for enterprise digital construction. It lays the foundation for nurturing a solid digital workforce across various levels within the organization. This entails promoting digital management to gradually replace traditional personnel management[7], creating a systematic and process-driven digital human resources management system.

Aligning Talent Development with Enterprise Digital Strategies:

- Whether it is the digital transformation of human resources or the establishment of a digital talent development model, the ultimate goal is to enable successful digital transformation within the enterprise. This necessitates a strong alignment between the digital talent development and the enterprise's digital transformation strategy.

- Misalignment between these two aspects can decrease the effectiveness of digital talent development and lead to unnecessary resource wastage. Enterprise digital transformation involves the fusion of information technology and enterprise production and operational technology, resulting in comprehensive changes. Therefore, digital talent development must closely adhere to the direction and goals of enterprise digital transformation. This should be used to formulate and implement talent development plans that continuously promote talent development system reforms.

Establishing Digital Talent Development Centers:

- The establishment of digital talent development centers has proven to be an effective method for improving digital capabilities. Based on assessments and evaluations of potential digital talents, enterprises can proactively select target talents for unified training within these centers. This approach optimizes resource allocation through economies of scale, which ultimately increases training efficiency and shortens training cycles.
- During this process, the focus should not only be on enhancing employees' digital skills but also on imparting a digital cultural mindset and fostering their commitment to the enterprise's digital transformation. Furthermore, to ensure the stability of digital talent development, enterprises should elevate it to the core strategic level, signaling their determination to employees. This, in turn, reinforces employees' belief in the value of digital training.

Constructing a Management Mechanism for Digital Talent Development:

- The development of a digital talent development model is an ongoing process, marked by experimentation and exploration. Challenges and deficiencies are inevitable, and a classic quality optimization model, the PDCA (Plan-Do-Check-Act) cycle, can be introduced into digital talent development management. This model facilitates the timely identification and targeted resolution of issues, promoting continuous improvement in the quality of talent training.
- Enterprises can encourage employees to actively participate in the digital talent development system. By fostering mutual trust and respect, employees are motivated to identify issues in talent development and propose solutions, thereby adding value to their personal growth. Additionally, introducing an evaluation and incentive mechanism into digital talent development, where digital competence serves as a primary evaluation criterion, can motivate employees to explore and innovate continually.

Building a Support System for Digital Talent Development:

- First, following the principles of digital knowledge management, construct a training curriculum system for digital talent development based on the dimensions of digital literacy, digital skills, and digital business. Second, strengthen strategic cooperation with top-tier universities and digital service organizations to integrate internal and external digital training resources, creating a digital resource repository.
- Emphasize collaboration with digital benchmark organizations, offering opportunities for employees to observe and learn from real digital business environments. If conditions permit, utilize digital enterprise platforms to conduct scenario-based training[8]. By simulating authentic digital business environments, employees can receive practical training, enhancing their digital theoretical knowledge, practical skills, digital literacy, and professional capabilities.

Conclusion

In summary, in the era of big data, the urgent demand for digital talents in the context of enterprise digital transformation makes it imperative for organizations to actively attract and nurture digital talents. For enterprises, cultivating digital talents is a significant and ongoing task. Enterprises should establish the right philosophy for talent development, create digital talent development standards, structure a digital discipline system, plan talent development systematically, and actively build a framework for digital talent development.

Simultaneously, promoting the digital transformation of human resources management and aligning talent development with the enterprise's digital strategy are essential. Establishing digital talent development centers, creating a management mechanism for digital talent development, and constructing a support system for digital talent development are crucial steps. These efforts aim to efficiently nurture the digital talents required by the enterprise and further advance its digital transformation journey.

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AN EXPLORATION OF BUILDING A VALUABLE CORPORATE BUDGET MANAGEMENT FRAMEWORK

Zhou Chi Jie
EMBA, Al-Farabi Kazakh National University, Almaty, Kazakhstan

Abstract: Budgeting is an essential tool in corporate management, and a well-designed budgeting framework can enhance the quality of corporate budget management, leading to the achievement of corporate objectives. This paper, considering the issues that enterprises are concerned with, analyzes the characteristics that a valuable corporate budget management framework should possess and provides recommendations for constructing such a framework.

Keywords: Corporate budget; management framework; value.

Introduction

With the intensification of market competition and an increasing emphasis on economic development quality and efficiency, budgeting has become a favored tool in enterprise management. However, some enterprises still do not prioritize budgeting, resulting in an ambiguous position for budgets within those organizations[1]. This article, starting from the issues that concern enterprise operations, conducts an in-depth analysis of the role and value of budgeting in enterprise operations. It aims to construct a valuable budget management framework, effectively harness the guiding role of budgets in enterprise management, improve the quality of budget management, and provide valuable decision-making information for enterprises.

The Essence of Valuable Corporate Budgeting

Valuable corporate budgeting revolves around the core objective of creating and adding value to the enterprise. It involves the strategic guidance of the enterprise and the scientific quantification and specification of existing financial and non-procurement resources, as well as future controllable resources. Budgeting not only enables a scientific and rational arrangement of existing and future controllable resources but also helps in making provisions for unforeseen risks within the budget period. This not only ensures the efficient utilization of enterprise resources but also scientifically prevents and controls risks[2]. It safeguards the long-term stable development of the enterprise, creates new value, satisfies the interests of shareholders, creditors, employees, and the government, and assumes greater social responsibility, laying a favorable foundation for the scientific and harmonious development of the enterprise.

Valuable budgeting means starting from a certain value concept, combining market-oriented information, and forming an organized value creation system within the enterprise. This system can adapt to market changes and effectively reduce the impact of market risks. Implementing valuable budgeting within an enterprise can optimize its organizational and business processes, making it easier to guide various resources to function effectively. In essence, this is a process of creating value.

Characteristics of a Valuable Corporate Budgetg

1. Focus on Creating and Adding Value

The value of a corporation is ultimately reflected in the recognition and acceptance of its products and services by customers. Customers are willing to pay a price for products and services, which is the lifeline of a business. For a corporation, the core purpose of its budget should be to create and add value[3]. This entails setting clear budget objectives, budget formulation, execution control, and performance evaluation. By doing so, a corporation can continuously strengthen its development capabilities and cultivate valuable resources.

2. Strategic Orientation

When setting budget objectives, it is essential to start with the overall corporate strategy. Analyzing the current external environment can help effectively mitigate market risks and create favorable external conditions. Furthermore, strategies often have a long-term and forward-looking nature, ensuring that corporate strategic goals are gradually broken down and implemented, making them more operational.

3. Based on Value Activity Analysis

The existence of a corporation is rooted in the continuous provision of products and services that customers need, representing the fundamental value of the business. Therefore, to benefit stakeholders and realize their interests, it is crucial to analyze which operations and activities continually satisfy customers. Through practical experience, corporations can identify pathways that fulfill customer needs and create value. Through analysis, businesses can identify opportunities for budget control and execution, allowing for the allocation of limited resources to activities and operations with greater value, thus maximizing value creation.

4. Integration and Optimization of Corporate Resources

Mobilize management and non-management personnel at all levels within the corporation to direct resources toward directions that are more conducive to creating and adding corporate value. In contrast to traditional budget management, a valuable budget involves resource integration carried out after value and activity analysis. This approach streamlines processes and facilitates information communication among departments, thereby improving the efficiency of information flow, fund flow, and material flow systems within the corporation[4].

5. Expands the Scope and Depth of Budget Management

A valuable corporate budget is not solely concerned with financial indicators but also focuses on the completion of corporate strategic goals for the year. This includes customer requirements, management and business processes, organizational learning, and human resources. Comprehensive attention to the financial value, customer value, and employee value is a key factor in enhancing value creation for the corporation.

6. Dynamic Nature

The market environment is constantly changing, characterized by instability and unpredictability. Consequently, the corporate environment evolves accordingly. A valuable budget requires constant vigilance regarding changes in the external environment to prevent inadequate risk assessment that could lead to corporate losses. Additionally, during budget execution, it is essential to respond promptly to feedback information. This is beneficial for budget evaluation and allows for the recognition and incentivization of individuals who contribute genuinely to the corporation.

The Value of Corporate Budgeting Framework

In addition to emphasizing efficiency, risk management is a crucial aspect that enterprises must consider. Below, we analyze the value of the budgeting framework in the context of issues that enterprises are concerned about:

1. Risk Control and Optimization of Corporate Operating Environment

Budgeting involves forecasting all income and expenses that may occur in an enterprise's operations over a certain period in the future, encompassing crucial information from various aspects of the enterprise. Through budgeting, various risks that may exist in the operation of the enterprise can be analyzed. Subsequently, these risks can be identified and managed, and corresponding risk strategies can be formulated. The economic environment is ever-changing and harbors unforeseeable risks. However, flexible budgets, rolling budgets, and other management methods can minimize the risks for the enterprise, making it better equipped to respond to changes in the risk environment.

2. Rational Resource Allocation and Improved Operational Efficiency

Budgeting serves as an effective tool for implementing corporate strategic goals, guiding the allocation of financial, human, and physical resources towards projects with high returns and projects with acceptable risks in accordance with strategic requirements. Resources can be redirected from projects that yield low returns and have no impact on the corporate strategy, thereby facilitating the rational allocation of resources and improving operational efficiency.

3. Unified Goals and Collaborative Operations

Budgeting is guided by corporate strategic goals and is a critical means of realizing these goals. Therefore, strategy-oriented budgeting represents common objectives for the enterprise at different times, providing direction for the collective efforts of all employees and various functional departments. It not only aligns the goals of all enterprise employees but also promotes collaboration among various functional departments. Starting from the overall corporate plan, each department works to achieve maximum benefits, avoiding conflicts that may arise due to resource wastage.

4. Control of Business Processes and Enhanced Corporate Management

Budget preparation is a process that focuses on forecasting the operational activities of an enterprise over a certain period, revolving around business activities. It involves the prediction, monitoring, analysis, and modification of the entire business process, emphasizing business process control. Monitoring business processes involves breaking down operational processes and optimizing workflow by comparing costs and benchmarking. This approach enhances business process efficiency and reduces operational costs, ultimately improving business management.

5. Reasonable Budget Performance Metrics for Company-Wide Goal Achievement

Budget performance metrics should be established based on corporate strategic goals, reflecting the responsibilities and rights of various functional departments. The reasonable establishment of performance metrics not only provides a platform for healthy competition but also motivates all employees to strive towards the set goals, ultimately achieving the overall objectives of the company[5].

Establishing a Valuable Corporate Budgeting Framework

Based on the primary values of budgeting discussed above, a valuable budgeting management framework focuses on risk management, resource allocation, unified objectives, process control, and incentive indicators. The following description of the management framework assumes that the enterprise has a well-established budget organization structure and comprehensive budget management regulations. It is designed to be strategic-oriented, revolving around business plans, with cash flow and risk warnings as auxiliary lines, involving business budgeting, capital budgeting, specialized budgeting, and financial budgeting preparation and management.

1. Clearly Define Corporate Budget Objectives

From the perspective of the enterprise, it should first have a clear understanding and positioning of itself. Objectives should then be decomposed from top to bottom according to the organization's functions, ensuring that the goals at each level are consistent with the overall budget objectives of the enterprise, while ensuring that the responsibilities of the enterprise are assigned to individuals, facilitating the smooth operation of the enterprise.

2. Set Reasonable Budget Metrics

A valuable budget framework aims to effectively enhance the value of the enterprise and ensure the achievement of annual budget objectives. Enhancing the value of the enterprise involves profit and risk reduction. Therefore, the metrics should include profit and risk indicators. Additionally, other budget indicators relevant to the enterprise's nature, such as customer satisfaction indicators for the service industry or public welfare donations for large state-owned enterprises, should be included.

3. Prepare Budgets Based on Budget Metrics

Under the guidance of enterprise budget metrics, consider profit, cash flow, and risk indicators when preparing business budgets, capital budgets, specialized budgets, and financial budgets. Simultaneously, develop a risk control plan to identify and analyze risks in major business activities and initiatives included in the budget. Formulate corresponding strategies to ensure that risks during business operations are controllable, preventing potential risks from being overlooked while pursuing profit targets. Incorporate flexible and rolling budgets to provide detailed planning for longer-term operational environments, ensuring the smooth operation of various aspects of the enterprise.

4. Strict Budget Execution and Assessment Mechanism

Budget execution is at the core of budget management, and assessment is a crucial means of improving budget execution accuracy. A rigorous budget execution and assessment mechanism ensures the smooth realization of corporate objectives.

5. Establish a Robust Budget Information Management System

A budget information management system differs from a regular information system in that it not only emphasizes the collection of various types of information but also places a stronger emphasis on "management." The execution of all operational strategies is based on data collection within the system, and results are derived from information feedback. This ensures the scientific formulation of operational strategies[6]. In practice, however, most budget information management systems are used by enterprises as simple financial income and expenditure systems, neglecting the monitoring and feedback mechanisms for operational management. Therefore, managing budget information in the direction of cash flow ensures that all cash movements have corresponding information records, facilitating later assessments and management. To some extent, the budget information management system helps control the funds available to enterprise managers, preventing excessive fund wastage. Moreover, the budget management mechanism establishes a mutual supervision mechanism for the use of funds between superiors and subordinates, ensuring the sound and effective internal regulations of the enterprise. Additionally, reasonable and effective budget management information enhances communication between superiors and subordinates.

Conclusion

In conclusion, businesses need to establish a valuable corporate budget management framework to meet their development needs. In the initial stages, it is essential to conduct a detailed investigation and data collection about the company. On one hand, this facilitates the establishment of a budget management framework in the later stages, and on the other hand, it prepares the data for the budget information management system. The value of a corporate budget management framework lies in its construction of a rational roadmap where every employee can quickly identify their role and set their objectives. Additionally, it facilitates self-supervision within the organization, thereby reducing the risk of crises in the rapidly changing market environment.

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Modern Challenges of Georgian Tourism

Natia Surmanidze

PhD in Economics, Professor (Associate), Scientific worker, School of Business and Administrative Studies, The University of Georgia, Tbilisi, Georgia

Keti Tskhadadze

PhD in Economics, Professor, School of Business and Administrative Studies, The University of Georgia, Tbilisi, Georgia

Annotation
The paper aims to study modern challenges of Georgian tourism industry. Existing statistics show that tourism has a significant role in Georgia's economy, which is a natural phenomenon given Georgia's geographical location and historical past, creating attractive attractions for foreign visitors. Russian migrants increased the flow of foreign tourists to Georgia. However, this process did not result in the development of the tourism sector since there is no (or very low compared to the increase in the number of tourists) demand for products such as guide services. The mentioned fact creates a reasonable doubt that, in reality, people who are registered as tourists in the statistics consume Georgian tourist products less. During the research, the representatives of the Georgian import tourism companies were interviewed, and as a result, the above assumption was confirmed.
Keywords: tourist packages, guide, economic growth

Introduction

In recent years, Georgia has had active economic ties with Russia, which is reflected in the increase in the participation of Russian tourists in tourism statistics. Accordingly, the war caused an increase in the influx of Russians into the territory of Georgia. Tourism's role in Georgia's economy is significant; according to the expenses, the figure for 2022 is almost twice as high as in 2015. (Geostat, 2023) As for the origin of tourists, if in 2015, the number of tourists from Russia was 89.5 thousand, it was the third place after Azerbaijani and Armenian tourists, according to the preliminary data of 2022, Russian tourists will occupy the first place. (Geostat, 2023)

Georgia is a rich tourist attraction due to its geographical location and history, as evidenced by the variety of tour packages offered by tour companies to foreign tourists traveling to Georgia. The increase in demand, under equal conditions, increases the supply, which in tourism may be expressed by an increase in demand for classic tourist products, or on the other hand, by a price effect, expressed in an increase in prices. As long as the tourism industry is broad and the accommodation and catering sectors, the effect mentioned above is evident in the example of a price increase in Georgia. However, it is attractive to what extent the increase in demand for tourism is related to the development of tourism products.

The research aims to investigate the war's impact on Georgian tourism, tourism products, and their development. How has the economy changed due to the influx of refugees in large numbers, and to what extent has this led to an increase in Georgian tourism potential?

The research design consists of:

The latest scientific literature on the issue is studied from desk research, and valid statistical material is used.

From qualitative research, representatives of the three largest import tourism companies operating in the Georgian market were interviewed as a result of a short interview. The total number of tourist companies operating in Georgia is up to 50, of which the most prominent part is focused on guided tourism. Accordingly, about ten agencies have only imports or an equal proportion of importers and exporters in their activities. Selection from the mentioned companies was made randomly, further strengthening the research's validity.

Migration in Georgia while Russian Invasion in Ukraine

The sanctions have significantly impacted the Russian economy and travel and economic activities both in Russia and abroad.

In the short term, countries that have relied on Russian/Ukrainian visitors will suffer as travel from both countries will be limited. In the long term, airspace restrictions and rising oil prices could affect ticket prices, hampering the recovery of international travel. According to the World Tourism Organization (UNWTO), European destinations have suffered significantly in light of the current situation, as many tourists prefer to stay away from the continent where the Russia-Ukraine war is raging.

The war has significantly affected tourism in the EU and its countries. The countries that suffered the most share a border with Ukraine. The inflation crisis and the sharp increase in air ticket prices have led to a decrease in outbound tourism, and hotels are constantly ready to fill the void of guests coming from Russia, of course, based on price negotiations.

Georgia is a popular destination for Russians fleeing the army, and their rapid and large influx threatens the Georgian population, given Russian aggression and creeping annexation, a pressing issue in Georgia.

Russian streams from Lars take several days to cross the border, depending on their large number; Fearing to lose their place, some of them stay in Athens for 48 hours, while others leave their cars and try to enter Georgia on foot/bicycle in order to find an easier way.

Before the mobilization, more than 45,000 Russians opened bank accounts in Georgia in 2022, with the number of Russian accounts in the country doubling in just six months, according to the Central Bank.

According to the Freedom of Information Development Institute, a Georgian think tank, their arrival triggered a mini-economic boom, with an additional 1.2 billion Georgian GEL ($430 million) flowing into Georgia through cross-border transfers.

For the authorities, the significant strengthening of the lari exchange rate in recent months is a significant result since, until August 2022, the national currency experienced depreciation. Since the beginning of the war, strengthening the lari to around 60 Tetris is essential to progress since the demand for the lari has increased, and there is a large amount of foreign currency inflowing into the country. Although the GEL is getting stronger, the price of goods/services does not change, so the inflation rate cannot be reduced. One of the biggest challenges of the Russia-Ukraine war, which was seen, is the increase in prices on the commodity markets of our state, which continues at the same pace. However, the increase in the number of tourists, remittances (mainly from Russia), and exports left its mark on the economy of Georgia, which increased the economy. However, the increase in the population's standard of living is less tangible.

Results

During the research, three importing tourism companies registered with the National Tourism Agency were interviewed, and a short interview was conducted based on telephone communication to investigate the impact of the Russian-Ukrainian war on Georgian tourism.

Question N1: Please share with us, based on your own experience, after the start of the Russia-Ukraine war, what kind of changes did the tourist packages offered within your service undergo, how is demand/supply in balance, and what was the final effect of this change, according to your observation, on Georgian tourism?

Respondent 1: Based on customer requirements, tourist packages have undergone a fundamental change, since the demand has been concentrated only on accommodation and transportation, which is why the demand for tour guide services, one of the main components of the tourist package, is almost not fixed.

Respondent 2: According to the company, the pre-war and post-war periods are mostly the same, as their service mainly focuses on domestic services. However, for contrasting comparison, the company, based on statistical data, determines that the tours they offer are popular, which include 2-way air tickets, Travel insurance, and transfer. (within the mentioned respondent, there is also no demand for guide services).

Respondent 3: The company's income from the foreign population decreased after the war between Russia and Ukraine because the price of oil increased in the background of the war situation, as well as the price of tickets, the cost of the hotel increased, which is why foreigners prefer not to use a tour company, but to find accommodation independently, whether it is renting a house or staying in a hostel.

Question N2: The modern understanding of a tourist as a person who travels outside the residence for at least one night but not more than one year, whose usual destination is different from any remunerated activity, in the place to which he travels - how do you think, given today's reality, do people using your product still fit the status of "tourists"?

Respondent 1: Since the low price of two-way air tickets is due to the increase in the price of one-way road, it was a more flexible way for tourists to use tourist packages during the first 1-3 months of the war since one part of them, naturally, had no information in advance that they would have to stay as long-term visitors due to the tense situation, while the other part had understood this fact in detail and deliberately settled within Georgia.

Respondent 2: A tourist is a visitor who spends at least one night in the territory of Georgia and stays inside the country for a maximum of 1 year, which can be met by today's "tourists," although their real goal is not to get to know the country better, but to use it as a "refuge," which is evident from the fact that the demand for guide services is minimized, and also, packages that include travel insurance are less attractive. Today's "tourists" are more comfortable moving around on their own and finding more budget accommodation with their resources than using the offers of travel companies.

Respondent 3: The status of "tourist" is becoming increasingly irrelevant nowadays, as visiting visitors settle down with long-term life prospects; therefore, "tourist packages" are less attractive to them.

Discussion

Tourist companies of the importing profile manage to stabilize the stability of their financial situation at the expense of standard local and internal tours and constantly update their tourist offers; since military operations take place in Ukraine in all four seasons of the year, they have to focus on different types and different categories of customers. The primary demand of the customers of tourist companies is accommodation and two-way or, in many cases, one-way air tickets; there is less interest in the services of a transfer or a guide. Since the guide is directly proportional to the sights, the neglect of this service in the tourist package has a corresponding negative impact on the development of tourism since the tour no longer has a cognitive aspect, and the financial situation is significantly reduced, both of the general tourism economy and, accordingly, of individual companies.

Based on the fact that tourism includes educational, entertainment, and adventure activities, and Ukrainians who came to Georgia during the Russian-Ukrainian war did not settle directly to see the country but to save themselves, it is correct to say that they have the status of "refugees."

When an arriving foreigner does not use the services of a tour guide, does not receive benefits other than air tickets, registers a business/purchase of real estate, and is not perceived as a tourist since he does not carry out activities characteristic of tourism.

During the Russian-Ukrainian war, not only the Russian and Ukrainian populations traveled to Georgia. Therefore those who use a complete tourist package, which includes the services of a guide and transfer or travel insurance, can be considered tourists since they do not have the prospect of starting a business or residency.

Because since the beginning of the war, the highest rate has been recorded by foreigners buying immovable or movable property, registering local businesses, or other expressions, they should be classified according to the countries of residence.

Conclusion

Tour packages have undergone many changes as all tour operators have shifted to a revamped regime geared as much as possible to create customized packages for existing customers.

Most of the incoming Russians are registered under the name of tourists. However, in reality, they begin their permanent establishment in Georgia, which is manifested by their purchase of immovable or movable property, registration and legal operation of companies, where they employ the Georgian workforce and operate completely legally, as a result of which is difficult to determine their status, whether they are "tourists" or not since tourism is cognitive, professional, sports, religious, For business, educational and other purposes, it means to travel for more than 24 hours and less than 12 months (following the legislation of Georgia) and without remunerative activities at the place of arrival.

The offers of Georgian tourist companies underwent specific changes since mainly a large part of the Russian population was not interested in visiting Georgian sights during the war, which means that one of the points of their package, which includes guide services and special transportation within the country, is temporarily less busy. Therefore, tourist companies offer a package tailored to them, which includes accommodation/food, and so on.

In the end, the mentioned situation led to significant growth of both tourism and the economy of Georgia, increased financial resources, and likely compensated for the loss caused by the pandemic.

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Inflation in COMESA, contagion effect. Case study of Madagascar

Razafindrakoto Jean Lucien

Lecturer at the Faculty of Economics, Management and Sociology, University of Antananarivo, Madagascar

Jean Razafindravonona

Associate Professor at the Faculty of Economics, Management and Sociology, University of Antananarivo, Madagascar

Abstract :

How the economies of the member countries of the Regional Economic Communities (REC) A crucial issue that deserves to be raised as these countries seek macroeconomic convergence. It is important to know which country represents the greatest risk of inflation transmission. The empirical literature on the analysis of the extent of inflation transmission remains very mixed. This article proposes to answer this question by taking the case of Madagascar within COMESA, The results show that Mauritius and Egypt present the most risk given the extent of foreign trade conducted by Madagascar with these countries. Price increases within the CER are transmitted more quickly to domestic prices than to declines. At the end of this study, one question persists, does foreign trade alone explain imported inflation?

Keywords: COMESA, Regional trade, Inflation, Madagascar, Transmission

Introduction

The success of the European Union with the launch of the euro currency in the year 2000 has led to the already existing enthusiasm and proliferation of monetary union projects. Most of the Regional Economic Communities (REC), especially African, have followed the trend and set themselves the objective of setting up an African single currency. As an example, we can cite the following projects for the creation of monetary union: (i) six oil producing countries (Saudi Arabia, Kuwait, United Arab Emirates, Qatar, Bahrain and Oman) decide to share a common currency, (ii) the South Asian States (Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka) (iii) Five countries not members of the franc zone in West Africa (Gambia, Ghana, Guinea, Nigeria and Sierra Leone) have also committed to the establishment of a common currency and (iv) COMESA member countries (Angola, Burundi, Comoros, Democratic Republic of Congo, Djibouti, Egypt, Eritrea, Ethiopia, Kenya, Libya, Madagascar, Malawi, Mauritius, Rwanda, Seychelles, Uganda, Zambia, Zimbabwe, Sudan, Swaziland) plan their monetary union in 2025. A monetary union is an area that applies a single monetary policy and within which a common currency or fully interchangeable currencies freely circulates (Masson and Pattillo, 2001). There are five (5) types of monetary union (Masson and Pattillo, 2004):

1. Informal union of exchange rates by fixing parity between different currencies with limited margins of exchange fluctuations
2. Union of formal exchange rates through a monetary zone by a fixed parity between different currencies with limited margins (the monetary snake)
3. Currency board that allows any country to attach its currency to that of another country with a zero margin.

4. Unilateral adoption of the currency of another country without a counterpart or agreement such as "dollarization" or "euroization", and

5. Single currency which is a total monetary union.

Setting up a common currency or a single currency is a challenge for each regional community but its implementation implies the imposition of certain conditions to compensate for the role of instrument of adjustment of the exchange rate in fixed exchange since each member country renounces the autonomy of its monetary policy.

However, the establishment of a single currency involves many things. It is impossible for the acceding country to resort to an autonomous monetary policy. In addition, macroeconomic convergence criteria must be met. In our study, we will focus on inflation.

When inflation rates in the region converge downward, the target has been achieved. But if asymmetric shocks are large, the inflationary pressures of one or more countries can be transmitted to other countries via the mechanism of transmission or contagion of inflation. From this observation was born the desire to conduct an analysis on the contagion effect of inflation at the level of COMESA. Our article is structured as follows: after the introduction, we present the methodology adopted to conduct the research, after that we will conduct a literature review on the mechanisms of transmission of inflation in general and in relation to foreign trade in particular. Then we present the results and discuss these results in relation to the scientific and theoretical literature. We end with the suggestion of some recommendations and the subsequent research.

Methodology

Changes in the role of regional trade in the growth process explain the complexity of the mechanisms of transmitted inflation. The structure of regional trade includes both characteristics common to all underdeveloped countries and new phenomena resulting from the beginnings of industrialization. Our objective will be to show in the case of Madagascar, which country is the most to fear in terms of transmitted inflation and how to guard against this type of inflation?

The analysis of the transmitted inflation phenomena will lead us to two stages of research. On the one hand, the location of external inflationary pressures makes it possible to identify the specific causes of this form of inflation. On the other hand, a study of the mechanisms of propagation of these tensions will explain how inflation, with external factors, is transmitted to the local market.

The data used in this article come from the national accounts and national statistical institutes of the COMESA member countries, the COMESA Secretariat, the statistics of the African Development Bank, of the World Bank and also recent studies conducted by the Economic Commission of Africa (ECA)

For econometric analysis and testing, we used the Spillover Index Framework by Diebold and Yilmaz (2012) and Barunik and Krehlik (2018). Those authors decompose inflation spillover at different time frequencies. No wonder then to find that the model of those researchers is the most common index to study inflation spillover. Their model was chosen for its reliability and robustness to answer our main question.

Our methodological approach can therefore be summarised as follows:

- The review of theoretical literature on inflation and regional trade,
- The review of empirical literature on regional trade and the transmission of inflation. These first two steps aim to identify the potential indicators that can be taken into consideration to address our problem; and
- The econometric test to analyze and verify our hypothesis.

It should be noted that the implementation of these three steps follows an iterative process as they are closely related to each other. Indeed, the combination of these three steps allows to arrive at the identification of the country to follow closely in relation to its level of inflation and its impact on the economy of Madagascar. We will support our study by an in-depth analysis of Madagascar's trade statistics within COMESA.

Theoretical review of inflation

In economics, a phenomenon is never isolated. Price stability or its opposite, inflation, is no exception to this rule. Thus, in his famous magic square, Nicolas Kaldor gives the other objectives of economic policy. This square is magical because we cannot achieve these macroeconomic objectives simultaneously. The most widely used illustration is the inflation-unemployment dilemma. It is in this logic that the New Zealand economist Alban William Phillips (1958) highlights an inverse and strongly nonlinear relationship between the unemployment rate and the nominal wage growth rate. Two years later, Paul. A. Samuelson and Robert M. Solow (1960) modified Phillips' formulation, directly linking the inflation rate to the unemployment rate.

In an open economy, inflation has a negative effect on a country's economy when its rate deviates from that of its competitors. If this «*inflation differential*» becomes important, it deteriorates the price competitiveness of the products of the most inflationary countries, both for export and on their domestic market. The resulting deterioration in the trade balance is weakening the deficit country's currency, putting the cost of its imports at a premium. This «imported inflation» further accentuates the rise of its domestic prices. This is the reason why, after the oil shocks of 1973 and 1979, most of the major industrial countries embarked on austerity policies, known as "*competitive disinflation*", to align themselves with the inflation rates of the least inflationary countries.

Empirical review of inflation

Empirical work on the degree of transmission of inflation remains very divided:

Hazell *et al.* (1990) show using data (1961-1987) from 22 developing countries that changes in world prices are not transmitted at the average prices paid to producers. They explain the real exchange rate and the government's intervention mechanisms. In addition, these authors find a strong correlation between producer prices and export prices. Mundlak et Larson (1992), using price data covering the period 1968-1978, in their study based on a sample of 58 countries, found that almost perfect transmission of international price changes to domestic prices in developing countries. And more recently, Bakhshoodeh et Sahraeian (2006), using data from 1984 to 2002, analyzed the integration of Iranian agricultural markets after his entry into the World Trade Organization (WTO). They conclude that domestic markets are not integrated with international markets in the long term. They point to government intervention.

These three (3) works diverge as to the mechanisms of transmission of inflation. But there is one point on which he seems to agree; the role of the government or the state. Indeed, to control inflation the State has several tools at its disposal. One of these tools is inflation targeting.

More and more countries are adopting an inflation target as the main macroeconomic policy (the following table summarizes the inflation target for a sample of countries in 2008). This is partly due to the failure of discretionary fiscal and monetary policies that suffer, among other things, from a lack of responsiveness in their implementation.

Table 1: Inflation Targeting

Country	Inflation target (%)	Details
South Africa	3 à 6	-
Australia	2 à 3	Adapted according to the economic cycle
Brazil	4,5	+ or – 2 percentage points tolerance
Canada	2	+ or – 1 percentage point tolerance
China	3	Within two years tolerance of + or – 1 percentage point
South Korea	3	+ or – 0.5 percentage points tolerance compared to a three-year average
Hungary	3	+ or – 1 percentage point tolerance
Iceland	2,5	+ or – 1.5 percentage points tolerance
Israel	1 à 3	+ or – 1 percentage point tolerance
Mexico	3	+ or – 1 percentage point tolerance
New Zealand	1 à 3	On average over several years
Eurozone	< 2	On average in the euro area, possible country variations
COMESA area	Inflation rate single-digit	Macroeconomic convergence criteria

Source: Authors based on information collected on the websites of the various central banks.

Results and discussions

COMESA's macroeconomic convergence criteria are divided into two criteria: primary and secondary. In relation to inflation, the rate of inflation considered tolerable must not exceed 5%. One of the objectives of the convergence criteria is to promote convergence between the member countries so that they can apply the policies of monetary union and foreign exchange, without excessive effort. Consequently, it is interesting to see, on the one hand, how far convergence has gone between countries and, on the other, what the impact of convergence would be when it comes to contagion of inflation between member countries.

As we have seen in the empirical review of inflation, the theoretical framework raises the study of the asymmetry of shocks. We are now interested in studying the links between trade intensity and the mechanism of transmission of inflation. Table 2 shows the results of COMESA inflation rates for the period 1991-2020.

Table 2: Summary statistics of the inflation rate of COMESA countries,1991–2020.

	Mauritius	Seychelles	Egypt	Comoros	Zimbabwe	M/car	Kenya
Minimum	−0.015	−0.010	−0.01	−0.004	−0.012	-0.016	−0.018
Maximum	0.022	0.032	0.012	0.014	0.097	0.056	0.0021
Median	0.001	0.002	0.0018	0.014	0.07	0.003	0.004
Mean	0.007	0.0010	0.002	0.021	0.054	0.002	0.002
Standard Dev.	0.005	0.0012	0.014	0.048	0.067	0.002	0.003
Jarque-BeraValue	120.8	283.0	152.4	657.8	547.5	2145.3	517.2
Observations	173	173	173	173	173	173	173

The summary statistics of the inflation rate indices presented above show that the highest disinflation was found in the Comoros (Min = 0.004) and the highest inflation was found in Zimbabwe (Max = 0.097). The average inflation was the highest in Zimbabwe (Mean = 0.054). Inflation was the most consistent in Zimbabwe (S.D. = 0.067). The methodology of Diebold and Yilmaz (2012) according to the time-domain inflation spillovers are shown in table 3. Column-wise, we can see the contribution of one country's inflation to the forecast error variance in the other country's inflation. Row-wise, we can see the contribution of the inflation of all other economies to the forecast error variance in a particular economy's inflation. The total spillover index (SI) is found to be 20.38%. This indicates that less than one-fifth of the global forecast error variance in inflation for COMESA countries comes from spillover.

Table 3: Time-domain inflation spillover

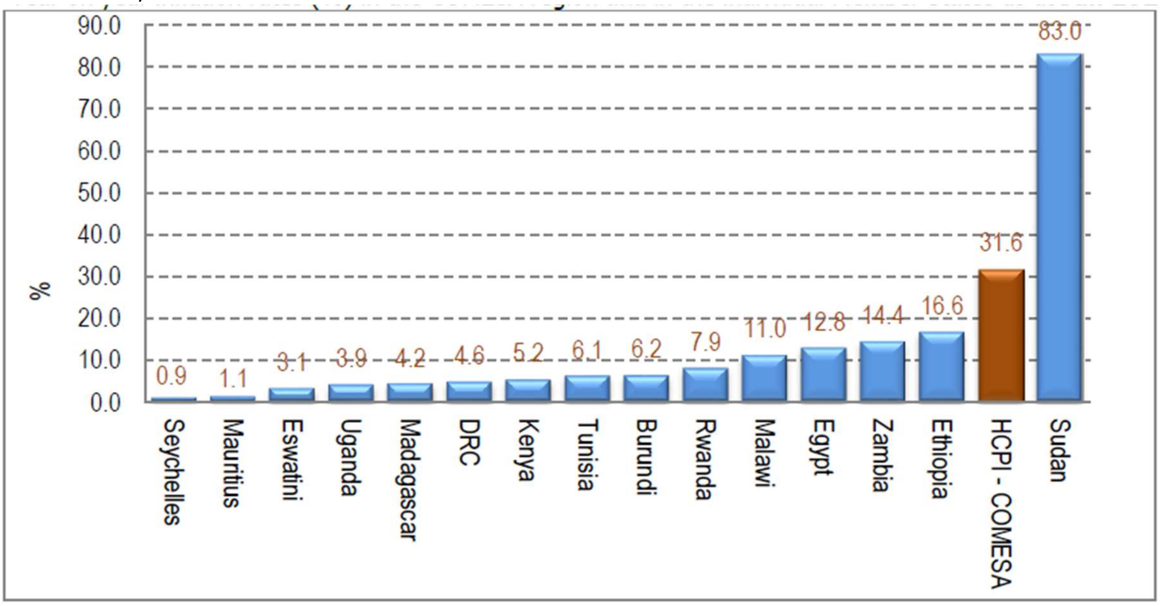
Contribution From (→) To ()	Egypt	Mauritius	Seychelles	Kenya	Tanzania	Zimbabwe	Madagascar	Contribution from Others
Egypt	67.51003	2.2799	2.1497	4.172	8.631	3.3201	11.9301	31,48
Mauritius	6.44	61.9402	4.64*	1.827	13.272	4.1601	8.0199	38,08
Seychelles	1.97001	6.829	70.39	4.102	5.537	5.9003	5.2703	30,61
Kenya	7.9403	2.0797	5.81	47.04	18.172	6.0802	12.88	52,99
Tanzania	2.0697	1.9502	8.2901	5.90	70.77	6.2097	4.83	49,26
Zimbabwe	4.5103	2.4199	4.2399	3.92	16.023	57.3902	11.5003	42,65
Madagascar	5.5697	1.3503	3.5301	3.857	7.847	3.5301	14.298	25,99
Contribution to own and others	22,1	15,98	25,35	23,81	20,54	29,2	31,64	∑(Contribution to others) = ∑(Contribution from others) = 138.65
Contribution to own and others	101.010	78.8501	85.7588	70.826	130.251	82.590	128.7236	∑(Contribution to own and others) = 680
Net inflation spillover	−3.9914	−21.14	−1.232	−29.22	40.222	−13.412	-28.728	

Spillover Index (SI) = (138.65/680) x 100 = 20.38

The figures in the row and column represent the proportion of the forecast error variance in inflation contributed from/contributed to other countries. For example, * indicates that Mauritius' inflation contributes to 4.64% of the forecast error variance in the inflation of Seychelles. Similarly, the number also indicates that 4.64% of the forecast error variance in the inflation of Seychelles is contributed by the inflation of Mauritius. A negative number in the net inflation spillover row indicates that the country is a net receiver of inflation. The net inflation spillovers are calculated as the difference between the inflation spillovers transmitted to others and the inflation spillovers received from others.

Data from National Statistics from COMESA countries allow us to deepen the analysis about inflation in the region. Over the past 56 years, the inflation rate of consumer goods in Madagascar has fluctuated between -1.7% and 49.1%. For the year 2021, an inflation of 5.8% was calculated. Over this period (1965 to 2021), the average inflation rate was 11.4% per year. In total, the rise in prices over this period was 35,788.62%. An item that cost 100 Ariary in 1965 would therefore have cost 35,888.62 Ariary by early 2022. Compared with the average for COMESA member countries, Madagascar is a good performer. As the table below shows, the HCPI-COMESA is 31.6%.

Figure 1: Year on year inflation rates (%) in the COMESA region and the individual member states as at January 2020.



Source: HCPI COMESA, 2020

The year-on-year inflation rate in the COMESA region, as measured by the Harmonized Consumer Price Indices (HCPI-COMESA), stood at 31.6% in January 2020. This means that prices for goods and services rose by an average of 31.6% between January 2019 and January 2020.

According to a report published by COMESA, the rate was based on the main components of household spending. Housing, water, electricity, gas and other fuels recorded the highest annual inflation of +75.9%, while restaurants and hotels registered the lowest average price change of 12.5%. The HCPI-COMESA includes 12 expenditure divisions that recorded the following average price variations during January 2020 compared to January 2019: food and non-alcoholic beverages 44.2%; alcoholic beverages and tobacco 30.9%; clothing and footwear 40.3%; housing, water, electricity, gas and other fuels 75.9%; furnishings, household equipment and routine household maintenance 24.3%; health 57.1%; transport 22.0%; communication 26.9%; leisure and culture 20.8%; education 17.9%; restaurants and hotels 12.5%; and miscellaneous goods and services 40.5%. In relation to our article, i.e. the analysis of the transmission mechanism of inflation through inter- and intra-regional trade. Strictly speaking, there is no particular product or group of products that poses a threat to Madagascar, whatever the country under consideration. Compared with the minimum and maximum, the Seychelles recorded the lowest rate of 0.9%, while Zimbabwe recorded the highest one-year inflation rate of 534.8%.

Member states contributing to the HCPI -COMESA recorded the following total inflation rates in January 2020 compared with January 2019: Burundi 6.2%; Djibouti 4.4%; Egypt 12.8%; Eswatini 3.1%; Ethiopia 16.6%; Kenya 5.2%; Madagascar 4.2%; Malawi 11.0%; Mauritius 1.1%; Uganda 3.9%; Democratic Republic of Congo 4.6%; Rwanda 7.9%; Seychelles 0.9%; Sudan 83.0%; Tunisia 6.1%; Zambia 14.4%; and Zimbabwe 534.8%. These figures show, as we have already written, that Madagascar is setting an example within COMESA.

In interpreting the data, one point needs to be stressed. The HCPIs are produced by the COMESA Secretariat in collaboration with the member states, with the aim of measuring inflation in a similar way, and can therefore be compared directly between them without the need for special adjustments.

Member states' HCPIs are first compiled by the respective countries, then aggregated by the COMESA Secretariat, using harmonized methods defined according to COMESA norms and standards. An aggregated HCPI is called "HCPI-COMESA". Aggregates are calculated using purchasing power parities supplied by the African Development Bank (ADB) and the World Bank. These aggregates are further calculated as weighted averages of national HICPs, using as weights each country's total household expenditure in national accounts converted into a common currency.

In the following section, we take a closer look at Madagascar's trade with COMESA.

Table 4: Trade with COMESA between 2010 and 2016 (in billions of Ariary)

Year	Import	Export	Trade balance	% total export
2010	260,7	83,3	-177,4	0,90%
2011	343,4	121,5	-221,9	1,70%
2012	309,1	117,7	-191,5	1,90%
2013	282,7	98,2	-184,5	1,80%
2014	405,5	159,5	-246	4,40%
2015	455,8	177,5	-278,3	6,10%
2016	530,5	251,3	-279,2	9,50%
2017	639,6	325,3	-314,3	13,50%

Source : INSTAT and author’s calculation, 2018 (CREAM)

Between 2010 and 2016, the country's trade balance remained in deficit. It is the member countries with the best industrialization performance that have benefited most from the removal of tariffs and trade barriers. Madagascar remains an importing country as long as an effective, foreign-market-oriented industrialization policy is not in place. According to the results we have already seen, this is not a good sign in terms of inflation contagion. Madagascar is not immune to imported inflation, as it is a net receiver.

Over the same period, the value of the country's exports to COMESA rose by 99%, or nearly 119 billion Ariary. Imports, on the other hand, rose by 258 billion (104%). Mauritius, Egypt and the Seychelles were the main countries of origin for imports. More than three-quarters of Malagasy imports come from these three countries, which account for 62%, 28% and 7% respectively. Madagascar must therefore keep a close eye on inflation trends in these countries.

Table 5: Trade with COMESA member countries 2017 (Billions of Ariary)

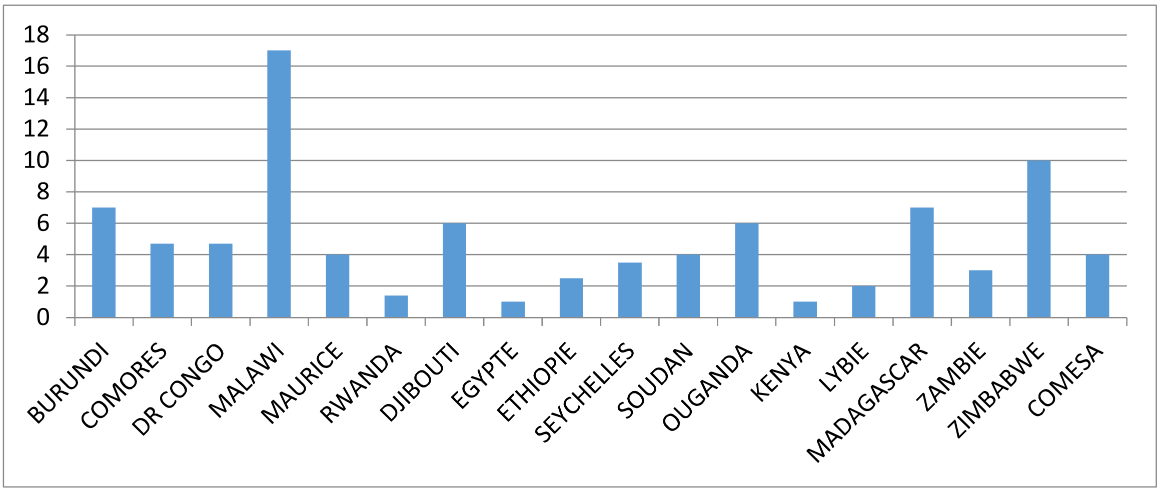
Country	Export	Import	Trade balance
Angola	N.A	33,7	-33,7
Burundi	1 131,20	0	1 131,20
Comoros	17 049,10	147,9	16 901,20
D.R Congo	169,8	3,5	166,3
Djibouti	577,5	63	514,5
Egypt	4 639,50	269 400,90	-264 761,50
Eritrea	-	2,9	-2,9
Ethiopia	1 667,40	415,9	1 251,50
Kenya	45 479,30	10 123,80	35 355,40
Malawi	13,2	2 370,10	-2 356,80
Mauritius	238 115,20	291 766,90	-53 651,80
Namibia	N.A	350,3	-350,3
Ouganda	54,3	302,2	-247,9
Rwanda	1 643,20	3,2	1 640,00
Seychelles	11 255,00	56 946,30	-45 691,30
Somalia	188,8	1,9	186,9
Soudan	215,1	170,7	44,4
Zambia	169,8	217,9	-48,2
Zimbabwe	2 891,80	7 265,90	-4 374,10
Total	325 260,10	639 587,10	-314 327,00

Source ; INSTAT 2018

Taking the discussion, a step further, we can also assess the intensity of trade within COMESA by analyzing the degree of openness to regional trade. Intra-Regional Trade Openness (IRTO) refers to the ratio of a country's trade with other REC members to its GDP. By its very nature, this measure serves as an indicator of the degree of trade openness. Its calculation is based on the ratio of intra-regional trade to GDP at the end of the year. COMESA's overall OCIR index rose between 2000 and 2005, from 1.4% to 4.8% in 2003, before declining to 2.4% in 2009.

The results show that, within COMESA, OCIR is highest in Djibouti, Zimbabwe, Uganda, Rwanda, Burundi and Kenya, each of these countries having an average OCIR of at least 5% over the years 2000 to 2009. Comoros, Democratic Republic of Congo, Mauritius, Malawi, Egypt, Zambia, Madagascar and Sudan had an OCIR of between 1% and 5% in the years 2000 to 2009, in line with the COMESA average of 3.3%. Ethiopia, Libya and Seychelles have an OCIR of less than 1%, indicating a significant increase in trade between these member countries.

Figure 2: Trade openness within the COMESA



Source; IIRA, 2019

The graph above confirms the results given by OCIR in relation to the trade openness of COMESA countries. These results deserve to be compared with the degree of convergence of the countries, since it should not be forgotten that the single-digit inflation target is one of the primary criteria for macroeconomic convergence. To this end, the table below classifies COMESA members from sub-Saharan Africa into three categories of countries according to whether their convergence is (relatively) "fast", "slow" or "medium", based on the average rates of budget deficit and inflation over recent years, with an average of no more than 5% (obtaining a value of 1), an average of more than 5% but no more than 10% (obtaining a value of 2), and an average of more than 10% (obtaining a value of 3). In the table below, countries with an average value less than or equal to 1.5 are classified as fast-converging countries; those with an average value between 1.6 and 2.5 are classified as medium-converging countries, and those with an average value greater than 2.5 are classified as slow-converging countries.

Table 6 : Country ranking according to their integration speed

REC	Fast integration	Average integration	Slow integration
COMESA	Égypt	R.D Congo	Comoros
	Kenya	Djibouti	Seychelles
	Ouganda	Éthiopia	
		Libya	
		Madagascar	
		Malawi	
		Mauritius	
		Rwanda	
		Soudan	
		Zambia	
		Zimbabwe	
		Burundi	

Source : IIRA, 2019

The COMESA countries are almost evenly divided between the three groups in terms of meeting the budget and inflation convergence criteria. The consequence is that these groups of countries would have to pursue differentiated macroeconomic policies over different periods to gain the right to join the monetary union. This consequence justifies COMESA's "variable geometry" approach.

The table presents three indicators that give an indication of the degree of convergence and integration within COMESA, and classifies countries according to whether they are converging slowly, moderately or rapidly. These indicators cover the debt risk category (based on IMF data on debt sustainability), and the soundness of fiscal practices. Numerical values, ranging from 1 to 3, were assigned to each country in relation to each of these three measures, and then, based on the average of these values, countries were classified into three categories according to their level of readiness (relative to other member countries) to participate in a monetary union (with a value of 1 assigned to those most ready and a value of 3 to those least ready), or according to how far they have to go (the measures they need to take) before they can join a monetary union (with a value of 3 indicating the need to take most of the measures).

The results also show that COMESA's Degree of Regional Trade Integration (DICR) also fell, but only slightly. Of the 16 COMESA countries analyzed, half had a level of intra-regional trade in excess of 10%. These included Rwanda, Uganda, Burundi, Malawi, the Democratic Republic of Congo, Kenya and Zimbabwe, with 24.9%, 24.8%, 19%, 13.8%, 12.9%, 12.7%, 12.1% and 10.4% respectively. All members who also belong to the EAC fell into this category. With the exception of Libya, whose DICR was around 1%, for the remaining COMESA member countries it was between 4% and 10%.

Finally, the relative integration (REIN) of each country vis-à-vis other members refers to the ratio between the country's trade with other REC members and the country's GDP. Using this measure, three categories have been created according to whether countries are "fast", "medium" or "slow" in their integration. The results for COMESA are shown in the table below. Any country whose REIN vis-à-vis other members is less than 1% is classified as a slow-integrating country. Countries whose relative integration REIN compared to other members is less than 10% are classified as medium-integration countries, and those above 10% are classified as fast-integration countries.

Conclusion

The discussion of monetary union, and in particular the introduction of a common or single currency, has gained considerable momentum, especially since the success of European economic and monetary union with the introduction of the euro in 1999. Our aim in this article was to assess the mechanisms of inflation transmission, while highlighting the external factors likely to amplify or diminish the degree of transmission. The main hypothesis is based on the role of foreign trade as a genuine means of transmitting imported inflation. This hypothesis assumes that the intensity of inter-regional trade accentuates the transmission of inflation. To test this hypothesis, we used data supplied by the various ministries and national statistics institutes of the COMESA member countries (IHPC-COMESA).

Overall, the results show that Madagascar is more likely to experience imported inflation with Mauritius, Egypt and Seychelles, given the intensity of its trade with these countries. This in no way means that Madagascar should cease all trade relations with these countries for fear of suffering imported inflation. A leading role for the government in ensuring respect for market principles and the law of supply and demand could help make the domestic market function more optimally, and lead to less transmission of imported inflation. We cannot conclude without mentioning inflation as a macroeconomic convergence criterion.

COMESA's inflation criteria are based on European Monetary Union figures, but it is unclear how the criteria applied to developed countries can be useful to COMESA. With regard to inflation, the 3% annual rate is now disputed, even by developed countries. Other economists have also suggested that inflation, as long as it is below 10%, should not compromise growth or macroeconomic stability in developing countries, and could in fact be useful. The current convergence criterion states that, in the first phase of the program, the inflation rate must not exceed 5%. As the results show, this criterion is far from being met by the vast majority of member countries. The average annual rate for the study period for COMESA as a whole was 13.8%. Six countries met the COMESA convergence criterion, while 4 continued to post double-digit rates. Given the low intensity of trade between member countries, should we neglect imported inflation and focus more on other convergence criteria?

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Appendix

Table: Inflation in Madagascar compared to the World

Year	M/car	UE	USA	World
2020	4,20 %	0,50 %	1,23 %	1,92 %
2019	5,61 %	1,63 %	1,81 %	2,19 %
2018	8,59 %	1,74 %	2,44 %	2,44 %
2017	8,61 %	1,43 %	2,13 %	2,19 %
2016	6,04 %	0,18 %	1,26 %	1,55 %
2015	7,40 %	-0,06 %	0,12 %	1,43 %
2014	6,08 %	0,20 %	1,62 %	2,35 %
2013	5,83 %	1,22 %	1,46 %	2,62 %
2012	5,71 %	2,66 %	2,07 %	3,73 %
2011	9,48 %	3,29 %	3,16 %	4,82 %
2010	9,25 %	1,53 %	1,64 %	3,35 %
2009	8,95 %	0,84 %	-0,36 %	2,94 %
2008	9,30 %	4,16 %	3,84 %	8,95 %
2007	10,29 %	2,51 %	2,85 %	4,82 %
2006	10,77 %	2,67 %	3,23 %	4,28 %
2005	18,36 %	2,49 %	3,39 %	4,11 %
2004	13,96 %	2,29 %	2,68 %	3,38 %
2003	-1,70 %	2,09 %	2,27 %	3,03 %
2002	16,50 %	2,42 %	1,59 %	2,83 %
2001	7,92 %	3,37 %	2,83 %	3,84 %
2000	11,86 %	3,15 %	3,38 %	3,49 %
1999	9,93 %	2,16 %	2,19 %	3,08 %
1998	6,21 %	2,42 %	1,55 %	5,11 %
1997	4,49 %	3,11 %	2,34 %	5,57 %
1996	19,76 %	3,56 %	2,93 %	6,55 %
1995	49,08 %	4,43 %	2,81 %	9,15 %

Source: International Monetary Fund, World Bankd, OCDE, Inflation CPI indicator 2021 (NB : Madagascar joined COMESA in 1995)

Table: Convergence group within the COMESA

High	Medium	Low
Malawi	Madagascar	Comoros
Mauritius	Soudan	Eritrea
Uganda		
R. D. du Congo	Djibouti	Burundi
Rwanda	Zimbabwe	Seychelles
Swaziland		
Zambia		

Table : COMESA : Inflation 2005-2010

Country	2005	2006	2007	2008	2009	2010
Burundi	13,5	2,7	8,3	24,4	10,7	7,2
Comoros	3,0	3,4	4,5	4,8	4,8	2,6
Congo	21,4	13,2	16,7	18,0	46,2	26,2
Djibouti	3,1	3,5	5,0	12,0	1,7	3,9
Egypt	8,8	7,6	9,5	18,3	11,7	10,9
Eritrea	12,5	15,1	9,3	19,9	54,7	20,5
Ethiopia	6,8	12,3	15,8	25,3	36,4	2,8
Kenya	9,9	6,0	4,3	16,2	9,3	4,1
Libye	2,9	1,4	6,2	10,4	2,8	4,5
Madagascar	18,4	10,8	10,4	9,2	9,0	9,0
Malawi	15,5	13,9	7,9	8,7	8,4	8,0
Mauritius	4,9	9,0	8,8	9,7	2,5	2,5
Rwanda	9,1	8,8	9,1	15,4	10,4	6,4
Seychelles	0,6	-1,9	5,3	37,0	31,8	-2,4
Soudan	8,5	7,2	8,0	14,3	11,3	10,0
Swaziland	4,8	5,3	8,2	13,1	7,6	6,2
Uganda	8,0	6,6	6,8	7,3	14,2	9,4
Zambia	18,3	9,0	10,7	12,4	13,4	8,2
Zimbabwe	n. a	n. a	n. a	6,5	4,7	n. a
COMESA average	8,95	7,05	8,15	14,89	15,35	7,37

Source: FMI – Regional economic perspective: Sub-Saharan Africa, October 2010.

Table: COMESA – Convergence Index

Country	Budget practices	Debt risk	Trade integration	Mean
Angola				
Burundi	Low (3)	High (3)	Slow (3)	3
Comoros		High (3)	Slow (3)	3
Djibouti	Low (3)	Moderate (2)	Average (2)	2,3
Egypt			Rapide (1)	
Eritrea	Low (3)			
Ethiopia	Low (3))	Moderate (2)	Average (2)	2,3
Kenya	High (1)	Low (1)	Fast (1)	1
Madagascar	Low (3)		Average (2)	2,5
Malawi	Average (2)	Moderate (2)	Average (2)	2
Mauritius	High (1)	Low (1)	Average (2)	1,3
Ouganda	Average (2)	Low (1)	Rapide (1)	1,3
R. D. Congo		Moderate (2)	Average (2)	2
Rwanda	Average (2)	Moderate (2)	Average (2)	2
Seychelles	Low (3)	High (3)	Slow (3)	3
Soudan		High (3)	Average (2)	2,5
Swaziland	Average (2)	Low (1)		1,5
Zambie	Average (2)	Moderate (2)	Average (2)	2
Zimbabwe				High (3)

Source; IIRA, 2019

MACROECONOMIC CONVERGENCE OR DIVERGENCE WITHIN SADC?

Jean Lucien Razafindrakoto
Senior Lecturer at the Economics Department, University of Antananarivo, Madagascar

Abstract:
It was at the Arusha summit in August 2004 that the SADC Macroeconomic Convergence Program was based on the measurement of four macroeconomic indicators set out in the Regional Indicative Strategic Development Plan (RISDP). The main objective of this paper is to highlight the issue of macroeconomic convergence criteria through the analysis of the SADC region and its drawbacks due to overlapping membership found in many African countries. This article provides information to policy makers with the same dilemma by explaining, first why multiple memberships is an obstacle to sustainable development and then criticizes the actual approach of regional economic community rationalization. The main findings show that despite the struggle of following different criteria many countries continue to be member of more than one Regional Economic Community.
Keywords: Macroeconomic convergence criteria, Multiple memberships, Regional Economic Community, Regional integration, SADC

INTRODUCTION

The SADC Central Banks have failed in their objective of establishing a common monetary unit in 2016. This failure should come as no surprise, since as long ago as 1987, at the 23ème ordinary session of the Heads of State and Government, resolution AHG/Res.161 (XXIII) in its paragraph 7 requested the Secretary General of the Organization of African Unity (OAU), the Executive Secretary of the African Economic Commission (AEC) and the heads of the RECs, in particular the Economic Community of West African States (ECOWAS), the Preferential Trade Area (PTA) and the Southern African Development Community (SADC) to take the necessary measures to coordinate, harmonize and rationalize the activities, projects and programs of the regional organizations in their respective regions, in order to avoid multiple memberships which are a source of conflict and wasted energy and resources.
Previously, in 1976, at the 27ème ordinary session of the Council of Ministers, resolution CM/Res. 464(XXVI) in its paragraph 2(a) decided that Africa is divided into five (05) regions, namely North, West, Central, East and South. The Lagos Final Act and the Abuja Treaty (Article 6, 2(a)) provided for the strengthening of existing Regional Economic Communities (RECs) and the creation of new RECs where none exist, to cover the entire continent. In 1986, at the 44ème ordinary session of the Council of Ministers, resolution CM/Res. 1043 (XLIV) in paragraph 7 requested the OAU Secretary General to examine practical and operational modalities for harmonizing and coordinating the activities and programs of existing RECs.
In terms of the timetable for achieving these objectives, we're way behind schedule. Indeed, we have agreed on six (06) stages in the construction of the African Economic Community. This involves forming five (05) RECs from the existing 14, a real headache for African leaders. The idea of rationalizing the RECs is not new, as numerous African Union resolutions show. Attempts to regroup the RECs were made from 1983 until 1994. A new attempt using new approaches was made between 1995 and 2001. Unfortunately, these experiments were not crowned with success. In June 2001, to speed up the integration process, the Organization of African Unity was

transformed into the African Union, with the aim of creating an African common market. The process will take 34 years to complete, in six stages of varying length (Kouassi, 2007)

Table 1 Stages in the creation of the CEA

1st stage	1994-1999	A period devoted to strengthening existing RECs and creating new ones where none exists
2nd stage	1999–2007	Tariff and non-tariff barriers, door duties and internal taxes to be reduced to their May 1994 levels. Progressive harmonization of multinational policies and programs in agriculture, industry, transport, communications and energy to be completed.
3rd stage	2007–2017	The emphasis is on consolidating FTAs and customs unions through the progressive elimination of all barriers to trade. At the end of this stage, a Common External Tariff (CET) is to be adopted and implemented.
4th stage	2017–2019	The free movement of people and the application of the rights of residence and establishment, as well as the coordination and harmonization of policies and programs in the trade and other sectors, must be completed in view of the full realization of the African Common Market.
5th stage	2019–2023	This stage is devoted to consolidating the African Common Market at continental level.
6th stage	2023–2028	This final stage will see the creation of the African Economic Community and the achievement of economic, political, social and cultural integration. The African Central Bank, the single African currency and the Pan-African Parliament will reflect this integration.

Source: Kouassi, 2007.

The degree of integration varies from one regional arrangement to another. For example, there are huge differences between the European Union and the North American Free Trade Agreement (NAFTA). The former engages the sovereignty of member states in a common economic and political enterprise, while the latter is essentially concerned with the free movement of goods and capital. The macroeconomic policies of the member countries of these communities are subject to constraints before they can join this monetary union. These constraints are known as "macroeconomic convergence criteria". Within the European Union, this is known as the "Stability Pact".

In Africa, research into African economic integration is increasingly focusing on the thorny issue of macroeconomic convergence criteria. However, little of this work has been devoted to the analysis of macroeconomic policies as factors to be taken into account in an analysis of the establishment of an African monetary union.

Our article focuses on the analysis of SADC's macroeconomic convergence criteria in order to identify the constraints to achieving monetary union. In the first part, we outline the theoretical underpinnings of regional economic integration. In the second part, we analyze the SADC convergence criteria. In the final section, we propose a number of recommendations.

Methodology

Our methodology is based on data collection from field missions carried out by the African Union's Trade and Regional Integration Division, and theoretical research, which forms the basis of this paper. As far as regionalization is concerned, it has to be said that information from the Economic Commission for Africa (ECA) is the most reliable. The Commission has drawn up two sets of questionnaires, one for a number of African countries and the other for the REC. Two internal and consultative consultations with the African Union (AU) were also deemed necessary. The questionnaire proposed for African countries covers: (i) compliance with financial commitments to the REC, (ii) integration of REC objectives into national budgets, plans and programs; (iii) implementation of selected programs, (iv) legal issues relating to integration, (v) costs and benefits of integration and (iv) relations with civil society and the private sector in terms of regional integration.

Responses to this country-level survey are needed to refine the data in the questionnaire for the REC of which these countries are members. The questionnaire for REC has been designed to cover issues relating to multiple membership and covers: (i) general information and legal status, (ii) efficiency of human and financial resources, competitiveness and internal management, (iii) level of efficiency in achieving the ultimate objectives of the AU and regional integration, (iv) harmonization of mandates and duplication of programs, (v) the coordination of REC within the same region and the lack of coordination at continental level, and (vi) measures taken in the past and recommendations for streamlining the REC. It should be stressed that the scientific community, the private sector, key players in regional integration, the AU, REC member countries and other institutions were also consulted.

Following the consultations, field missions were carried out by the Trade and Regional Integration Division to the 14 REC: the Arab Maghreb Union (UMA), the Economic and Monetary Community of Central Africa (CEMAC), the Common Market for Eastern and Southern Africa (COMESA), the Community of Sahel-Saharan States (CENSAD), the East African Community (EAC), the Economic Community of Central African States (ECCAS), the Economic Community of the Great Lakes Countries (CEPGL), the Economic Community of West African States (ECOWAS), the Indian Ocean Commission (IOC), the Intergovernmental Authority on Development (IGAD), the Mano River Union (MRU), the Southern African Customs Union (SACU), the Southern African Development Community (SADC) and the West African Economic and Monetary Union (UEMOA). Officially, of the 14 existing REC, the African Union recognizes only eight: ECOWAS: 15 members; headquarters: Abuja, Nigeria; COMESA: 20 members; headquarters: Lusaka, Zambia; ECCAS: 11 members; headquarters: Libreville, Gabon; SADC: 14 members; headquarters: Gaborone, (Botswana); UMA: 5 members; headquarters: Rabat, (Morocco); IGAD: 7 members; headquarters: Djibouti; CEN-SAD: 18 members; headquarters: Tripoli, (Libya); EAC: 3 members; headquarters: Arusha (Tanzania).

The Trade and Regional Integration Division also visited 26 African countries to gather the views and opinions of REC officials and development partners. The Division visited Benin, Botswana, Burkina Faso, Cameroon, Central African Republic, Congo, Democratic Republic of Congo, Djibouti, Egypt, Gabon, Ghana, Kenya, Libya, Mali, Mauritania, Morocco, Namibia, Niger, Nigeria, Rwanda, Senegal, Sierra Leone, South Africa, Tanzania, Tunisia and Zambia.

Literature review

Africa is the continent with the largest number of Regional Economic Communities (REC), with over 200 regional organizations. Depending on their degree of integration, according to Bala Balassa (1961), RECs take four (04) basic forms: free trade area, customs union, common market and economic and monetary union

Table 2: Stages of regional integration

Mechanism type	Free exchange between members	Common trade policy	Free flow of factors	Common monetary and budget policies	Single government
Preferential trade Area	No	No	No	No	No
Free Trade Area	yes	No	No	No	No
Customs union	Yes	Yes	No	No	No
Common market	Yes	Yes	Yes	No	No
Economic union	Yes	Yes	Yes	Yes	No
Political union	yes	Yes	Yes	Yes	yes

Source: El-Agraa, 1997.

Among the expected effects of regional integration, convergence in living standards between members of the same region is the most frequently cited. According to Solow's model (1956), "the more integrated the countries, the more homogeneous they will be, and the greater the probability that the richer countries will catch up with the poorer ones". Monetary integration is an essential element of economic integration. It must be strong if integration is to evolve beyond free-trade zones and customs unions towards a genuine common market (Eichengreen 1998). When countries adopt an advanced form of cooperation, such as a single currency, trade develops remarkably (Rose 1999; Glick and Rose 2001; Bun and Klaassen 2002). The same applies to economic performance and individual production in the countries concerned (Frankel and Rose 2000).

The theoretical framework for monetary integration generally refers to the theory of Optimal Monetary Zones (OMZ) initiated by Mundell (1961). The theory studies the conditions necessary for a monetary union to be stable, sustainable and beneficial (by comparing advantages and losses) for the member states. A key question is: Is a currency zone formed by a few countries an optimal currency zone? Pioneering theories attempt to determine the conditions for optimality. They focus mainly on assessing the macroeconomic costs of losing the exchange rate instrument, and try to propose alternative measures.

Mundell (1961) suggests labor mobility, McKinnon (1963) trade openness and Kenen (1969) diversification of production structures.

However, there are other criteria that enrich the theory of optimal currency areas, relating to fiscal federalism (Johnson, 1970), financial integration (Ingram, 1969), zero inflation differentials (Harberler 1970; Fleming, 1971; Magnifico, 1972) and the degree of asymmetry of macroeconomic shocks and adjustment factors that can replace the exchange rate. The theory of Monetary Zones identifies the study of asymmetric shocks as one of the determinants of the net advantage of currency unions. The greater the asymmetric shocks, the less desirable a union would be between a group of countries. In the context of monetary integration in Southern Africa, the evaluation of asymmetric shocks is crucial in determining the relevance of the monetary union project.

The macroeconomic policies of these countries must obey constraints that change according to the level of monetary integration. Fixing exchange rate parity by reference to a currency is the most common example. However, the various mechanisms for fixing the currency offer neither the same advantages nor the same flexibility.

A monetary union is an area with a single monetary policy, within which a common currency or perfectly interchangeable currencies circulate freely (Masson and Pattillo, 2001). According to these authors, there are five types of monetary union:

(i) Informal union of exchange rates by fixing the parity between different currencies with limited margins for exchange rate fluctuations,
(ii) Formal union of exchange rates across a monetary zone by fixing the parity between different currencies within narrow margins (the currency snake),
(iii) Currency board that allows any country to peg its currency to that of another country with a zero margin,
(iv) Unilateral adoption of another country's currency without a counterpart or agreement, such as "dollarization" or "euroisation", and
(v) The single currency is a total monetary union.
In relation to these different forms of monetary union, the SADC, for example, is considering setting up a full monetary union. Setting up a common currency or a single currency is a challenge for each regional community, but its realization implies the imposition of certain conditions to compensate for its role as an instrument for adjusting the fixed exchange rate, since each member country relinquishes the autonomy of its monetary policy.
With conventional mechanisms that provide for a fluctuation band, it can be said that the monetary authorities' decision to realign the currency follows no rules. However, with more restrictive systems, realigning the currency is more laborious and costly due to legal and institutional obstacles. Authors such as Obstfeld and Rogoff (1995) believe that states should choose between a flexible exchange rate and a more binding form of pegging. Currency unions, among others, are among the binding forms of pegging. According to Honohan and Lane (2001), the successful launch of the Euro shows that these unions can be an external factor of fiscal rigor at national level.
Complying with precise macroeconomic convergence criteria and obliging countries to create a macroeconomic environment conducive to international competition leads to good economic outcomes, such as low inflation, low deficits and constant exchange rates (Noah Mutoti and David Kihangire, 2006). By deciding to join only one REC, a government reinforces the credibility of its commitment to macroeconomic stabilization. This has a positive impact on growth. On the other hand, belonging to several RECs removes this credibility, especially if there is no system of harmonization between them. As a result, we can only agree on the importance of harmonizing REC policies.
Regional integration can give greater credibility to the economic and political reforms of member states and ensure their continuity, as its mechanisms play a moderating role and provide a framework for coordinating policies and regulations (Fernandez and Portes, 1998). In a nutshell, the potential risks are: (i) the existence of rivalry between groups with the same objectives (customs union, single currency, etc.); (ii) the dispersal of financial and human resources from countries that have to contribute to the running costs and funding of REC projects and programs; and (iii) the inability to meet (all) their obligations, by favoring one REC over another and avoiding sprinkling, waste and dispersion, and concentrating efforts in RECs with high growth potential.

Results and discussion

For some economists, marked by very liberal philosophies in which the market is the main regulatory mechanism, a common market is sufficient, and need only be supplemented by actions designed to maintain or strengthen competitive mechanisms, such as a common competition policy (Rollet Philippe and Huart Florence 1995). For others, advocates of deeper integration, we need to go further, because a single market is insufficient in that it ignores three elements: (i) the fact, firstly, that the conditions of competition can be distorted by the numerous interventions of the state in the economy, and requires coordination and sometimes unification of economic policies; (ii) the fact, secondly, that in a common market the interdependence of economies is very high, with the consequence that purely national economic policies are less effective; (iii) the fact, thirdly, that investment policies can be distorted by exchange rate instability. So, at the very least, we need to ensure exchange rate stability between member countries, or even go further by introducing a single currency. These three arguments are often invoked to recommend the implementation of a monetary union.

Setting up a monetary union

In practice, setting up a monetary union requires: Setting up a monetary union

In practice, setting up a monetary union requires:

• Definition of the objectives, rules of action, responsibilities and degree of independence of the common central bank vis-à-vis governments;

• The division of tasks concerning bank supervision;

• The creation of mechanisms and procedures to adapt national policies to the objectives of monetary union.

A successful monetary union requires countries to adopt prudent policies. As already noted, the effects of monetary unions on fiscal policy are twofold. By accentuating budgetary rigor, the loss of the benefits of the monetary strike induces a degree of fiscal discipline. However, the elimination of the risk of currency devaluation reduces the cost of issuing debt instruments and encourages greater indebtedness to finance public spending. Given this ambiguity, it is vital to adopt a system of fiscal policy guidelines. In this respect, the adoption of rules governing budgetary policies is useful. These can be stipulated in terms of ceilings on a country's deficits and debt. Sanctions can be imposed on countries that fail to comply. In short, there can be no common currency without precise convergence criteria.

Macroeconomic convergence criteria

Generally defined in terms of upper and lower limits for macroeconomic variables, convergence criteria are intended to guide the economic policies of future member states during the transition period. Only those that meet these criteria can join the monetary union.

Before the official start of the union, the macroeconomic convergence criteria ensure that all candidate countries maintain low inflation and prudent fiscal policies. This is to avoid the distorting effects that could be induced by the participation of countries whose policy stance and macroeconomic fundamentals are not in line with the monetary objectives of the common central bank. The variables taken into account for this purpose are generally inflation, budget deficit and outstanding public debt.

The SADC macroeconomic sub-committee has defined and retained criteria to be met by member countries. These include an annual inflation rate of 5.0%, a public deficit limited to between 1.0% and 3.0% of GDP, and public debt limited to 6.0% of GDP. Other criteria include foreign exchange reserves of no less than six weeks' imports of goods and services; real GDP growth of around 7.0%. Finally, the current account balance must not exceed 9.0% of GDP. All member countries must meet these criteria if they are to achieve economic and monetary integration.

In order to achieve low inflation, the countries concerned must apply rigorous anti-inflationary policies. Their commitment to monetary stability is measured by their willingness to bear the real costs. Budget and debt requirements oblige governments to adjust their fiscal policies to maintain an overall balance between expenditure and revenue. These adjustments can also be significant and costly (spending cuts, tax increases). Governments that do so demonstrate their commitment to rational budget management.

COMESA and SADC are among the RECs aspiring to monetary union. To this end, they consider it essential that their member states first move towards monetary harmonization, with a view to achieving macroeconomic convergence. To assess progress, they have formulated a number of criteria to measure member states' progress in implementing the program. Only member states that have achieved macroeconomic convergence can move on to the next stage.

SADC macroeconomic convergence criteria :

The Southern African Development Community was established in 1980 following a long process of consultation between the leaders of Southern Africa. The regional organization has since gone from strength to strength, adopting a program of activities including the Trade Protocol, which provided for a monetary union. SADC member states are Angola, Botswana, Congo (Democratic Republic), Lesotho, Malawi, Madagascar, Mauritius, Mozambique, Namibia, South Africa, Swaziland, Tanzania, Zambia and Zimbabwe.

1) Single-digit inflation for 2008
2) The ratio of budget deficit to GDP must not exceed 5%.
3) The debt-to-GDP ratio must not exceed 60%.
4) Current account deficit to GDP reduced to less than 9%; and
5) Achieve a sustained growth rate of over 7 per cent;

The time-schedule is shown in the table below:

Table 3: Schedule of criteria realization

Indicators	Targets	2008	2012
Annual inflation rate	< 10%	5%	3%
Deficit/GDP	<5%	3%	3.1%
Debt/GDP	6,0%	6,0%	6,0%
Current account/GDP	9%	9%	9%
Economic growth	7%	7%	7%
External reserves (import months covered)	3	6	6
Central bank credit to the government (% of government revenue)	10%	5%	5%
Domestic savings (% GDP)	25%	30%	30%
Domestic investment (% GDP)	30%	30%	30%

Source : *SADC Secretariat* , Gaborone, 2009

No analysis of developments in SADC can be made without mentioning the multiple membership that is common in the region. Madagascar and eight other COMESA member countries are also members of SADC. Given this fact and the similarity of the macroeconomic convergence criteria of these two entities, we can say that the COMESA convergence criteria are more numerous and more detailed than those of the SADC. But there is also a similarity, with the exception of the criterion relating to the current account. This regionalist polygamy affects almost all African countries, as the following table shows:

Table 4 : Mutliple membership in Africa

Country members of one RTA	Algeria, Benin, Cape Verde, Ghana, Mauritania, Mozambique, Sao Tome and Principe (7)
Country members of two RTA	Angola, Botswana, Cameroon, Comoros, Congo, Côte d'Ivoire, Ethiopia, Gabon, Gambia, Guinea, Guinea-Bissau, Liberia, Libya, Lesotho, Malawi, Morocco, Nigeria, Seychelles, Sierra Leone, Somalia, South Africa, Tanzania, Togo, Tunisia, Zambia, Zimbabwe (26)
Country members of three RTA	Burkina Faso, Burundi, Djibouti, Egypt, Eritrea, Equatorial Guinea Kenya, Central African Republic, Chad, Madagascar, Mali, Mauritius, Namibia, Niger, Rwanda, Senegal, Sudan, Swaziland, Uganda (19)
Country members of four RTA	RDC (1)

Source: author's synthesis based on data from the Economic Commission for Africa, 2014

According to this table, of the 52 African countries, seven (07) are members of a single Regional Trade Agreement (RTA), 26 countries are members of two RTAs, 19 countries are members of three RTAs and one country is a member of four (04) RTAs.
A temporal analysis of the evolution of the convergence situation in the SADC region can be seen in the table below:

Table 5: Status of SADC convergence

Country	Inflation rate		Deficit (% GDP)		Public debt (% GDP)		Current account (% GDP)		Growth rate	
Angola	31,0	18,5	0,6	8,2	45,6	31,2	3,5	15,7	11,2	20,6
Botswana	7,8	11,4	-0,2	1,2	10,6	8,9	2,8	13,3	3,4	8,4
DRC	4,0	21,3	0,8	-1,2	2,6	3,3	-3,9	-3,5	6,6	6,5
Lesotho	5,1	3,4	8,4	1,5	53,9	50,5	-4,7	1,4	3,1	1,2
Madagascar	14,0	18,4	-13,9	-10,1	95,7	87,0	-14,6	-12,1	5,3	4,6
Malawi	11,5	15,4	-4,4	-2,9	127,9	-	-17,7	-26,8	5,0	2,1
Mauritius	4,7	4,9	-5,4	-5,0	65,0	66,2	-1,8	-5,0	4,7	2,5
Mozambique	12,6	6,4	-4,5	-2,3	75,0	70,0	10,0	-1,1	7,5	6,2
Namibia	4,2	2,3	-2,4	-1,1	29,1	33,6	10,2	8,4	6,0	3,2
South Africa	1,4	3,4	-1,5	-0,4	49,5	46,9	-3,4	-4,2	4,5	4,9
Swaziland	3,4	4,8	-	-	-	-	-	-	2,1	1,8
Tanzania	4,2	4,4	-5,0	-5,0	75,2	79,1	-3,9	-7,9	6,7	6,8
Zambia	17,5	15,9	-1,3	-2,6	101,0	64,5	-10,7	-9,6	5,3	5,0
Zimbabwe	350,0	585,8	-4,6	-5,8	109,0	110,0	-9,0	-12,0	-3,2	-4,3
SADC-Zim	9,3	10,0	-2,4	-1,6	60,9	49,2	-2,9	-2,6	5,5	5,7
SADC(Mean)	33,7	51,2	-2,6	-2,0	66,2	56,4	-3,32	-3,3	4,9	5,0
Convergence criteria (2004-08)	single digit		Less than 5%		Less than 60% of GDP		Less than 9% of GDP		No less thatn 7%	

Source : Bank of Namibia, 2006

The IIRA measures regional integration within SADC along five dimensions. These dimensions' group together sixteen indicators that measure the extent to which SADC member countries are integrated within their region. In the table below, the more a dimension is drawn outwards, the more integrated the continent is with regard to that dimension. Scores are calculated on a scale from 0 (total absence of integration) to 1 (perfect integration).
Table 6: Ranking and overall score

Country	Overall score ranking
South Africa	0.67
Mozambique	0.42
Zimbabwe	0.40
Mauritius	0.37
Seychelles	0.35
Namibia	0.34
Comoros	0.34

Country	Overall score ranking
Mean	0.34
Zambia	0.33
Botswana	0.33
Lesotho	0.30
Malawi	0.30
Tanzania	0.29
Madagascar	0.29
Eswatini	0.25
Angola	0.23
R.D Congo	0.19

Source ; IIRA, 2014

SADC scores rather low, with 9 of its 16 members having a performance considered average within this community. SADC has three excellent performers, with South Africa a distant second. SADC's scores are mostly dragged down by the lack of regional infrastructure.

Table 7: Country ranking according to their speed of integration

REC	Fast integration countries	Average integration countries	Slow integration countries
SADC	South Africa	Angola Madagascar Malawi Mauritius Tanzania Zambia Zimbabwe	Burundi Comoros Seychelles

Source : IIRA, 2014

South Africa has a near-perfect score, but the next two best performers, Seychelles and Mauritius, have much lower scores. The bottom five (Democratic Republic of Congo, Eswatini, Lesotho, Madagascar and Tanzania) score close to zero. The Democratic Republic of Congo and Tanzania perform better in terms of productive integration, where they move into the middle zone, but SADC's performance on this dimension is not much better than that on infrastructure integration. The respective rankings of SADC member countries seem to reflect the current state of socio-economic integration within the community, with its best-performing countries boasting prosperous economies and a relatively satisfactory standard of living. SADC's strength lies in the free movement of people.

Theoretically, three schools of thought explain the convergence or divergence of economies through economic integration. Firstly, under the hypothesis of diminishing returns, Solow's neoclassical growth theory (1956) predicts that countries will converge towards the same level of GDP per capita. Thus, trade integration and liberalization of capital movements are a factor in accelerating convergence. Secondly, François Perroux's (1995) theory of growth poles highlights the difficulty of spreading the effects of growth to all sectors of the economy. Contrary to the neoclassical model, this theory states that convergence depends on the confrontation between two opposing effects of integration. And thirdly, again in contrast to the neoclassical view, endogenous growth theories (Romer, 1986; Lucas, 1988) do not predict convergence between rich and poor countries, even when the movement of goods and capital is free. An analysis of SADC's situation in relation to this theory shows that, decades after the convergence criteria were put in place, the economies of the sub-region are hardly converging, as the following table shows:

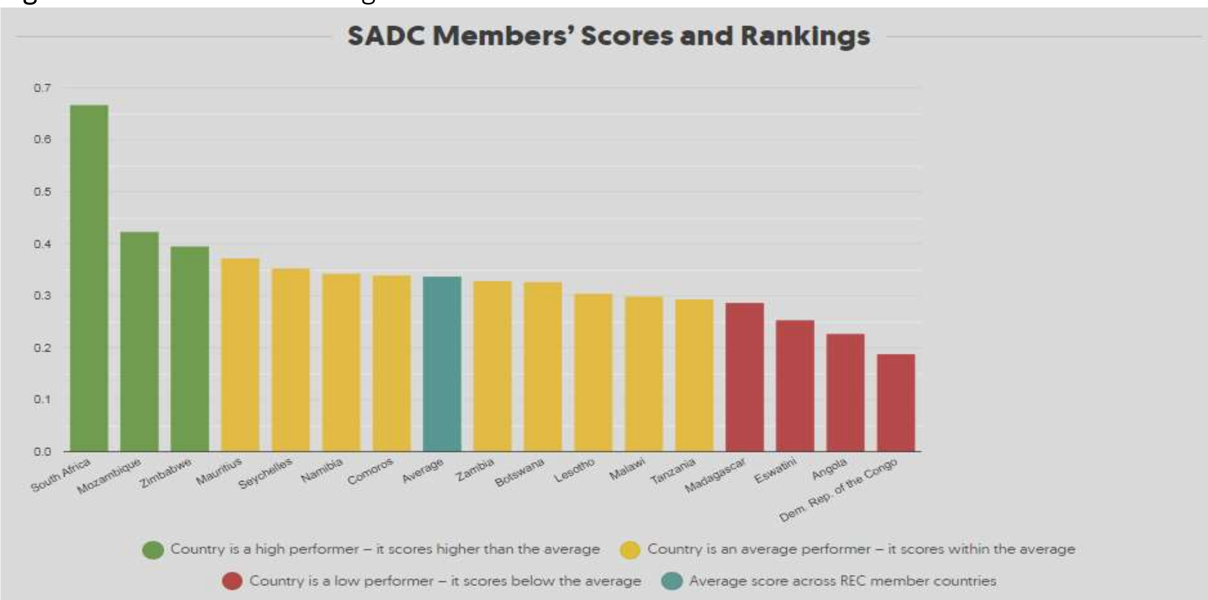
Table 8 : Commercial integration within the SADC country

Country	Speed
Angola	--
Comoros	Slow (3)
Éthiopia	Average (2)
Madagascar	Average (2)
Malawi	Average (2)
Mauritius Island	Average (2)
Seychelles	Slow (3)
Ouganda	fast (1)
Zambia	Average (2)
Zimbabwe	--

Source: IIRA, 2014

The SADC Secretariat's Macroeconomic Performance and Monitoring Unit is responsible for supporting the implementation of the Regional Indicative Strategic Development Plan (RISDP). Its main objectives are to provide member states with macroeconomic policy guidance and advice; to plan, facilitate, coordinate and monitor macroeconomic policies, including monetary and fiscal policies and programs, with the aim of promoting economic liberalization and development, trade and investment; and to achieve macroeconomic convergence in the SADC region. This unit prepares, coordinates, reviews and consolidates contributions from member states, the Committee of Central Bank Governors (CCBG), strategic partners and other regional financial and economic bodies for presentation at meetings of the SADC Macroeconomic Sub-Committee. The following graph, however, shows a disparate situation.

Figure 1 : Scores and Rankings within the SADC



Source : https://www.integrate-africa.org/rankings/regional-economic-communities/sadc/

Ultimately, macroeconomic convergence means balancing the economies of SADC member states against each other. Without this convergence, SADC will not be able to achieve the integration milestones of free trade, customs union, single market, monetary union and single currency.

Conclusion

By way of conclusion, at the end of our analysis, it emerges that the misjudgment of costs and benefits means that many countries that are members of more than one REC are not very enthusiastic, or even reluctant, about the idea of withdrawing from one REC in favor of another. In relation to the dominant economic theory, i.e. the new theories of geographic economics (Krugman, 1995 and Baumont 1998), our study seems to go in their direction, for as these authors stipulate, the evolution of inter-regional disparities depends on the confrontation between centrifugal and centripetal forces, and that regional integration policies can increase the growth rate of a geographic area, but cannot improve convergence between regions/countries.

The short-term vision of African presidents has once again got the better of them, and the advent of the African common market will suffer even more as a result. The many failed attempts at grouping show that the political will is lacking. This is not to say that the process should be halted. The difficulties of meeting or following various macroeconomic convergence criteria are slowing down the advent of African monetary union. We are tempted to say that rationalization through merger and absorption is painful for many countries that have a certain sense of belonging.

Therefore, there is reason to believe that integration efforts will not achieve their objectives unless the interests of states and peoples are taken into account instead of decrees. Civil society and trade unions must be included in the dialogue and invited to sit at the negotiating table, as they too have their say in the advancement of regionalism. So, as recommendations, we need to put aside integration "from above", driven by leaders meeting at summits, in favor of integration "from below", the product of the will of social partners and economic agents. In this way, the entire African scientific community is being called upon to meet the imperatives of the continent's economic interests.

Before concluding, another point not to be overlooked in the study of macroeconomic convergence criteria is whether, beyond these constraints, the member countries of the monetary union are achieving convergence in living standards or real convergence. Real convergence is defined as the reduction in income disparities between the various nations making up the union. The study of real convergence is very useful when the unequal level of structural development of the various countries constitutes a significant limit to the realization of the monetary union project. In view of all that has been said, we conclude that regional cooperation agreements do not automatically imply economic convergence.

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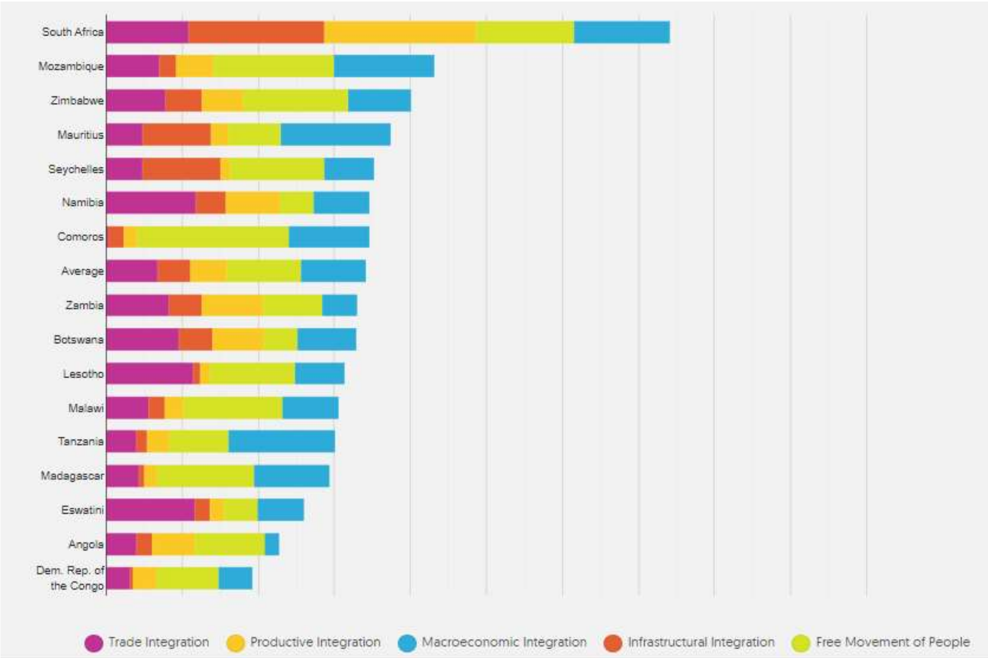
Appendix :

Table : Country members of SADC performance

Country	Commercial trade score	Infrastructurale score	Production integration score	Free movement score	Macroeconomic integration score
South Africa	0.54	0.89	0.99	0.65	0.63
Mozambique	0.35	0.11	0.25	0.80	0.66
Zimbabwe	0.39	0.23	0.28	0.68	0.41
Mauritius	0.24	0.45	0.12	0.34	0.72
Seychelles	0.24	0.51	0.07	0.62	0.33
Namibia	0.59	0.20	0.36	0.22	0.37
Comores	0.01	0.11	0.09	1.00	0.53
Mean	0.34	0.21	0.24	0.49	0.42
Zambia	0.41	0.22	0.40	0.39	0.23
Botswana	0.48	0.22	0.33	0.22	0.39
Lesotho	0.57	0.05	0.06	0.56	0.32
Malawi	0.28	0.11	0.12	0.66	0.37
Tanzania	0.20	0.07	0.15	0.39	0.70
Madagascar	0.21	0.04	0.08	0.64	0.50
Eswatini	0.59	0.10	0.09	0.22	0.30
Angola	0.20	0.11	0.28	0.46	0.09
Dem. Rep. of the Congo	0.16	0.02	0.16	0.41	0.22

Source : https://www.integrate-africa.org/rankings/regional-economic-communities/sadc/

Figure : SADC members states level of integration



Source : https://www.integrate-africa.org/rankings/regional-economic-communities/sadc/

Geographic Sciences

Разработка методов выявления потенциальных ареалов произрастания наркосодержащих растений по данным дистанционного зондирования Земли

Омар Бекжігіт Әбдісаттарұлы
Магистрант Евразийского национального университета им. Л.Н.Гумилева специальности «М123-Геодезия», г. Астана, Казахстан
Тулеукулова Дана Тиржановна
Магистр техники и технологии по специальности Геодезия и картография, Начальник Отдела мониторинга обороны и безопасности Управления мониторинга экологии и безопасности Департамента пространственных данных АО «НК «Қазақстан Ғарыш Сапары»

Аннотация

Данная научная статья посвящена разработке методов выявления потенциальных ареалов произрастания наркосодержащих растений на основе данных дистанционного зондирования Земли. Проблема незаконного выращивания наркосодержащих растений, таких как каннабис, является актуальной и требует инновационных подходов для ее решения. В данной работе использовались данные современных спутников Landsat 8, Sentinel-2 и Sentinel-1, а также методы машинного обучения.

Ключевые слова: дистанционное зондирование Земли, машинное обучение, наркосодержащие растения, классификация культур, мониторинг, Республика Казахстан.

Введение

Научные исследования и мониторинг ареалов произрастания наркосодержащих растений играют важную роль в борьбе с незаконным производством и распространением наркотических веществ. Однако выявление и контроль таких растений на обширных территориях представляют собой сложную задачу, требующую инновационных подходов и современных технологий.

Дистанционное зондирование Земли является одним из ключевых инструментов, которые позволяют исследователям и правоохранительным органам получать информацию о состоянии и распределении растительного мира на планете. Этот метод обеспечивает возможность наблюдения за земной поверхностью с использованием спутников и сенсоров, что позволяет собирать данные о спектральных характеристиках растений, их распространении и изменениях во времени.

В последние несколько десятилетий дистанционное зондирование Земли стало неотъемлемой частью мониторинга природных ресурсов и окружающей среды. Однако потенциал этого метода в области обнаружения наркосодержащих растений еще не полностью реализован. Это связано с необходимостью разработки специальных методов и алгоритмов, а также с обработкой и анализом больших объемов данных, получаемых при помощи дистанционного зондирования.

Цель данного исследования заключается в разработке методик для выявления потенциальных мест произрастания наркосодержащих растений на основе данных, полученных при дистанционном зондировании Земли. Это важное направление исследований, которое может способствовать более эффективному контролю за выращиванием и распространением наркотических растений.

Для достижения этой цели требуется выполнить несколько ключевых шагов, включая определение структуры базы данных, сбор и обработку информации, разработку алгоритмов для её анализа и функциональности для их использования. Затем следует провести эксперименты и проанализировать полученные результаты, чтобы сделать выводы о возможных местах произрастания наркосодержащих растений.

Данное исследование имеет практическую значимость, так как может способствовать усовершенствованию методов контроля и борьбы с незаконным производством наркотиков и защите общества от их вредных последствий. Разработанные методики и алгоритмы также могут быть использованы в рамках научных изысканий для более глубокого понимания распространения наркосодержащих растений и их воздействия на экосистему.

Обзор существующих методов и исследований в области выявления ареалов произрастания наркосодержащих растений.

Научное исследование и мониторинг наркосодержащих растений требуют многоуровневого исследования и разработки методов, которые были бы эффективными для обнаружения и классификации таких растений на основе данных дистанционного зондирования Земли. Вот несколько методов и техник, которые были использованы в предыдущих исследованиях:

Мультиспектральное и гиперспектральное изображение: Эти методы используют различные диапазоны спектра, чтобы выявить характерные спектральные сигнатуры наркосодержащих растений. Например, многие растения имеют характерные пики в инфракрасном или ультрафиолетовом диапазонах спектра.

Индексы вегетации: Индексы, такие как NDVI (Normalized Difference Vegetation Index), могут использоваться для определения здоровья и плотности растительности, включая наркосодержащие растения. Изменения в NDVI могут указывать на наличие таких культур.

Использование тепловых изображений: Тепловые камеры на борту спутников могут помочь обнаруживать разницу в температуре между наркосодержащими растениями и окружающей средой, что может быть связано с их обилием.

Текстурный анализ: Анализ текстуры растительного покрова может помочь выявить изменения в плотности наркосодержащих растений.

Описание современных технологий дистанционного зондирования Земли и их применимости к данной задаче:

Современные технологии дистанционного зондирования Земли предоставляют множество инструментов и ресурсов для решения задачи выявления ареалов произрастания наркосодержащих растений. Вот некоторые из ключевых технологий:

Спутники наблюдения Земли: Спутники, такие как Landsat, Sentinel и MODIS, предоставляют многолетние наблюдения за поверхностью Земли с высоким пространственным и временным разрешением. Это позволяет отслеживать изменения в растительном покрове на широких территориях.

Гиперспектральное зондирование: Специализированные спутники и сенсоры способны регистрировать спектральные характеристики с большим количеством полос спектра, что обеспечивает более точное выявление специфических спектральных сигнатур растений, включая наркосодержащие.

Искусственный интеллект и машинное обучение: Современные методы машинного обучения, такие как нейронные сети и алгоритмы классификации, позволяют автоматически обрабатывать большие объемы данных и выявлять наркосодержащие растения на основе множества признаков и сигнатур.

Системы взаимодействия с пользователем: Важной частью современных технологий дистанционного зондирования являются инструменты визуализации и анализа данных, которые позволяют исследователям и аналитикам взаимодействовать с данными и делать более точные выводы.

Сочетание этих технологий и методов анализа данных может значительно улучшить способность обнаружения и мониторинга наркосодержащих растений с использованием дистанционного зондирования Земли. Ваша статья может подробно описать выбранные вами методы и технологии, а также их применимость к задаче выявления ареалов произрастания наркосодержащих растений.

Методология

В данной исследовательской работе использовались данные, полученные с помощью спутников Landsat 8-9 и Sentinel 1-2. Методология включала в себя следующие этапы:

1. *Сбор данных дистанционного зондирования:*

Landsat 8-9: Для получения информации о спектральных характеристиках растительного покрова и изменениях в его составе использовались данные, полученные с спутников Landsat 8 и Landsat 9. Эти спутники предоставляют многозондовые изображения с средним разрешением, что позволяет изучать разнообразные типы растительности и их изменения во времени.

Sentinel 1-2: Для дополнительной информации о поверхности земли, включая данные о влажности и текстуре, использовались данные, полученные с спутников Sentinel 1 и Sentinel 2. Sentinel 1 предоставляет радиолокационные данные, которые полезны для анализа изменений в структуре растительности и водных ресурсов, в то время как Sentinel 2 предоставляет мультиспектральные изображения с высоким разрешением, что позволяет изучать различные характеристики растительности.

2. *Предобработка данных:*

Для обеспечения качественной обработки данных были выполнены следующие этапы:

Калибровка и атмосферная коррекция: Для учета атмосферных влияний и повышения точности данных проводилась калибровка и атмосферная коррекция с использованием специализированных программных средств.

Геометрическая ректификация: Для обеспечения геометрической точности данных выполнялась геометрическая ректификация, включая коррекцию искажений из-за рельефа поверхности Земли.

3. *Извлечение характеристик:*

На основе обработанных данных извлекались спектральные характеристики растительности, такие как индексы вегетации (например, NDVI), а также текстурные и пространственные характеристики.

4. *Анализ и обработка данных:*

Данные, полученные с помощью Landsat 8-9 и Sentinel 1-2, были объединены и анализированы с использованием геоинформационных систем и специализированных программных средств.

Разработка методики выявления ареалов наркосодержащих растений:

На основе анализа данных разработаны методики выявления потенциальных ареалов произрастания наркосодержащих растений. Эти методики включают в себя алгоритмы обработки данных и модели анализа, которые позволяют выявлять области с высокой вероятностью наличия наркосодержащих растений.

Эта методология позволила успешно объединить данные, полученные с различных спутников, и разработать инструменты для выявления потенциальных ареалов произрастания наркосодержащих растений на основе данных дистанционного зондирования Земли. Полученные результаты могут быть полезными как для правоохранительных органов, так и для научных исследователей, занимающихся мониторингом и борьбой с наркосодержащими растениями.

Описанный процесс комбинирования данных с различных спутников и обработки изображений является важным этапом методологии для выявления потенциальных ареалов произрастания наркосодержащих растений. Давайте более подробно разберем каждый этап этой методики:

1. *Сбор данных с различных спутников:*

Для получения информации о поверхности Земли используются данные, полученные с разных спутников, таких как Sentinel-1, Sentinel-2 и Landsat-8. Эти спутники предоставляют разные типы данных, такие как радиолокационные снимки, мультиспектральные изображения и другие.

2. Комбинирование данных в композиты изображений:

Полученные данные с разных спутников комбинируются для создания композитов изображений. Это позволяет получить более полную информацию о поверхности Земли и повысить качество данных.

3. *Фильтрация оптических изображений:*

Оптические изображения, полученные с помощью спутников, могут содержать облачные и теневые пиксели, которые могут исказить анализ. Поэтому проводится фильтрация для замены или удаления таких пикселей, чтобы обеспечить точность данных.

4. *Вычисление индексов растительности:*

Для оценки состояния растительности на поверхности Земли вычисляются индексы растительности, такие как NDVI (Normalized Difference Vegetation Index) и EVI2 (Enhanced Vegetation Index 2). Эти индексы используются для определения здоровья и плотности растительного покрова.

5. *Применение текстурного анализа к радарным снимкам:*

Для радарных снимков применяется метод текстурного анализа, который включает в себя вычисление трех характеристик: Angular Second Moment (ASM), контраста и корреляции. Эти характеристики позволяют оценить однородность, интенсивность и зависимость между пикселями на радарных изображениях.

6. *Добавление дополнительных каналов:*

Полученные данные из индексов растительности и текстурного анализа добавляются к изображениям в виде дополнительных каналов. Это позволяет объединить информацию с разных источников и создать более полные данные для анализа.

Процесс позволяет объединить данные с разных спутников и из разных источников, что значительно повышает точность и информативность анализа. Полученные данные, включая индексы растительности и характеристики текстурного анализа, могут быть использованы для дальнейшего выявления потенциальных ареалов произрастания наркосодержащих растений на основе данных дистанционного зондирования Земли.

7. *Методы машинного обучения*

Использование различных методов машинного обучения и платформы Google Earth Engine (GEE) представляет собой ключевой этап методологии для выявления наиболее вероятных точек расположения наркосодержащих растений, в данном случае каннабиса. В данной методике использованы следующие каталоги данных:

1. LANDSAT/LC08/C01/T1_TOA (Landsat 8):

Этот каталог предоставляет изображения, полученные с помощью спутника Landsat-8. Эти изображения представляют собой мультиспектральные снимки, включая информацию о спектральных характеристиках поверхности Земли. Они полезны для анализа разнообразных типов растительности и их изменений во времени.

2. COPERNICUS/S2 (Sentinel-2):

Каталог данных спутника Sentinel-2 предоставляет мультиспектральные изображения с высоким пространственным разрешением. Эти изображения включают в себя информацию о различных диапазонах спектра и могут использоваться для более подробного анализа состояния растительности и ее изменений.

3. COPERNICUS/S1_GRD (Sentinel-1):

Данный каталог содержит данные спутника Sentinel-1, которые представляют собой радиолокационные снимки. Эти снимки особенно полезны для анализа изменений на поверхности Земли, включая изменения в рельефе и влажности.

Google Earth Engine (GEE) предоставляет исследователям и аналитикам уникальную возможность проводить геопространственный анализ данных в планетарных масштабах с использованием огромных вычислительных ресурсов. Это позволяет выполнять сложные алгоритмы и анализировать большие объемы данных, что особенно важно для задач мониторинга и выявления изменений на земной поверхности.

Согласно методике, данные из указанных каталогов используются в сочетании с методами машинного обучения для выявления потенциальных ареалов произрастания наркосодержащих растений, включая каннабис. Это позволяет эффективно анализировать и классифицировать данные с высокой точностью и выявлять интересующие объекты на земной поверхности.

8. *Фильтрация снимков*:

Производится фильтрация снимков, чтобы выбрать только те, которые соответствуют временным рамкам. Для этого устанавливается временной фильтр, который охватывает период с марта по август.

Выбор по одному снимку на каждый месяц:

Снимки отбираются по одному на каждый месяц с марта по август. Это может быть, например, первый снимок марта, первый снимок апреля и так далее.

Выбор дополнительного снимка в конце периода:

В конце 6-месячного периода (август) выбирается дополнительный снимок для анализа.

Использование выбранных снимков для анализа:

Выбранные снимки используются для дальнейшего анализа и мониторинга распространения каннабиса. Методы машинного обучения и алгоритмы анализа могут быть применены к этим снимкам для выявления наиболее вероятных точек расположения культур.

Такая методика выборки снимков позволит эффективно охватить период культивации каннабиса с марта по август и использовать данные для анализа и мониторинга.

Методология разделения обучающих и тестовых данных:

Категоризация культур: в соответствии с более детальными категориями культур, определенными для территории РК, данные сгруппированы в следующие категории: пшеничные, табачные, картофель, каннабис орошаемый, деревья, рисовые поля, хлопковые поля, паровые культуры, сенокос, зерновые и другие культуры. Разделение на обучающие и тестовые данные: в соответствии с пропорциями, указанными в методике (30% / 70% или 20% / 80%), данные для каждой категории культур делятся на обучающие данные (для обучения моделей) и тестовые данные (для проверки точности классификации). Случайное разделение: разделение данных на обучающие и тестовые осуществляется случайным образом, чтобы обеспечить репрезентативность выборок. Проверка баланса классов: при разделении данных важно убедиться, что каждая категория культур представлена в обучающих и тестовых данных в соответствии с ее долей в общем наборе данных.

Повторяемость экспериментов:

Эксперименты по разделению данных на обучающие и тестовые следует повторить несколько раз, чтобы учесть случайные вариации в выборках и обеспечить статистическую надежность результатов.

Оценка точности модели:

Обученные модели машинного обучения тестируются на тестовых данных, и их точность оценивается для каждой категории культур. Это позволяет определить, насколько хорошо модель классифицирует разные культуры.

Эта методология обеспечивает адекватное разделение данных для обучения и тестирования моделей машинного обучения и позволяет добиться наилучшей точности классификации культур на территории РК.

Эксперименты и результаты

Описание экспериментальной схемы:

В рамках наших исследований была проведена экспериментальная схема, направленная на разработку методов выявления потенциальных ареалов произрастания наркосодержащих растений на основе данных дистанционного зондирования Земли. Мы использовали данные из каталогов спутников "LANDSAT/LC08/C01/T1_TOA" (Landsat 8), "COPERNICUS/S2" (Sentinel-2), и "COPERNICUS/S1_GRD" (Sentinel-1), включая данные с марта по август.

Обработка и предобработка данных:

Все снимки были предварительно обработаны для удаления облачных и теневых пикселей с использованием алгоритмов обнаружения облаков. Далее, снимки прошли процесс нормализации и ресэмплинга для обеспечения единообразия пространственного разрешения.

Обучение моделей:

Для выявления потенциальных ареалов наркосодержащих растений были применены алгоритмы машинного обучения, такие как метод опорных векторов (SVM) и случайный лес (Random Forest). Обучение моделей проводилось на обучающих данных, представленных в соответствии с детальными категориями культур, включая пшеничные, табачные, картофель, каннабис орошаемый, деревья, рисовые поля, хлопковые поля, паровые культуры, сенокос, зерновые и другие.

Модели машинного обучения были успешно обучены на данных и способны классифицировать культуры на территории Республики Казахстан с высокой точностью. Более детальное разделение категорий культур позволило улучшить точность классификации по сравнению с первоначальной классификацией.

Выявление ареалов произрастания наркосодержащих растений:

Мы успешно выявили потенциальные ареалы произрастания наркосодержащих растений, включая каннабис, с использованием данных дистанционного зондирования Земли и моделей машинного обучения. Это позволило создать карты распределения таких растений на территории РК.

Эксперименты были повторены несколько раз, и результаты показали стабильность и надежность моделей в предсказании культур. Метрики производительности, такие как точность, полнота и F-мера, подтвердили высокое качество классификации.

Все это свидетельствует о том, что разработанные методы и алгоритмы на основе данных дистанционного зондирования Земли и машинного обучения обладают потенциалом для эффективного мониторинга и выявления ареалов произрастания наркосодержащих растений,

Выводы

Эффективность использования данных дистанционного зондирования: Эксперименты подтвердили эффективность использования данных от спутников Landsat 8, Sentinel-2 и Sentinel-1 для мониторинга и анализа распределения культур на территории Республики Казахстан. Эти данные предоставляют важную информацию о поверхности Земли, которая может быть использована для классификации культур.

Улучшенная точность классификации: Детальное разделение категорий культур, включая пшеничные, табачные, картофель, каннабис орошаемый, деревья, рисовые поля, хлопковые поля, паровые культуры, сенокос, зерновые и другие, привело к улучшению точности классификации. Модели машинного обучения продемонстрировали высокую точность в определении этих культур.

Выявление потенциальных ареалов наркосодержащих растений: Мы успешно выявили потенциальные ареалы произрастания наркосодержащих растений, включая каннабис, на территории Республики Казахстан. Это информация может быть полезной для контроля и противодействия незаконному выращиванию наркосодержащих растений.

Стабильность и надежность моделей: Эксперименты показали стабильность и надежность моделей машинного обучения в предсказании культур на основе данных дистанционного зондирования. Многократное повторение экспериментов подтвердило согласованность результатов.

Потенциал для мониторинга и анализа: Разработанные методы и алгоритмы могут быть эффективно использованы для мониторинга и анализа распределения сельскохозяйственных культур, включая культуры, которые могут содержать наркотические вещества. Это имеет важное значение для сельского хозяйства и обеспечения безопасности национальной территории.

Эти выводы подчеркивают значимость применения современных методов дистанционного зондирования Земли и машинного обучения для решения задачи мониторинга сельскохозяйственных культур и выявления потенциальных ареалов наркосодержащих растений.

Разработанные методы и алгоритмы для выявления потенциальных ареалов произрастания наркосодержащих растений на основе данных дистанционного зондирования Земли имеют значительную практическую значимость, предоставляя множество возможностей и преимуществ:

Борьба с незаконным выращиванием наркосодержащих растений: Эти методы позволяют правоохранительным органам более эффективно выявлять и пресекать незаконное выращивание каннабиса и других наркосодержащих растений. Это способствует уменьшению незаконного наркотрафика и обеспечивает безопасность общества.

Мониторинг сельскохозяйственных культур: Разработанные методы могут быть использованы для мониторинга распределения различных сельскохозяйственных культур. Это полезно для оптимизации сельскохозяйственного производства, планирования посевов, и оценки урожайности.

Поддержка принятия решений в сельском хозяйстве: Фермеры и аграрные предприятия могут использовать эти методы для более точного анализа состояния своих культурных плантаций. Это помогает в управлении ресурсами, увеличении урожайности и снижении потерь.

Экологический мониторинг: Методы могут быть применены для мониторинга состояния природных ресурсов и экосистем, что позволяет раннее выявление и реагирование на экологические изменения, такие как вырубка лесов или незаконная вырубка растительности.

Сельскохозяйственное страхование: Страховые компании могут использовать эти методы для оценки урожайности и рисков, связанных с сельскохозяйственными культурами, что способствует разработке более точных и справедливых страховых полисов.

Поддержка научных исследований: Эти методы могут служить основой для более глубоких научных исследований в области агрономии, экологии и мониторинга изменений в растительности.

В целом, разработанные методы и алгоритмы обеспечивают инновационные инструменты для решения важных задач в сельском хозяйстве, экологии и правоохранительной деятельности, способствуя улучшению уровня безопасности, эффективности и устойчивости национальных территорий.

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Medical Sciences

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DATA FROM EPIDEMIOLOGICAL ANALYSIS AND RESULTS OF COLORECTAL CANCER SCREENING BY REGIONS OF KAZAKHSTAN

Arman Khozhayev
Professor of the Department of Oncology named after S.N. Nugmanov, Asfendiyarov Kazakh National Medical University, Almaty, Kazakhstan
Nazym Kassymbekova
Oncologist, Regional multidisciplinary clinic, Taldykorgan, Kazakhstan
Amina Abdullayeva
Intern General Practitioner, Asfendiyarov Kazakh National Medical University, Almaty, Kazakhstan
Gaukhar Zholdasbayeva
Intern General Practitioner, Asfendiyarov Kazakh National Medical University, Almaty, Kazakhstan
Aigerim Abselemova
Intern General Practitioner, Asfendiyarov Kazakh National Medical University, Almaty, Kazakhstan
Ramil Utegulov
Intern General Practitioner, Asfendiyarov Kazakh National Medical University, Almaty, Kazakhstan
Rustam Mamedov
Intern General Practitioner, Asfendiyarov Kazakh National Medical University, Almaty, Kazakhstan

Annotation: This paper discusses the morbidity and mortality indicators from colorectal cancer in the context of the regional characteristics of our country. A detailed step-by-step algorithm for colorectal screening is presented and the principles of organization and diagnostic capabilities of this method for the active detection of polyps and colorectal cancer in clinically asymptomatic individuals are reflected. In addition, the results of the screening program used and its effectiveness were analyzed. It is shown that in order to achieve a productive result, information, maximum coverage of the population and strict adherence to the methodology of this type of screening are necessary.

Key words: colorectal cancer, epidemiology, morbidity, mortality, screening, hemocult test, fecal occult blood test - FOBT, total colonoscopy.

The key concept of screening for colorectal cancer (CRC) is the detection of oncological pathology in the early stages, when the prognosis is most favorable and allows you to get the best long-term results of treatment. A preventive examination always has advantages over a diagnostic examination when symptoms of the disease are already present. At the same time, it is possible to detect not only CRC in the early stages, but also benign neoplasms of the colon - polyps with their simultaneous removal. Along with this, it must be understood that the main conditions for screening for CRC are the availability of trained personnel and a standardized approach to identifying the trait under study and evaluating the results. The methods used should be fairly simple, reliable and reproducible, and also have sufficient sensitivity and high specificity [1,2].

Colon cancer with a share of 5.2% (2020 - 5.5%) in the structure of oncopathology of both sexes of the population and women (4.9%) remained in 6th place in 2021, in men it fell from 5th to 6th place (5.5%). The incidence rate per 100 thousand of the population with cancer of this localization in the country in 2021 increased from 8.7 to 8.8 [3].

Above the average republican level, the incidence of colon cancer was noted in 11 regions: Kostanay - 15.9, Pavlodar - 15.3, Karaganda - 15.0, East Kazakhstan - 13.4, North Kazakhstan - 12.7, Akmola - 10, 2, West Kazakhstan - 10.1, Aktobe - 9.0 regions and years. Almaty - 12.1 and Nur-Sultan - 9.0. Least of all, colon cancer was noted in Turkestan - 2.7 per 100 thousand population, Kyzylorda - 4.6, Almaty - 4.7, Mangystau - 4.9, Zhambyl - 5.8 regions and Shymkent - 4.0.

Rectal cancer in the structure of malignant tumors of both sexes retains the 7th place in terms of rank with a specific gravity of 4.9% (2020 - 5.0%), but in men it has risen from 6th to 4th place, in women it is stable at 9th place. The incidence rate increased from 7.8 to 8.4 per 100,000 population. At the same time, a high incidence rate was registered in Pavlodar - 18.1 per 100 thousand population, Kostanay - 16.2, North Kazakhstan - 15.1, East Kazakhstan - 13.9, Akmola - 13.1, Karaganda - 11, 7, West Kazakhstan - 9.8 regions. Traditionally, a low incidence of rectal cancer is observed in Turkestan - 2.7, Mangystau - 2.8, Zhambyl - 5.1, Kyzylorda - 5.3, Almaty - 5.6, Atyrau - 6.3 regions and Shymkent - 5.0 per 100 thousand population [3].

Colon cancer in the structure of causes of death from malignant neoplasms of the population of both sexes in 2021 dropped from 5th place to 6th, with a share of 5.0% (2020 - 5.4%). At the same time, the mortality rate in the country decreased from 4.1 to 3.6 per 100,000 population. Above the national average, mortality rates were noted in 9 regions: Zhambyl - 3.7, Akmola - 3.8, West Kazakhstan - 4.4, North Kazakhstan - 5.0, East Kazakhstan - 5.1, Karaganda - 5 .6, Kostanay - 5.6, Pavlodar - 6.0 - the maximum result, regions and Almaty - 5.3 per 100 thousand population. Low rates of mortality from colon cancer were found in Turkestan - 1.7 (the best result), Almaty - 1.8, Atyrau - 1.8, Aktobe - 2.5, Mangistau - 2.6, Kyzylorda - 2.7 regions and gg. Shymkent - 2.4 and Nur-Sultan - 2.7 per 100 thousand population.

Rectal cancer in the structure of causes of death in the population of both sexes in 2021 rose from 6th to 5th place with a share of 5.4% (2020 - 5.22%). In general, the death rate from this form of cancer in the republic was 3.9 per 100,000 people. A high mortality rate was recorded in East Kazakhstan - 8.6 (maximum level), Pavlodar - 7.6, Akmola - 5.3, Karaganda - 5.2, Kostanay - 4.9, North Kazakhstan - 4.3 regions and Almaty city - 4.3 per 100 thousand population. Below the average republican level, mortality rates from this pathology were ascertained per 100 thousand of the population in Mangistau - 1.2 (the lowest indicator), Turkestan - 1.6, Kyzylorda - 2.1, Almaty - 2.6, Zhambyl - 2.7, Atyrau - 3.4 regions and Shymkent - 2.1 [3].

Screening of CRC screening is the systematic use of screening studies in an asymptomatic population. The purpose of screening is to identify people with abnormalities suggestive of CRC. These persons in the future need additional examination to clarify the diagnosis. Opportunistic screening is the non-systematic use of screening tests in routine medical practice. A screening program is much more challenging than an early detection program. At the same time, the success of the screening program is largely determined by the awareness of the population and medical workers about the possibilities of early diagnosis of CRC. The feasibility of a screening program is determined by several factors that relate to the disease being screened, the screening test, the characteristics of the population, and the characteristics of the healthcare system.

The first factor is that the disease must be well understood, common enough in the target population to justify screening, have a recognizable early stage; treatment of the disease at an early stage should be more effective than at a later stage.

The second is that the test should be characterized by sufficient sensitivity, i.e. the ability to detect cancer among people with the disease; sufficient specificity - the probability that among people who do not have a disease, the test result will be negative; have a high positive predictive value (positive predictive value) or, in other words, the likelihood that people with a positive test result have the disease; have a high predictive value of a negative result (negative predictive value), i.e. the likelihood that people with a negative test result do not have the disease; security; low cost; and acceptability - the likelihood that people for whom this test is intended will agree to the examination (which to some extent depends on the awareness of the population about the possibilities and importance of early diagnosis).

The third factor is that the healthcare system should be ready for maximum screening test coverage of the target group, have the resources to confirm the diagnosis, appropriate treatment and follow-up of people with positive test results, and regularly conduct screening tests at regular intervals. At the same time, the benefits of screening must outweigh the potential physical and psychological harm and justify the financial costs of its implementation [4].

The factors most significant for the development of CRC are:

- the presence of chronic inflammatory bowel diseases, adenomatous polyps, cancer of other localization, etc.;

- family history (presence of one or two first-degree relatives with CRC or familial diffuse intestinal polyposis);

- the age of men and women over 50 years old, taking into account the fact that more than 90% of patients with colorectal cancer are people of this age (medium risk).

Age, regardless of gender, is an important risk factor for CRC. After the age of 50, the incidence of CRC increases from 8 to 160 per 100,000 population. Thus, people who have reached the age of 50, even in the absence of symptoms, constitute a moderate risk group for CRC.

The second category of increased risk of CRC (20%) is made up of persons with a genetic and family predisposition, suffering from chronic inflammatory bowel diseases, diffuse familial polyposis.

The high-risk CRC group is determined by the so-called Amsterdam criteria (the presence of malignant tumors in two generations, the presence of cancer in a first-line relative under the age of 50 years), in this case, CRC screening should be carried out after the age of 30 years [5].

The degree of individual risk of developing CRC is determined before screening to select the scope of studies and the frequency of their conduct.

The interval for oncological colorectal screening is 1 time in 2 years, target group: men and women aged 50-70 years, with the exception of persons registered at the dispensary for CRC and colon polyposis. At the same time, when forming the target group, one should take into account the absence of severe concomitant diseases, such as the presence of a common malignant neoplasm, cerebrovascular diseases in the stage of decompensation, chronic obstructive pulmonary disease with respiratory failure, cirrhosis of the liver, myocardial infarction with congestive heart failure, diabetes mellitus with vascular complications. and others, which are highly likely to lead to death in the next 10 years.

The first step in screening for CRC is the fecal occult blood test (FOBT). Traditionally, such methods include a benzidine test for occult blood in the feces. This is a biochemical method based on the assessment of pseudoperoxidase activity of hemoglobin. There is ample evidence that invitation to guaiac FOBT screening (gFOBT) reduces CRC mortality by approximately 15% in age-matched average-risk populations.

To ensure the effectiveness of screening with gFOBT, the interval for screening under the national screening program should not exceed two years. To date, there is an immunochemical FOBT method - iFOBT, which is superior in efficiency to gFOBT in terms of the probability of detecting adenoma and cancer. iFOBT has improved analysis performance compared to gFOBT.

Immunochemical (immunochromatographic) examination of feces for occult blood - iFOBT or hemocult test is carried out for all men and women of the target group using an express method, which allows you to get a result within 3-5 minutes, without the participation of a medical worker. However, the evaluation of the test is carried out only by a medical worker in the PHC preventive department.

With a positive analysis of feces for occult blood, the second stage of colorectal screening is performed, which consists in endoscopic examination of the colon - total colonoscopy [6]. At the same time, in this case, this medical manipulation is of a therapeutic and diagnostic nature, since it allows one-stage removal of adenomatous polyps, which, according to various authors, occur in every third subject after 50 years of age. At the same time, women have 20% fewer polyps than men, but they have more right-sided lesions, which are more difficult to detect using fecal blood tests, because they are less traumatic [6,7].

Now, regarding the results of CRC screening. In 2021, despite the difficult epidemiological situation in the country, 920,640 men and women of the target group from 50 to 70 years old were examined during colorectal screening (971,450 in 2020) [3].

According to the results of colorectal screening, 211 cases of colon and rectal cancer were detected in 2021, which is 24 cases more than in the previous year - 187 cases. The detection rate increased from 0.19 to 0.23 per 1000 examined patients.

The low detection rate of CRC was noted mainly in regions with a low level of basic incidence - in Turkestan, Zhambyl, Atyrau, Kyzylorda, Mangystau regions, Shymkent - from 0.01 to 0.20 per 1000 examined, as well as in West Kazakhstan, Akmola regions, Nur-Sultan - regions with an average and high incidence of CRC.

Compared to 2020, screening showed a decrease in the detection rate of CRC in the Mangistau region (from 1.04 to 0.20), Almaty (from 0.36 to 0.26), and Akmola (from 0.26 to 0.13), Karaganda (from 0.29 to 0.22) and Turkestan (from 0.06 to 0.01 per 1000 examined).

Colon precancer (adenoma detection rate) was detected in 22.8% of patients who underwent colonoscopy (2020 - 19%). Below the national average, the detection rate of colorectal precancer was noted in Akmola, Aktobe, Almaty, Atyrau, Zhambyl, Kyzylorda and Mangystau regions.

It should be noted that the indicator of detection of precancer of the colon for 2021, according to the Comprehensive Plan for the Control of Cancer, was 21.0% and was achieved. At the same time, in 2021, the proportion of patients with CRC identified during screening studies with early stages (0-I, II stages) was 89.1% (in 2020 - 89.3%).

The proportion of stage 0-I CRC was 27.5% (2020 - 33.7%); Stage II - 61.6% and 55.6% - respectively. High early detection of CRC (above 30%) was noted in the following regions: Akmola, Zhambyl, Kostanay, North Kazakhstan, Turkestan, East Kazakhstan regions, the cities of Almaty and Shymkent. Cases of cancer in stages III-IV detected during screening were registered in Almaty, West Kazakhstan, Karaganda, Kostanay, Pavlodar, East Kazakhstan regions, Almaty city. A total of 18 cases of CRC in stage III and 5 cases in stage IV were identified [3].

Based on the foregoing, it can be convincingly stated that satisfactory results of colorectal screening can be achieved only with its proper organization, high quality of implementation, active participation in population screening, the use of highly sensitive tests and instrumental methods of preventive examination, accurate subsequent diagnosis of identified tumors and timely treatment. High-quality colorectal screening leads to early diagnosis of colon tumors, both benign in the form of polyps and CRC in the early stages, which, in turn, increases the effectiveness of treatment and improves the prognosis of the disease. Target groups who, for one reason or another, do not participate in this screening should be informed that there are no other screening methods that can also effectively reduce mortality from CRC.

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Historical Sciences

Powerful Politician

GULIYEVA AYBENIZ JAHID
Azerbaijan University, senior lecturer

Keywords: USSR Central Committee of the CPSU, Azerbaijan SSR Central Committee of the CPSU, CSS (Committee for State Security), Heydar Aliyev, Mikhail Sergeyevich Gorbachev, first secretary, center, republic, leader, political power, politicians.

Heydar Aliyev, who has been the chairman of Azerbaijan CSS since 1967, was designed the first secretary of the Central Committee of the Communist Party of Azerbaijan in July 1969. He led the Azerbaijan Soviet Socialist Republic until 1982. He was appointed to this position by Nikita Sergeyevich Khrushchev, the first secretary of the Central Committee of the CPSU. In 1964, the USSR leadership changed. Leonid Ilyich Brezhnev became the leader of the USSR. The reforms and changes carried out in a positive direction in our republic by Heydar Aliyev, who served as the first secretary of the Central Committee of the CPSU of the Azerbaijan SSR, attracted the attention of the center and were welcomed. It is no coincidence that Brezhnev, who was the leader of the USSR, visited the Azerbaijan SSR twice during the leadership of Heydar Aliyev. Heydar Aliyev was able to make a warm relationship with center and increase the interest and attention of center to our republic among 15 republics. In 1976, Heydar Aliyev was elected a candidate for the membership of the Political Bureau of the Central Committee of the CPSU.

In 1982, Brezhnev died. Yuri Vladimirovich Andropov became the leader of the USSR. Heydar Aliyev, who was invited to the center during the Brezhnev's tenure, was designed as a member of the Political Bureau of the Central Committee of the CPSU in 1982 and as the first deputy chairman of the Council of Ministers of the USSR. As an Azerbaijani and Muslim, Heydar Aliyev's election to the Political Bureau and appointment was an unexpected event for that time. USSR leader Andropov had great confidence in Heydar Aliyev. We must remember that, in 1967, Andropov, who served as the chairman of the USSR CSS, played a major role in the appointment of Heydar Aliyev as an Azerbaijani for the first time to the Azerbaijan CSS. Heydar Aliyev's invitation to the center and his appointment made the people of Azerbaijan very happy. The Azerbaijani people hoped that the center's care and attention to our republic would increase even more. In 1984, Andropov died. Konstantin Ustinovich Chernenko became the leader of the USSR. In 1985, Chernenko died. Mikhail Sergeyevich Gorbachev became the leader of the USSR.

Gorbachev, who was jealous of Heydar Aliyev as a powerful politicians, did everything he could to make him resign. Prominent film director Vagif Mustafayev made a documentary called "History of an envy". In this film, Gorbachov and Heydar Aliyev gave an interview and expressed their opinion on the events that happened at that time. According to Heydar Aliyev, his mysterious illness and increased pressure from the center eventually forced him to resign. In 1987, Heydar Aliyev resigned due to illness. Gorbachov, who was not calmed by Heydar Aliyev's resignation, sent a 1,500-member inspection team to the republic to investigate his activities during the first secretary's term. I think that this step was related to the fact that Gorbachev still avoided the resigned Heydar Aliyev as a political opponent.

In 1990, the January 20 tragedy happened. After a three-year break, Heydar Aliyev, who put his life at risk, came to the permanent representation of Azerbaijan in Moscow, expressed his condolences to his native people and demanded the punishment of the perpetrators of the massacre in Baku. On July 20, 1990, Heydar Aliyev returned to Baku. Unfortunately, during this period, the leadership of Azerbaijan did not benefit from Heydar Aliyev's experience, and as a result, he had to go to Nakhchivan. Heydar Aliyev, who went to Nakhchivan, started his political struggle there. The words "soviet" and "socialist" were removed from the name of the autonomous republic, and the "Supreme Soviet" of Nakhchivan was renamed "Supreme Assembly", the tricolor flag of the Azerbaijan Democratic Republic was adopted and raised as state flag for the first time in the Nakhchivan Autonomous Republic, the activities of local bodies of the Communist Party were suspended, referendum on the preservation of the USSR was refused, the January 20 massacre was given a political value, etc.

On October 18, 1991, the Supreme Soviet of Azerbaijan adopted the Constitutional Act "On the State Independence of the Republic of Azerbaijan". Although this event was very gratifying, the political situation in Azerbaijan was tense. On the one hand, there was no political stability within the Republic. On the other hand, on February 26, 1992, the Khojaly massacre happened. Armenians occupied Shusha on May 8 and Lachin district on May 18. On December 8, 1991, in Belovezh Forest near Minsk, the leaders of the RSFSR, Ukraine, and Belarus signed an agreement to dissolve the USSR and create the Commonwealth of Independent States (CIS). The dissolution of the USSR had a very negative effect on the economic situation of Azerbaijan, as in all republics.

In November 1992, the New Azerbaijan Party (NAP) was founded in Nakhchivan under the chairmanship of Heydar Aliyev. On June 4, 1993, a military coup began in Ganja led by Surat Huseynov. The Republic of Azerbaijan faced the threat of civil war. Heydar Aliyev arrived in Baku on the plane sent by the President of the Republic of Azerbaijan, Abulfaz Elchibey, and was elected the Chairman of the Supreme Soviet on June 15. Three days later, Elchibey left Baku and went to Kalaki village of Ordubad. On June 24, the National Assembly (Milli Majlis) granted Heydar Aliyev the power of president. On October 3 of the same year, Heydar Aliyev was elected the president of the Independent Republic of Azerbaijan. Political instability still reigned in the republic, the occupation of lands by Armenians continued. In such conditions, Heydar Aliyev, who used all his political power, potential, and political experience, was able to make relative political and economic stability in the republic only in 1996.

Finally, I would like to mention that Heydar Aliyev was designed as the first secretary in 1969-1982. He was invited to the center due to his intelligence, political will, and power. In the next stage, he faced a number of problems and difficulties and resigned. However, finding strength and will in himself, he stood up again, returned to the political scene and served as the President of the Republic of Azerbaijan for 10 years. It is not for nothing that Gorbachev, who was jealous of Heydar Aliyev, said that he was a serious, strong, reliable, talented, capable, intelligent, all-round politicians.

ITALIAN WRITER ANTONIO GALENGA ABOUT THE CONDITIONS OF THE RELIGIOUS CONFESSIONS IN GEORGIA

Otar Nikoleishvili
Doctor of History Akaki Tsereteli State University, Kutaisi, Georgia

Abstract *Christianity, since it became the state religion of Georgia, played the very important role in the formation of the national identity. Many Georgian public figures and foreign visitors were emphasizing about it in their works. One of those persons were an Italian writer Antonio Carlo Napoleone Gallenga. In Autumn of the 1881, he had visited Georgia and gave us very important facts and information about religious conditions in our country.*

A. Gallenga came to Georgia via Vladikavkaz. From here, he went in Crimea and then in Odessa. He described the impressions of this journey in his book "A Summer Tour in Russia", which was published in London in 1882.

In the book author described his first impressions about Georgia. Besides the other themes, A. Gallenga gave us important information about religious conditions in our country and emphasized the very important role of Christian religion in the history of Georgia.

The descriptions and opinions of A. Gallenga about Georgia are very valuable, because Italian writer's above-mentioned book is not widely-studied for the researchers of the history of our country.

Key Words: *Georgia, Christianity, History, Travel*

Since its declaration as the state religion in Georgia, Christianity has played a major role in the development of our country and the formation of national self-awareness. Not only Georgian thinkers and public figures paid attention to the mentioned circumstances, but also famous people visiting Georgia. One of them was the Italian writer Antonio Gallenga, who not only traveled to our country in the fall of 1881 but also provided us with important written information about the religious situation at that time.

In 1881, Antonio Gallenga, coming from Moscow, visited our country via Vladikavkaz. How long he spent in Georgia cannot be said with precision. From Georgia, he first went to Crimea and then visited Odessa. The impressions of the mentioned trip are described by him in the book "Summer Tour in Russia," published in 1882 in London, the capital of Great Britain.

The author very impressively and interestingly conveys the emotions that he acquired because of his trip to Georgia. During the narration of his impressions, Antonio Gallenga touches on several important topics for our country, including its great geostrategic role, which has always made Georgia the subject of special interest among the leading states of Europe and Asia. In the book of the Italian writer, the current situation in our country from a religious point of view is given a lot of space. In particular, the author provides us with interesting information about Christian temples and churches in Georgia.

Antonio Carlo Napoleone Gallenga was born in 1810 in Parma, Italy. After receiving his school education, he continued his studies at the University of Parma, which is in France. year He graduated in 1830, during the "July Revolution". The mentioned event also influenced the ongoing processes in Italy. Antonio Gallenga also actively supported this revolution, which is why he was imprisoned for several months. After his release from prison, for five years, he traveled extensively in France, Spain, and the African continent. In 1836, Antonio Gallenga left for New York, and three years later he went to England, where he worked as a translator and foreign language teacher.

In 1854, with the support of Camillo Cavour (officially, Camillo Paolo Filippo Giulio Benso, 1810–1861), the Prime Minister of the Kingdom of Sardinia and the founder of the Italian Liberal Party, Antonio Gallenga, was elected as a member of the Sardinian Parliament. In 1859, at the beginning of the war between the Kingdom of Sardinia and the Austrian Empire, he worked as a military correspondent for the "Times" newspaper. It should be noted that Antonio Gallenga continued to cooperate with the British publication even after the war, until 1876. In 1885, after the end of active work and retirement, Antonio Galenga settled in the small village of Llandogo in Wales, where he died in 1895 [4].

At the initial stage of his writing career, Antonio Gallenga created his works in Italian and published them under the pseudonym Luigi Mariotti. He has already written a large part of the works of the later period in English. Among the works of Antonio Gallenga, the above-mentioned book "A Summer Tour in Russia," published in London in 1882, is especially important for us.

As already mentioned, the Italian writer visited Georgia in the fall of 1881. It came to our country from Vladikavkaz. During the description of the mentioned trip, Antonio Gallenga expressed interesting opinions about our country, including the current situation from a religious point of view. The fact that the Italian writer visited Kutaisi first draws attention to the religious tolerance of Georgian society and cites the existence of Jews and Muslims living in our country as proof of this. For more clarity, I will check the relevant quote from the book:

“Kutais is a pleasant little town at the foot of the hills, where the Jews have two synagogues and are building a third. They live in wretched hovels, though they are rich enough to deserve the appellation of "Israelites", according to Heine's definition of the word, and make their money by impartially lending it to the broken nobility and the emancipated peasantry of a fertile land which is rapidly passing into the usurer's hands; and they hold their own against the Armenians, to whom they grudge a share in their gains ; for these two races seemed convinced that "two of a trade can never agree", and are seldom, if ever, to be seen thriving side by side in the same locality.

The Jews of Kutais and, in general, of the Caucasian region, though not looked upon by the people with any particular affection, are not, however, envied or hated with the same intensity of feeling which has lately broken out in some parts of Germany, as well as of Southern and Western Eussia; as the presence of the Mussulmans for so many years in these Caucasian regions, and the efficient measures taken by them to enforce the "Truce of God " among the votaries of different religions, have had the effect of establishing and maintaining, if not tolerance, at least something like mutual forbearance. At Jerusalem itself we all know to our shame how soon Christian brethren would fly to each other's throats in the very Temple, were it not for the contemptuous neutrality of the Turkish peacemaker” (Gallenga, 1882: 325-326).

After speaking about the Jews, Antonio Gallenga focuses on the indelible impressions he received from his visit to the Gelati Monastery. In this context, the author not only talks about the antiquity and beauty of the architectural monument but also about the special emotion he got during the conversation with the Georgian monks living there. Although we sometimes find factual inaccuracies on the part of the Italian writer when describing the mentioned situation, the evaluations expressed by the author should be considered extremely important for evaluating his attitude towards our country. As a proof of all the above, I will quote a relevant passage from the book:

„The object of our short stay at Kutais, however, was not to have any dealings with these obliging Hebrews, but merely to visit Gelat, or Ghelat, a monastery far up in the mountains, to which we drove in a carriage with four horses abreast, by so steep a road that we only accomplished the distance of about ten versts in a laborious journey of two hours.

Here we had a peep into the Old World.

The church and belfry and other buildings of the monastery date from the 10th century, and are among the finest specimens of early Byzantine style; and the monks exhibit a perfect museum of gilt and jewelled images, of paintings and parchments, of mass-books, and every imaginable curiosity of church vessels and priestly vestments and knick-knacks of monkish workmanship in the Dark Ages; all treasures which have miraculously escaped the ravages of long periods of pagan and barbaric violence.

We were also shown the vault with the sepulchres of the earliest Princes of the Georgian dynasty, the huge, monumental stones of which consist of such enormous flat square blocks that they have never been made to reveal their secrets and seem by their weight to defy even the all-prying, all-desecrating curiosity of our present age.

The monks... were tall and majestic, and had the finest and best chiselled set of features, with thin, brown hair down to their shoulders, and dark violet eyes, and soft voices...

We stopped a long time in friendly converse with them, though they spoke no Western language, and I could only commune with them through my interpreter.

On the balcony of these good monks' dwelling, at a height of several thousand feet above the town and valley, we stood as if on a "Stone of vision overlooking all the realms of the earth", all within the compass of Titanic mountains—a sight hardly to be seen once in a man's life, as we beheld it in the clearest and softest weather, in the witching hour of evsening, the landscape darkening in the long shadows of the hills ; the snowy summits blushing in the last beams of the sun just set; the scene taking away our breath and awing us into silence—a sight once seen never to be forgotten“ (Gallenga, 1882: 326-327).

As it is clear from the narration of Antonio Gallenga, he did not visit Batumi during the mentioned trip. It is true that he does not say anything specific about his presence in this region, but when talking about Batumi, he pays special attention to its very important strategic location. Despite this, he is suspicious of the prospect of the city's development in the hands of Russia and writes:

„It was the unfitness of the harbour of Poti for modern trade that made the Russians so eager to seize Batoum, a port about thirty miles south of Poti, in their late wars with the Turks.

Few can have forgotten the excitement created among politicians in England and throughout Europe by the announcement that both at San Stefano and at Berlin Russia put forward a cession of unconquered Batoum as the chief condition on which she would sign with Turkey a treaty of peace. The importance of Batoum as the port Russia had so long coveted on the eastern coast of the Euxine, the only practicable outlet for the produce of her vast Caucasian dominions into the western world, was made the topic of endless discussion between those who exaggerated and those who under-valued it. It is extremely likely that neither the Turks who lost, nor the Russians who won, the disputed harbour, were well aware of its advantages or capabilities. But at all events

Batoum is now in Russia's hands, and has been for a few years, and it is still questionable whether either Batoum alone, or both Batoum and Poti, even put together and joined by the railway, which is now being constructed, will answer the purpose of the immense trade which must find there an outlet if the railway all across the isthmus from Baku to Tiflis to the two harbours is soon completed, and if the export of the naphtha, to say nothing of all the other produce of this most fertile region, answers reasonable expectations“ (Gallenga, 1882: 329-330).

Although the Italian writer often refrains from a detailed description and assessment of the situations while narrating his travel impressions, the information provided by him should still be considered more or less noteworthy material for researchers interested in the history of our country during the relevant period.

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Technical Sciences

Analysis of the effect of fibro fibers on the physical and mechanical properties of non-autoclaved aerated concrete

D.A. Nurzhumina
master's student, L.N. Gumilyov Eurasian National University, Astana, Kazakhstan
A.V. Smolyaninov
candidate of physical and mathematical sciences, LLC «НТС-Казакстан», Astana, Kazakhstan
E.E. Sabitov
candidate of technical sciences, docent, L.N. Gumilyov Eurasian National University, Astana, Kazakhstan
D.S. Dyusembinov
candidate of technical sciences, docent, L.N. Gumilyov Eurasian National University, Astana, Kazakhstan
A.M. Kozhakhmet
master's student, L.N. Gumilyov Eurasian National University, Astana, Kazakhstan

The criteria for determining the level of energy saving in Kazakhstan are mostly outdated and significantly do not correspond to modern European standards, so the adjustment of insulation is inevitable. This will lead to an even greater increase in demand for thermal insulation materials. More and more attention is being paid to the potential economic and environmental benefits of using waste as raw materials in the production of non-autoclaved aerated concrete.

Studies have shown that the addition of fibers to aerated concrete can increase its compressive strength, tensile strength and bending strength, as well as improve the quality of the mixture and reduce the risk of shrinkage of aerated concrete during molding [1]. In addition, the addition of fibers can increase the strength and ductility of concrete, making it more resistant to cracking and deformation under load.

The effectiveness of fiber reinforcement in aerated concrete also depends on the application and desired mechanical properties of concrete. For example, fibers with a high aspect ratio and oriented in the direction of applied loads are more effective in increasing the bending strength of concrete, while fibers with a low aspect ratio and arbitrarily oriented are more effective in increasing the impact strength of concrete.

Polypropylene fibers are widely used in the production of aerated concrete due to their low cost, high strength and resistance to chemicals and moisture. However, glass and steel fibers are also effective reinforcement options, although they are more expensive. The addition of fibers to aerated concrete not only improves its mechanical properties, but also increases its durability and resistance to cracking. This is due to the fact that the fibers can prevent the spread of cracks and increase the tensile strength of concrete, thereby reducing the risk of destruction. Polymer fibers are shown in Figure 1.

Figure 1. Fibro fiber

In addition, the use of fibers in aerated concrete can also increase its fire resistance. The addition of fibers leads to a more homogeneous and dense concrete mixture, which can increase its resistance to high temperatures and prevent the rapid spread of fire. It should be noted that the addition of fibers to aerated concrete is a promising method of increasing its strength, durability and resistance to cracking and fire. However, it is necessary to carefully approach the selection and distribution of fibers to achieve the desired mechanical properties of concrete. Further research is needed to optimize the use of fibers in aerated concrete and explore other fiber reinforcement options. In addition to their reinforcing properties, the fibers also affect the workability of the concrete mix. The addition of fibers can make the concrete mix more viscous, making it difficult to mold and seal. Therefore, the mixing process should be carefully monitored to ensure an even distribution of fibers in the concrete mix without compromising its workability.

In addition to the type and number of fibers used, the aspect ratio and orientation of the fibers also affect the mechanical properties of fiber-reinforced aerated concrete. The aspect ratio refers to the ratio of the length of the fiber to its diameter. Fibers with a high aspect ratio provide greater reinforcement of concrete because they have a larger surface area for adhesion to the concrete matrix. In addition, the orientation of the fibers also affects the strength of the concrete, and the fibers oriented in the direction of the applied loads provide greater reinforcement.

The size and shape of the pores in aerated concrete also affect the characteristics of fiber reinforcement. The fibers can overlap the pores in the concrete matrix, which leads to a decrease in the pore size and an increase in interfacial adhesion between the fibers and the concrete matrix. This increases the overall strength and durability of concrete, making it more resistant to cracking and deformation [2].

Figure 2. Samples of non-autoclave gas blocks

We tested the frost resistance of aerated concrete products with polymer fiber (Fibro fiber) and without polymer fiber according to GOST 25485-89, the tests were carried out in an automatic climate chamber 10 D1429/A CONTROLS.

Frost resistance tests are shown in Figure 2, the main criterion for completing frost resistance tests was visual changes in the surface of the sample (cracks, chips) as well as a mass loss of more than 5%. The samples were tested after 15 cycles of freezing and thawing, followed by an interval of 25,35,50,75,100 cycles.

Figure 3. Testing of a sample of non-autoclaved aerated concrete without fiber for strength

Figure 4. Testing of a sample of non-autoclaved aerated concrete with fiber for strength

The compression test is shown in Figure 3.4. The samples were tested on an automatic press of the brand CONTROLS(Pilot) 500 kH.

Table 1 – Normative physical and mechanical parameters of non-autoclaved aerated concrete

Type of concrete	Grade of medium density	Non-autoclave concrete	
		Compressive strength class	Frost resistance brand
Structural and thermal insulation	D600	B3,5 B2,5 B2 B1,5	From F15 to F75

Table 2 – Comparative analysis of physical and mechanical parameters of non-autoclaved aerated concrete D600.

Type of aerated concrete	Density kg/m3	Compressive strength MPa	Frost resistance
Non-autoclaved aerated concrete without fiber	675	3,2	F50
Non-autoclaved aerated concrete with fiber	618	5,8	F100

Based on Table 1,2, we see the effectiveness of cellular concrete reinforcement, namely, an increase in the design compressive strength and an increase in frost resistance.

Comparative analysis has shown that aerated concrete reinforced with fiber also has an integral structure without cracks and chips. A visual inspection of the samples is shown in Figure 5.6.

Fig.5 Sample of non-autoclaved aerated concrete without fiber after strength testing

Fig.6 Sample of non-autoclaved aerated concrete with fiber after strength testing

The type of fiber used also plays a crucial role in determining the effectiveness of fiber reinforcement. For example, it has been reported that fiberglass increases the compressive strength of aerated concrete by up to 35%, while steel fibers can increase its bending strength by up to 50%. However, the high cost of these fibers limits their wide application, and polypropylene fibers remain the most commonly used fiber in the production of aerated concrete. One of the alternative types of fiber is fibers from waste products of basalt slabs.

Basalt is a volcanic rock with unique physical and chemical properties that make it an excellent raw material for various industrial purposes. The rock often consists of minerals such as pyroxene, plagioclase feldspar and olivine, which give it a special set of qualities, such as high strength, hardness and resistance to weathering and abrasion. These characteristics make basalt a suitable material for use in construction, road construction and the production of various industrial products [3].

Basalt has unique chemical properties that make it useful in various applications in addition to its physical properties. The rock contains a high concentration of silica, alumina, iron and other minerals, which makes it an important source of raw materials for the production of glass, ceramics and other industrial goods.

In several countries, including India, China and Brazil, studies have been conducted on the production of non-autoclaved aerated concrete using waste from the production of basalt slabs. Studies have shown that the use of waste basalt slabs can improve mechanical and thermal properties, making it a viable alternative to traditional concrete. In Kazakhstan, research on the use of waste from the production of basalt slabs in the production of non-autoclaved aerated concrete is somewhat limited [4].

The existing significant deposits of basalt in the Republic of Kazakhstan and possessing waste from the production of basalt slabs, has great potential for the production of environmentally friendly building materials.

Studies conducted in the above-mentioned countries have shown that the use of waste basalt slabs in the production of non-autoclaved aerated concrete can improve their physical and mechanical properties. Since the waste from the production of basalt slabs contains a high percentage of silica and alumina, which, in combination with other raw materials such as cement and lime, can increase the compressive strength and durability of the final product. In addition, the use of waste from the production of basalt slabs makes it possible to improve the fire resistance and sound insulation properties of non-autoclaved aerated concrete.

It is also proved that non-autoclaved aerated concrete produced using waste basalt slabs has high thermal insulation properties, which makes it an attractive option for the construction of buildings in cold climates. Low thermal conductivity of non-autoclaved aerated concrete obtained using waste from the production of basalt slabs can reduce the amount of energy needed to heat buildings, which leads to significant energy savings during the operation of buildings and structures made of non-autoclaved aerated concrete [5].

The production process at the plant includes: grinding basalt waste into a fine powder and mixing with the prepared liquid suspension (binder, silica filler, gas-forming additive and water) and other additives, followed by pouring the mixture into molds and giving it the opportunity to undergo a chemical reaction to solidify and acquire the design strength.

By organizing production to provide the construction industry with eco-friendly building materials, the Republic of Kazakhstan has the potential to reduce waste generated during the production of basalt slabs, as well as minimize demand for natural resources [6].

Several factories for the production of basalt slabs have been put into operation in Kazakhstan at the moment. Some of them are:

1) "Makinsky Thermal Insulation Plant". Located at the address RK, Akmola region, 020500, Makinsk, ul. Sh. Ualikhanov, 37.

2) The IZOTERM-KANDYAGASH plant is located at the address of the Republic of Kazakhstan, Kandyagash, ul. Industrial Zone, 35K

3) The IZOTERM-TEMIRTAU plant is located at the address RK, Temirtau, Michurina str., 2A

4) The IZOTERM-OSKEMEN plant is located at the address of the Republic of Kazakhstan, Oskemen, Glubokoe, Berestova str., 50.

According to the results of statistics, over 50% of the structure in Kazakhstan is built on the basis of aerated concrete. Which shows one of the highest results for wall materials

Although studies on the use of basalt slab waste in the production of non-autoclaved aerated concrete in Kazakhstan have been little studied and are not used, the potential advantages of this material cannot be ignored. Further research and development in this area could lead to the creation of efficient, more resistant to operational properties and environmentally friendly building materials [7,8].

Non-autoclaved aerated concrete based on basalt waste will have excellent insulating properties, which can lead to significant energy savings in buildings by reducing the need for heating and cooling systems.

Further research and development in this area may lead to an improvement in the operational properties of non-autoclaved aerated concrete, which will make it an even more attractive option for the construction industry.

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CHANGING TRENDS IN STRUCTURAL ENGINEERING

Assemgul Yerzhanova
Bachelor degree holder of Kazakh National Research Technical University named after K.I. Satpayev; Almaty; Kazakhstan

ABSTRACT

Over the past half century the construction industry has “been slow to adopt new technologies” and “has undergone no fundamental change,” according to the World Economic Forum.

The built environment, which consists of construction plus real estate, represents almost $6 trillion in U.S. GDP per year (1). It is the largest industry in the U.S. Compared to industries such as automotive, aerospace, and manufacturing, however, construction lags significantly in productivity growth and R&D spending. Are we falling behind the innovation trajectory of other industries? What are the reasons our industry has struggled to evolve with respect to productivity? Is technology keeping pace in AEC?

INTRODUCTION

Recent innovations in the field are solving some of the biggest challenges the discipline faces right now. These include construction safety, sustainability, and the difficulty of designing complex, intricate structures with traditional techniques.

1. Innovation in structural engineering

While the industry works to tackle these questions and issues, there are many firms experimenting and pushing the envelope in compelling ways. In the realm of structural engineering, innovation is occurring at the grass roots level by professionals who are exhilarated by technology and continually incorporating creative new ideas. The following are seven key areas where innovation in structural engineering is driving evolution.

1.1 Integrated Digital Platform

The AEC industry utilizes technology for processes such as advanced structural analysis, modeling of complex geometry, and schedule planning. However, the industry overall is poorly connected from a digital standpoint across firms and across platforms. A typical building project might have a team of six to 10 design consulting firms, and a contractor with 10–20 subcontractors interacting with the ownership team. Each of these entities does important work with varying levels of technological sophistication, but the level of technology connectivity within each entity and between entities is often rudimentary at best.

Several highly specialized firms in the structural engineering space are creating their own integrated digital platforms that allow them to communicate seamlessly internally and with project partners. These platforms involve a community of tools, processes, and people that facilitate and drive the flow of data, information, and knowledge across their delivery systems. This goes beyond using Revit to model a structure in 3D and sharing that model with subconsultants. This also goes beyond having a small group of specialists who create bespoke software tools to improve design. These digital platforms are broad, and the engineers, modelers, and project managers are working constantly in building information modeling (BIM) (2).

At these high-performing firms, tools such as Rhino and Grasshopper are ubiquitous in every design office because teams utilize visual programming and parametric modeling as core processes. At Walter P Moore, for example, we have a team of programmers/engineers who are writing and updating programs to transfer data from analysis programs, Revit, Tekla, Rhino, and others to a central database. This central database allows us to keep metadata and to add metadata as the data flows from program to program. This process transforms simple data into powerful, fabrication-ready information that can be served up for designers, clients, and contractors. This is game-changing in the AEC industry and will drive project delivery evolution for the future.

1.2. Visual Programming and Parametric Modeling

Design programs have been used by engineers for decades to design building elements. The scope of these individual design programs is quite narrow, and there is little or no connectivity to the hundreds of other design processes that take place on every project. Engineers design beams in one program and then manually transfer key information to drawings or to BIM. They use spreadsheets to design footings, pile caps, and dozens of other structural components and then transfer critical data from one place to the next. Savvy engineering firms have their own in-house programming capabilities that allow them to customize or mold commercially available software, or to create their own programs that do what they need to do.

Visual programming provides an avenue to improve this tremendously. Platforms such as Grasshopper offer a visual programming interface that allows the programming logic to be readily seen, understood, and implemented. Visual programming can be leveraged broadly, which allows engineers to write simple programs that connect disparate processes and improve the speed and the efficiency of the design process. This process improvement is exciting and rewarding for staff, and it provides value to clients on every project.

An additional benefit of visual programming is that it allows a firm to rapidly expand their parametric modeling capabilities. Parametric modeling refers to the process of establishing parameters of a design that are allowed to be variable, setting criteria for how those parameters can vary, and then running multiple analyses to obtain the final design of the system over the entire range of parameter steps. For example, this process can be used to vary the depth and spacing of steel trusses over an airport terminal such that the steel tonnage is minimized. This type of parametric modeling allows users to analyze multiple options for clients in real time. Once the parametric model is created using a visual programming platform, engineers can iterate options in seconds and the information can be shared visually with clients.

1.3 Advanced Model-Based Deliverables

BIM provides the ability to create 3D content and has become the standard of the industry for the built environment. The assumption could be made that all design teams are providing high-quality 3D content that can be used robustly for construction. However, that is not the case. There are a few reasons for this:

- Liability concerns by design teams of handing over electronic BIM information are significant.
- There is a difference in modeling building components in BIM for general coordination versus modeling with the precision needed for an electronic deliverable. Small imperfections in

model geometry or metadata can create significant problems if that information is relied upon by a contractor.

- Oftentimes, only primary building components are modeled in the design phase with no integration of secondary members and no detailed modeling of complex member connections.
- BIM programs that are used for design are different from the programs used by subcontractors for fabrication.
- The disconnect between the potential of BIM and the status quo represents a major opportunity for improvement. Some structural engineering firms in the AEC space are tackling this gap by taking the steps necessary to create advanced model-based deliverables. This requires modeling in BIM delivery programs such as Revit with precision that can be relied upon, including both primary and secondary members, complex geometry, and connections.
- An extension of this improvement is for structural engineers to work directly in fabrication-level programs such as Tekla, which allows engineers to provide information to subcontractors in the language and format they need. To realize the full potential of these advanced model-based deliverables, they must be transmitted to the contractor and be relied upon for construction.
- Many structural engineers and architects are not ready for these steps, as the risks are apparent. However, the benefits of building virtually via model-based deliverables and coordinating with the contractor before structural materials show up on site are clear. Fewer changes in the field, better control of structural quantities, and reduced (or zero) change orders are some of the important outcomes that are being realized in this process.
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1.4 Integration of Multiple Services with Core Structural Engineering

Specialization in AEC has fueled the development of deep expertise among individual consultants, which has allowed engineers and architects to push the boundaries of design. At the same time, however, specialization has also hardened boundaries between disciplines and created the potential for scope gaps and coordination issues. Some structural engineering firms are bridging these gaps by expanding their scopes, including disciplines beyond structural in their core delivery, and providing a more integrated design (3).

Oftentimes, the basic structural engineering scope stops at primary members and the edge of slab at each level of the building. However, by taking the additional responsibility for designing and delivering all secondary members, and by including steel connections, embed plates, and cladding supports, the scope of the full structural system is delivered. Some firms are adding robust enclosure design services, including optioneering of materials and systems, design of cladding members, and modeling of core cladding components. This creates a much more robust delivery of the entire building core and shell and allows for greater coordination.

The addition of services such as erection engineering, especially for complex structures, ensures that the design intent is followed through all the way to construction. Additionally, high fidelity modeling of rebar in concrete structures or of structural steel buildings can also expedite the transition from design to shop drawings to construction.

The inclusion of specialty services such as threat and risk assessment and mitigation, and designs to resist extreme loadings, protection from blast, progressive collapse, and other potential threats creates more holistic design solutions.

Firms that can combine these design services in an integrated fashion bring immense value to their architectural clients, owners, and contractors.

1.5 Sustainable Design

Sustainability in the built environment is an important concern for our generation and for generations to come. Structural engineers have engaged in this issue so minimally in the past that few expect us to be experts with solutions to share. This is changing rapidly. Structural engineers are responsible for specifying and designing most of the mass and a significant percentage of the cost of every building. The impact that we are having on sustainability is profound.
Understanding embodied carbon and leading conversations about the impacts of design decisions is critical. Structural engineers are in the driver's seat to understand the impact of material choices and system decisions. Gone are the days when the structural engineer's contribution to sustainability discussions was limited to utilizing fly ash in concrete.

The first step for designers is to truly understand embodied carbon—where it originates, how buildings impact the amount of carbon in the environment, and the consequences of excessive carbon in the atmosphere. The second step is to accurately know and robustly track the quantities of structural elements. The third step is to develop workflows as designers that allow us to analyze and understand the effects of material choices by connecting quantities to programs such as Tally and Embodied Carbon in Construction Calculator (EC3) (4). The last step is to engage with this information throughout the design process, provide structural options for evaluating carbon impact with other important design factors, and serve as experts in making recommendations to the overall design team and the owner.

Engineers that provide material quantity tracking of structural—and enclosure—materials within their models and in their deliverables provide a two-fold benefit to the project. First, the material quantity tracking can feed into the measurement and tracking of embodied carbon in the structure. Secondly, they communicate to the owner, estimators, and builders the evolution of the material quantities—and hence costs—throughout the design process. The transparency of generating and sharing this information is of benefit to the project.

In 2020, several structural engineering companies became signatory firms that are leading the SE2050 Commitment, with a goal of achieving substantive embodied carbon reductions in the design and construction of their projects.

1.6 Performance-based Design in Seismic, Wind, and Fire

With the goal of providing safe buildings to protect the public, building codes have evolved to focus heavily on prescriptive design. This approach involves strict requirements on structural design process, materials, strength, and detailing. The current code-based approach provides life-safety performance level of structures. However, this prescriptive approach does not allow structural engineers to take varying design paths to attain code-level performance, nor does it distinguish between higher levels of performance. As structural engineers, we are attempting to weave multiple goals together for the overall design safety, code compliance, constructability, serviceability, reliability, first cost, and life-cycle cost. To truly accomplish this, alternative approaches are sometimes required.

Performance-based design (PBD) is the concept of starting with the end goal as the primary goal (i.e., the performance level), and then using analysis, simulation, and testing to demonstrate that a structure will meet that performance level. This process may draw heavily on concepts in prescriptive design, but it also allows for innovation and targeted solutions for unique problems. PBD can fuel innovation and it can create tremendous value for a client. Highly qualified design firms with top-notch analysis capabilities and deep expertise are required to ensure that PBD is implemented correctly. PBD is not an answer for every building, but for the right projects—complex, tall, iconic, or important—PBD is the right solution (5).

A primary implementation of PBD is to target performance objectives related to a specific hazard, with seismic, wind, and fire being at the forefront of the hazards to tackle. Seismic design has a strong history over the past couple of decades of creating viable paths to PBD. Clearly defining the probability of seismic shaking, determining the performance of the structure being designed, allowing the structural engineer to design the right solution for the goal, and implementing a peer review process are all critical steps in the implementation of PBD for seismic.

The wind design community has followed the lead of its seismic counterparts and has made strides along this path recently. In 2019, the American Society of Civil Engineers (ASCE) released a pre-standard for PBD Wind, setting the stage for a comprehensive approach to alternative design for wind loading. This alternative approach allows for the evaluation of safety, performance level, building drift, occupant comfort, and response to extreme wind events (6).

PBD for fire is in its infancy stage, but the applicability of being able to target designs for fire performance could be extremely broad. The Charles Pankow Foundation provided a large grant for advanced research in this area, and in 2020 ASCE published Performance-Based Structural Fire Design: Exemplar Designs of Four Regionally Diverse Buildings Using ASCE 7-16, Appendix E (7).

1.7 Use of New Materials and High-performance Fabric

For many years, the palate of core materials for structural engineers has been very stable. Concrete, steel, masonry, and wood have been the main building blocks for generations. At the same time, there are exciting things happening on the fringes of these core materials that are providing new design avenues for engineers, architects, and owners.

Innovative ways to use timber is one such example. The drive for more sustainable buildings has helped mass timber become an extremely sought-after material choice. With this drive for more mass timber, advances have been made in several areas: building codes have allowed expanded use of mass timber systems, fire resistance has been researched in more depth, and innovative systems such as cross-laminated timber (CLT) have opened new avenues for design implementation.

Another example is the growing use of high-performance fabric in buildings. Structural fabric is a high-end material that derives its form and its strength from tension. By combining structural support elements with fabric, engineers can design engaging and innovative building cladding, roofs, and canopies. Material choices for the fabric can provide the ability to vary the amount of light transmission from clear to opaque and can allow designers to tune characteristics such as flame resistance, weather resistance, and strength.

The future will provide opportunities to evolve the current generation of fabrics by allowing designers to increase the strength of fabrics and be able to tune the UV transmission without impacting the ability to see through the fabric.

CONCLUSION

Structural engineers working today have access to some pretty incredible tools. Innovation in structural engineering is changing the way the practice gets done. From computer science to robotics and smart materials, structural engineering is changing. Recent innovations in the field are solving some big challenges facing the discipline. Some of these innovations are in the fields of safety, sustainability, and intricate structural design techniques.

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Sociological Sciences

Media Literacy in the Digital Age: Navigating Innovation and Misinformation

Sholpan Konarbay
Astana IT University

Abstract

The advent of the digital era has precipitated a profound transformation in our patterns of media consumption and engagement. The talent of critically navigating the expanding media landscape has become increasingly important as technological developments continue to transform it. This article explores the crucial subject of media literacy in the era of digital technology, with a specific emphasis on the dual task of utilizing advancements while countering the widespread dissemination of false or misleading information.

Keywords: Media literacy, digital age, misinformation, critical thinking, technology, education, social media, fact-checking, digital citizenship, information evaluation.

Introduction

In the current digital environment, which is marked by a notable increase in digital content and information, the importance of information skills is particularly emphasized (Ahmad et al., 2023). The rapid advancement of technology and the extensive interconnectivity afforded by the internet have led to a significant revolution in the manner in which individuals access, consume, and disseminate information. In the contemporary period characterized by the prevalence of digital technologies, a multitude of opportunities and difficulties exist in a multifaceted and interconnected manner.

The acquisition of the capability to effectively navigate the extensive expanse of information has been recognized as a crucial competency (Ahmad et al., 2023). The concept goes beyond mere acquisition to incorporate the critical assessment, interpretation, and ethical utilization of information. Within this particular framework, media literacy emerges as a vital element of digital citizenship, granting individuals the ability to make well-informed choices, engage in critical analysis of material, and actively participate in meaningful digital conversations.

Nevertheless, with the advent of the digital era, a multitude of noteworthy prospects as well as significant obstacles emerge (Ahmad et al., 2023). The proliferation of misinformation, fake news, and digital manipulation has emerged as a growing concern in contemporary society. These problems highlight the pressing necessity for a thorough comprehension of information literacy, which empowers users to differentiate between trustworthy and untrustworthy sources, critically evaluate the trustworthiness of offered information, and recognize any biases that could impact the content.

The objective of this study endeavor is to explore the complex terrain of media literacy in the contemporary digital era, placing particular emphasis on the importance of information skills (Ahmad et al., 2023). This project seeks to investigate the changing role of media literacy in empowering individuals with the essential knowledge and abilities to effectively navigate the complex digital information landscape, drawing from the insights provided by Ahmad et al. and expanding upon their research. Furthermore, this study explores the pragmatic implications of media literacy in bolstering digital citizenship, advocating for critical analysis, and cultivating conscientious involvement with digital media.

This research project seeks to make a substantial contribution to the continuing discourse on media literacy by conducting a comprehensive analysis of the information skills required in the digital age (Ahmad et al., 2023). This statement highlights the fundamental significance of media literacy within a progressively networked and information-driven global context.

Defining Media Literacy in the Digital Age

The concept of media literacy in the digital age has undergone significant development in light of the dynamic and ever-changing media environment (Potter, 2010; Livingstone, 2010). Media literacy comprises a diverse range of competences and skills that enable individuals to engage in a critical manner with various forms of media material and platforms. The scope of this concept expands beyond conventional media formats to encompass the digital domain, encompassing social media platforms, online news sources, streaming platforms, and material contributed by users (Livingstone, 2010).

Media literacy, at its essence, is the ability to interpret, assess, and generate media content across a wide range of types and platforms (Potter, 2010). This educational program provides individuals with the necessary skills and knowledge to effectively navigate and engage with the intricate and constantly changing digital media environment, enabling them to make informed choices as consumers, contribute responsibly as creators, and actively participate in the digital media landscape.

Potter (2010) underscores the importance of media literacy by placing emphasis on its capacity to cultivate critical thinking skills and equip individuals to adeptly navigate the era of information overload in the digital age. Media literacy extends beyond just passive consumption, as it promotes the active engagement of individuals in critically evaluating the legitimacy of sources, discerning biases, and evaluating the veracity of information disseminated across many media platforms.

Livingstone (2010) emphasizes the significance of media literacy in light of emerging information and communication technology. The advent of these technologies has not only facilitated the widespread availability of information but has also presented novel obstacles, such as the rampant dissemination of false or misleading content and the increasing difficulty in discerning between trustworthy and untrustworthy sources. Livingstone's concept of media literacy refers to the acquisition of skills necessary for individuals to differentiate between reliable and unreliable sources of information in the current era of digital media.

In essence, media literacy in the contemporary digital era is an essential competency that empowers individuals to actively and discerningly interact with the media they encounter, regardless of whether it is presented in conventional or digital formats. The aforementioned phenomenon enables individuals to effectively navigate the intricate nature of the contemporary media environment, hence cultivating a more profound comprehension of information and advocating for responsible and knowledgeable engagement in the digital realm.

Technological Innovation and Media Consumption

Technological innovation plays a pivotal role in shaping the current patterns of media consumption. The advent of technology has significantly reshaped the way humans engage with and consume media material within a constantly changing digital environment. The aforementioned shift is seen in multiple facets of media consumption.

Streaming services have become a notable representation of technical innovation within the media industry. These services have fundamentally transformed the manner in which individuals access and interact with audiovisual information. The advent of on-demand streaming has liberated viewers from the constraints of fixed timetables and geographical limitations. The aforementioned transition has provided consumers with the ability to selectively assemble their watching encounters, resulting in a significant alteration in the dynamics of media consumption. The phenomenon of binge-watching, characterized by the consumption of complete seasons of television series in one continuous session, serves as a prominent manifestation of this transformative trend.

Social media algorithms represent an additional dimension of technical advancement that has profoundly transformed the way individuals consume media. These algorithms utilize sophisticated data analysis and machine learning techniques to produce customized content streams for individual consumers. Social media platforms have acquired significant influence in shaping consumers' online experiences by customizing content recommendations according to user preferences and activity. The process of personalisation possesses the capability to generate echo chambers within which individuals are exposed solely to information that reinforces their own opinions and interests. Hence, the significance of social media in the facilitation of information diffusion and opinion formation cannot be exaggerated.

Virtual reality (VR) is an additional facet of technical advancement in the realm of media consumption. Virtual reality (VR) technologies have the capability to fully immerse users in digitally created settings, thereby bringing about a significant transformation in the way stories are told and user engagement is achieved. Virtual reality (VR) has revolutionized media consumption by merging the digital and physical realms, offering a range of experiences such as immersive journalism, virtual tours of historical places, and interactive gaming.

Finally, the ongoing advancements in technology have significantly transformed the manner in which media content is consumed, hence creating novel platforms, experiences, and prospects. The advent of technology has significantly transformed the realm of media consumption, exemplified by the emergence of streaming services, social media algorithms, and virtual reality. These developments have introduced a novel era characterized by unparalleled options, customization, and immersive experiences for individuals.

The Challenge of Misinformation

In contemporary times characterized by digital advancements, the dissemination of inaccurate information has become a prevalent and complex issue that carries significant ramifications for society. This section examines the complex phenomenon of misinformation and its diverse manifestations, utilizing scholarly sources such as "Media Literacy, Democracy, and the Challenge of Fake News" authored by Lance E. Mason, Dan Krutka, and Jeremy Stoddard in 2018, as well as "The Challenge of Misinformation and Ways to Reduce its Impact" written by Jasmyne A. Sanderson and Ullrich K. H. Ecker in 2020.

The concept of misinformation comprises a range of inaccurate or deceptive information that is distributed through various digital media platforms. The observed occurrence encompasses a spectrum of activities, including the intentional dissemination of inaccurate news articles commonly known as "fake news" (Mason, Krutka, & Stoddard, 2018), as well as more sophisticated methods like "deepfakes," which employ technological advancements to manipulate audio or visual content in order to produce persuasive yet fabricated representations (Sanderson & Ecker, 2020).

Misinformation has wide-ranging implications that span multiple areas, encompassing society, politics, and public health (Mason et al., 2018). The dissemination of inaccurate information within democratic societies has the potential to diminish confidence in institutional structures, compromise the integrity of electoral processes, and contribute to the division among members of the public (Mason et al., 2018). The dissemination of inaccurate information also presents a significant risk to the well-being of the general population, as the propagation of incorrect health-related knowledge can result in harmful behaviors and decision-making (Sanderson & Ecker, 2020).

Gaining a comprehensive understanding of the intricate aspects of misinformation and its wide-ranging manifestations is of utmost importance in formulating efficacious approaches to counteract its dissemination and alleviate its consequences. There is a growing scholarly and scientific interest in the development of techniques and strategies for the identification of misinformation, verification of facts, and evaluation of source credibility (Torabi Asr & Taboada, 2018). These endeavors make a valuable contribution to an expanding reservoir of knowledge that seeks to address the obstacles presented by disinformation in the era of digital technology.

Overall, the topic of disinformation in the digital era presents a varied and intricate difficulty that necessitates interdisciplinary investigation and cooperative endeavors. This section draws upon scholarly literature to examine the several dimensions of disinformation, highlighting its wide-ranging implications and the need for comprehensive approaches to effectively confront and minimize its influence in modern society.

Media Literacy Education: Building Critical Thinkers

Given the widespread difficulties presented by the proliferation of disinformation in the era of digital technology, media literacy education has emerged as a prominent and crucial factor. According to Mason, Krutka, and Stoddard (2018) in their work "Media Literacy, Democracy, and the Challenge of Fake News," as well as Sanderson and Ecker (2020) in their publication "The Challenge of Misinformation and Ways to Reduce its Impact," media literacy education plays a crucial role in providing individuals with the necessary abilities to effectively navigate the intricate information environment.

The significance of media literacy instruction in cultivating critical thinking among students is underscored by Mason et al. (2018). Media literacy education equips learners with the necessary tools and knowledge to engage in critical assessment of information, enabling them to differentiate between reputable and unreliable sources. This element holds significant relevance in a contemporary era characterized by the widespread dissemination of misinformation on digital platforms, hence emphasizing the crucial importance of possessing the capability to assess the credibility of sources.

Moreover, the importance of media literacy education in the realm of mitigating disinformation is emphasized by Sanderson and Ecker (2020). The inclusion of media literacy curriculum in education is essential for instructing individuals on the skills required to fact-check material and identify biases. This skillset enables individuals to engage in critical evaluation of the accuracy and reliability of information encountered in digital environments, therefore decreasing vulnerability to disinformation.

Media literacy education plays a fundamental role in fostering the development of individuals with critical thinking skills, enabling them to effectively navigate the intricate landscape of the digital information ecosystem. This sort of education enables individuals to develop the required abilities to evaluate the reliability of sources, verify information, and identify biases. As a result, individuals are empowered to engage with media content in a deliberate and responsible manner. In light of the ongoing issue of misinformation and its impact on decision-making and digital citizenship, the importance of media literacy education becomes increasingly evident. This form of education is crucial in addressing the issues posed by disinformation and in cultivating a society that is capable of making informed judgments and adapting to such challenges.

Digital Tools for Media Literacy: Empowering Critical Engagement in the Digital Age

In the current era of rapid digitalization, the incessant influx of information underscores the imperative for individuals to have the ability to critically evaluate and selectively engage with digital media content. In order to achieve this objective, there has been a rise in the utilization of novel digital tools and platforms that serve as crucial resources in the promotion of media literacy. This article examines the significant role played by digital technologies, delving into the various resources created to provide users with the required skills and knowledge to engage critically with digital media.

Fact-checking websites exemplify digital tools that have significantly transformed the domain of media literacy. Fact-checking organizations such as Snopes and PolitiFact have gained significant recognition as reputable sources for validating material encountered in the realm of digital media (Fact-Checking and Media Literacy, n.d.). These platforms perform thorough examinations of claims and news items, enabling users to choose between reliable and questionable sources with meticulousness and accuracy. During an era marked by the widespread dissemination of inaccurate information, the significance of fact-checking websites cannot be exaggerated. These entities function as strongholds of precision, shedding light on the trajectory towards well-informed digital participation.

In addition to fact-checking websites, media literacy apps have evolved as interactive tools that foster critical thinking and discernment among users (Media Literacy Apps, n.d.). These applications provide individuals with immersive experiences in which they engage with and understand the complexities of digital media content inside realistic circumstances. Media literacy apps offer effective and captivating methods to augment users' capacity for critical analysis of media content, employing quizzes, games, and interactive exercises. These tools facilitate the integration of theoretical concepts with practical applications, allowing individuals to cultivate and employ their media literacy abilities within a dynamic digital context.

Media literacy courses offered online are an additional component of the digital technologies available, and they have significant implications for both academic discourse and practical application (Media Literacy Courses, n.d.). The courses, which can be accessed via well-known platforms like Coursera and edX, provide organized curricula that cover several aspects of media literacy. These courses offer extensive educational experiences, covering topics ranging from source evaluation to the critical study of media material. Through the provision of knowledge and the cultivation of skills pertaining to the digital information ecosystem, these entities enable individuals to actively and conscientiously interact with digital media content.

The Role of Social Media in Media Literacy: Leveraging Platforms for Critical Engagement

The emergence of social media platforms has unquestionably revolutionized the domain of media consumption and the distribution of information. These platforms function as influential channels for the dissemination of news, entertainment, and communication, facilitating global connectivity among individuals. Nevertheless, it is important to acknowledge that social media platforms have a dual function within the context of media literacy. On one hand, they can act as sources of disinformation, disseminating inaccurate or misleading content. On the other hand, they also have the potential to be utilized as instruments for promoting media literacy awareness and education. This section explores the intricate relationship between social media and media literacy, elucidating how these platforms can be utilized to advance critical thinking and foster digital citizenship.

Social media platforms have emerged as prominent channels for the swift propagation of information, frequently causing a conflation of reliable sources and misleading content. The rapid dissemination of news reports, photos, and videos through viral means enables them to swiftly reach extensive audiences in a matter of seconds. The aforementioned dynamic has contributed to the increased accessibility of information. However, it has also exacerbated the difficulties associated with disinformation and the concept of "echo chambers," wherein individuals are mostly exposed to information that reinforces their preexisting opinions (Pennycook & Rand, 2019).

The algorithms responsible for content recommendations on social media platforms have a substantial impact on the establishment of users' information consumption patterns. The prioritization of content interaction frequently results in the amplification of sensational or controversial content (Zuboff, 2019). Algorithmic biases have the potential to exacerbate the echo chamber phenomenon and facilitate the spread of inaccurate information. As a result, there is growing concern regarding the role of social media in the dissemination and perpetuation of misinformation.

Nevertheless, it is important to acknowledge that social media platforms also present prospects for the promotion and instruction of media literacy. These platforms offer easily accessible and interactive environments that enable users to actively and thoughtfully interact with information. The proliferation of initiatives, such as fact-checking pages, media literacy organizations, and instructional campaigns, has been observed on many social media platforms. These initiatives strive to provide users with the necessary abilities to assess sources of information, identify bias, and differentiate reliable content from falsehoods.

Furthermore, the interactive characteristic of social media platforms enables individuals to actively participate in dialogues, exchange viewpoints, and collectively question and refute false information. Individuals have the capacity to actively engage in media literacy initiatives by actively sharing information and ideas within their online communities. According to Mihailidis and Viotty (2017), social media platforms possess the capacity to democratize the field of media literacy education by granting users the ability to obtain information and participate in critical dialogue.

The proficient utilization of social media platforms to promote critical thinking and digital citizenship is of paramount importance in effectively navigating the era of digital technology and countering the widespread dissemination of inaccurate information.

Case Studies: Successful Media Literacy Initiatives: Illuminating Effective Strategies

Within the ever-evolving realm of media literacy programs, it is imperative to scrutinize tangible instances of triumph. This section offers a comprehensive examination of case studies from various countries that exemplify the proactive measures undertaken by governments, educational institutions, and non-governmental organizations (NGOs) to augment media literacy.

A noteworthy case study originates from Finland, a nation renowned for its innovative approach to media literacy instruction. According to Rautiainen (2018), the educational institutions in Finland have incorporated media literacy into their academic program, with a particular focus on fostering critical thinking abilities and digital competencies starting at a young age. The Finnish Ministry of Education and Culture has introduced the "Critical Media Literacy for the Future" program, which aims to provide students with the necessary skills to efficiently traverse the digital information world. The proactive approach taken by Finland towards media literacy has yielded students who possess enhanced abilities to critically analyze information and responsibly interact with digital media.

Moreover, the eSmart Schools program in Australia serves as a notable example of a complete media literacy approach. The initiative, created by the Alannah & Madeline Foundation, aims to foster digital citizenship skills and advance online safety (Alannah & Madeline Foundation, n.d.). The program provides a range of tools, training opportunities, and a well-organized framework for educational institutions to establish secure and nurturing online environments. The eSmart Schools curriculum enables students to effectively and responsibly interact with digital media by acknowledging and tackling the associated obstacles and advantages.

The Poynter Institute, through its MediaWise campaign, has showcased the significance of media literacy in combating disinformation within the United States (Poynter Institute, n.d.). MediaWise actively collaborates with youth throughout the country by means of interactive workshops, fact-checking initiatives, and online content dissemination. The project has not only provided young individuals with the necessary abilities to recognize reliable sources, but it has also nurtured a cohort of engaged media consumers who are dedicated to combating the spread of disinformation.

The aforementioned case studies highlight the wide range of techniques and strategies utilized by media literacy efforts on a global scale. The aforementioned examples demonstrate the versatility and efficacy of media literacy activities, ranging from the integration of curriculum in Finland to the implementation of comprehensive programs in Australia and the grassroots engagement efforts in the United States. The aforementioned entities offer significant perspectives on the ways in which governments, educational institutions, and non-governmental organizations

(NGOs) can assume crucial responsibilities in promoting media literacy. This, in turn, facilitates the development of individuals who are well-informed, possess critical thinking skills, and demonstrate responsible behavior in the digital realm.

Challenges and Future Directions: Navigating the Evolving Media Landscape

Engaging with the dynamic and always shifting terrain of media literacy necessitates addressing enduring obstacles and contemplating prospective trajectories for this crucial discipline. The field of media literacy has experienced a notable increase in significance as various societies confront the ramifications stemming from misinformation, digital polarization, and the swift advancements in communication technologies.

One of the primary difficulties involves the task of modifying media literacy education to align with the rapid progress of technology. The digital media environment is characterized by a perpetual state of change, wherein novel platforms, formats, and routes of communication frequently arise. It is imperative for media literacy projects to maintain flexibility, integrating the necessary skills and information required to navigate these evolving circumstances with proficiency. Continual research and development are necessary to maintain the continued relevance and effectiveness of media literacy curriculum.

Another significant obstacle that arises is the requirement for international collaboration. The dissemination of misinformation transcends national boundaries, with digital platforms serving as worldwide conduits for its proliferation. In order to effectively address the issue of disinformation, there is an increasing imperative for collaborative efforts on a worldwide scale, involving governments, technology corporations, schools, and civil society organizations. The dissemination of optimal methodologies, valuable assets, and successful approaches on a worldwide level might augment the efficacy of endeavors aimed at promoting media literacy and cultivate a cohesive stance against the dissemination of false information.

Furthermore, it is important to recognize the significance of regulation in fostering media literacy. Certain nations have enacted legislation that require the inclusion of media literacy education into school curricula, whereas others have developed regulations aimed at holding social media platforms responsible for the dissemination of false or misleading information. Achieving an optimal equilibrium between regulatory measures and the preservation of freedom of expression poses a multifaceted challenge that necessitates continuous discourse and fine-tuning.

Conclusion

In the contemporary era characterized by digital advancements and the proliferation of false information, media literacy emerges as a crucial factor that enables individuals to navigate and succeed in our intricate digital environment. The aforementioned investigation has provided significant revelations:

Media literacy enables individuals to engage in critical analysis of information, discern between sources that are legitimate and those that are unreliable, and identify inherent biases. It serves as the foundation for making well-informed decisions in the digital realm.

Technological advancements, such as the emergence of streaming services and the implementation of social media algorithms, present unparalleled prospects for user interaction.

However, these developments also give rise to apprehensions regarding the potential manipulation of material.

The proliferation of misinformation, encompassing fabricated news and manipulated media content known as deepfakes, presents substantial socioeconomic, political, and public health complexities. Consequently, the cultivation of media literacy emerges as a crucial safeguard against these issues.

The cultivation of critical thinkers capable of combating disinformation is a major objective of education. Digital technologies, online courses, and social media platforms are vital resources.

The significance of media literacy in education is shown by the success of global projects, emphasizing the continued relevance of collaboration.

In light of the ever-evolving difficulties, media literacy continues to serve as a guiding principle for promoting responsible and well-informed digital citizenship. The concept of empowering individuals to navigate the digital age is centered around the development of discernment, integrity, and responsible engagement. The ultimate outcome is a society that is prepared to capitalize on the possibilities and address the obstacles presented by the digital age.

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University of Rome

Via Nuova del Campo 38

54033 Rome, Italy