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## Changes in the semantic profile to evaluate the quality and safety of life

### Зміни семантичного профілю для оцінки якості та безпеки життя

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#### Abstract


The purpose of the article is to highlight the specifics of changing the parameters of the semantic profile in determining the indicators of quality and safety of life. Modern civilizational development is characterized by dynamism and flexibility, which directly affects human and social life and requires new algorithms for determining the level of quality and security in both the existential and institutional, as well as in the value and functional dimensions. The purpose of the research is to determine the relationship between socio-cultural factors that have dynamic characteristics with constant constants of the semantic differential. The research methodology focuses on the use of general scientific (primarily analytical) methods and philosophical and methodological synergistic principles. The results of the study indicate that there are three formats of this interaction: changing profile parameters under the influence of socio-cultural activity; preservation of profile constants regardless of socio-cultural realities; synergistic mutual

#### Анотація


Метою статті є висвітлення специфіки зміни параметрів семантичного профілю при визначенні показників якості та безпеки життя. Сучасний цивілізаційний розвиток характеризується динамічністю та гнучкістю, що безпосередньо впливає на життя людини та суспільства та потребує нових алгоритмів визначення рівня якості та безпеки як в екзистенційно-інституційному, так і в ціннісно-функціональному вимірі. Цілі наукової розвідки полягають у визначенні взаємозв'язку між соціокультурними факторами, які мають динамічні характеристики зі сталими константами семантичного диференціалу. Методологія дослідження зосереджена на використанні загальнонаукових (передовсім, аналітичного спрямування) методів та філософсько-методологічних синергетичних принципів. У результатах дослідження вказується, що є три формати вказаної взаємодії: зміна параметрів профілю під впливом соціокультурної активності; збереження констант профілю


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transformation of indicators of socio-cultural life and the semantic profile of its assessment. The scientific novelty of the work is focused on the introduction of a dynamic dimension to the impact assessment and measurement of the parameters of quality and safety of life using a semantic profile. Thus, the problem of quality and safety of life in both the theoretical and ideological and practice-oriented dimensions receives new mechanisms and tools for assessing and measuring the level of viability in modern civilisational progress. The semantic profile is no longer a stable format for assessing the quality and safety of life, but a dynamic method that is able to operate with variable data, transforming its own parameters.

**Keywords:** Semantic profile, quality of life, safety parameters, differential indicators, socio-cultural impact.

## Introduction

Quality and safety of life are dynamic concepts that depend on sociocultural factors. Therefore, it is important to update the characteristics of these concepts in the semantic profile to improve the accuracy of the assessment of the level of quality and safety of life.

Quality and security of life are unique concepts in the socio-cultural sense. On the one hand, they are fundamental components of the social order that define human existence in the civilization dimension; on the other hand, they are dynamic elements determined by permanent variables that depend on external local and global factors. Based on this dichotomy of sustainability and dynamism, assessing the level of quality and security of life is a rather difficult task for the scientific and sociological space. Today, there are many methods for determining the level of quality of life and human security parameters. One of the key algorithms used in such assessments is the semantic profile, which forms a corresponding scale of positive and negative aspects. At the same time, the semantic profile updates the constants - elements that have a reference dimension and determine the reference point or dimension of the scale (parameter) of improvement or deterioration of the humanitarian cluster.

The purpose of the research is to highlight the need to update the characteristics of quality and safety of life in the semantic profile. The objectives of the article are to form a clear

незалежно від соціокультурних реалій; синергетична взаємна трансформація показників соціокультурного життя та семантичного профілю його оцінки. Наукова новизна роботи сконцентрована на внесенні динамічного виміру до оцінки впливу та вимірювання параметрів якості та безпеки життя за допомогою семантичного профілю. Отже, проблема якості та безпеки життя як в теоретико-світоглядному, так і в практично-орієнтованому вимірі отримує нові механізми та інструменти для оцінки та виміру рівня життєздатності в сучасному цивілізаційному поступі. Семантичний профіль постає вже не сталим форматом для оцінки якості та безпеки життя, а динамічним методом, який спроможний оперувати змінними даними при цьому, трансформуючи власні параметри.

**Ключові слова:** Семантичний профіль, рівень якості життя, параметри безпеки, диференційні показники, соціокультурний вплив.

interaction (synergy) of the socio-cultural factors that determine the level of quality and safety of life with the parameters for assessing this level (differential scale).

The research problem is focused on finding effective tools that will make it possible to change or adjust the scale of the semantic differential since the profile format is quite difficult to transform. Therefore, the parameters that are included in the semantic structure should form a synergistic integrity with the characteristics of quality and safety of life.

## Literature Review

The scientific discourse has responded promptly to the need to transform the semantic profile in matters of quality and safety of life. The studies propose various algorithms for making changes to the differential scales that will meet the challenges of the times and become an appropriate response to natural, technological, and social factors of socio-cultural influence on human life activity.

The dynamic scale of the semantic differential (Akroyd et al., 2021) is currently hypothetical, as it is not possible to make changes to the profile online in an intuitive sense. The assessment of well-being is based on the principles of orderliness, so adding new indicators of components is a complex process. However, the conceptual dimensions of quality and security of

life are now being updated in the context of their structural and semantic analysis:

- the concept of adapting profile elements to external influences (Defila & Di Giulio, 2020);
- the concept of verification of proposed changes and adjustments (Poschmann et al., 2021);
- the concept of semantic compatibility (Adamczyk et al., 2020);
- the concept of semantic profile systematisation (Rhayem et al., 2020);
- the concept of a single semantic paradigm (Umbrico et al., 2020);
- the concept of the semantic trajectory (Arslan et al., 2019).

Changes and adjustments to the scale of the semantic differential should be accompanied and supported by appropriate methodological algorithms and tools for practical implementation: intellectual potential (Bannikova, 2022; Sirichanya & Kraissak, 2021); technological and digital resources (Buriak et al., 2022; Ghazal et al., 2020; Levchenko et al., 2022); format and design (Karana et al., 2020), behavioural and other human activity (Gevorgyan & Baghdasaryan, 2021; Fang et al., 2021).

The scientific discourse assigns a distinct role to methodological works concerning the variability of the semantic profile. A notable example of employing the semantic profile methodology to alter parameters is the use of the Likert scale (Jebb et al., 2021), which involves characterizing psychological factors that influence (or sometimes determine) the level of quality and safety of life.

The findings of the current research can be utilized when there is a need for incorporating and implementing changes to the semantic profile of quality and safety of life. Similar studies have already proven their relevance, serving as scientific justification for the necessity of modifying specific elements of the semantic differential scale, particularly gaining popularity in the field of medicine (Poudel et al., 2021).

### Methodology

The research methodology is based on the use of general scientific analytical methods. Factor analysis provides an understanding of the basic constants of quality and safety of life, which serve as guidelines for further construction of the semantic profile. The method of principal

components, which also forms the key parameters of the semantic profile, is close to factor analysis. Clusters of semantic differentials are provided through comparative analysis and modelling.

In addition to general scientific research methods, philosophical and scientific principles are actively used in scientific research. Synergistic and dialectical approaches allow us to assess the level of influence (scale, intensity, direction) of socio-cultural factors on the quality and safety of life. The dialectical vector is designed to form dichotomous dimensions of the semantic differential scales. The synergistic cluster provides an understanding of the ambiguity of the nature of all processes and phenomena that affect the assessment of the semantic profile.

The methodology could be more specific in describing the methods and techniques used. For example, the author could provide more details about how the methods and techniques were applied in the study.

The methodology could include a more detailed discussion of the limitations of the study. For example, the author could discuss how the study's findings could be influenced by external factors.

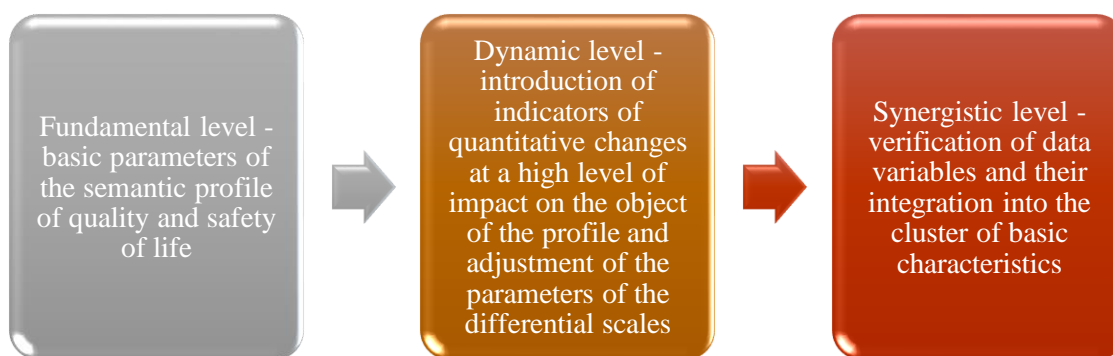
### Results and Discussion

The modern socio-cultural space requires the transformation of existing paradigms for assessing the level of quality and safety of life. One of the methods actively used by the scientific community to determine security parameters is the semantic profile. However, the realities of our time require changes and adjustments to the scale of the differential, which will lead to a transformation of the understanding of the structure of life quality and security.

The expansion of the range of semantic parameters (Jiang et al., 2023) has allowed for the inclusion of more characteristics of quality and safety of life. The semantic profile parameters are often laid down at the planning stage of a certain socio-cultural activity (Yap et al., 2023), forming the main aspects of quality and safety. However, in the course of project implementation or development, there is an urgent need to change the semantic characteristic. It is clear that with the expansion of the material or spiritual component, the object of the semantic profile is replenished with new characteristics, which should be reflected in its

essential or functional quality characteristics. It is noted that it is the qualitative indicators that have a delayed effect, which forms a certain

algorithm for transforming the semantic profile (see Figure 1).



**Figure 1.** Algorithm for transforming semantic profile in the context of socio-cultural influence.  
 Source: authors' own development.

The semantic profile is used to formulate strategies (Jiang et al., 2019) for humanitarian policy and the human security paradigm, which requires an up-to-date picture of the quality of life. The semantic differential focuses on the characteristics of a single object, but in today's global integrated world, it is almost impossible to isolate oneself to achieve accurate indicators. One of the spaces that directly affects the change in the parameters of the semantic differential scale is public space (Vukmirovic et al., 2019), which often initiates the revision of the principles of quality and safety of life. To achieve this relevance of the semantic profile, it is proposed to use an adapted differential scale (Defila & Di Giulio, 2020) that will correspond to socio-cultural changes.

A special role in the semantic profile is played by the reference point or reference value from which positive and negative quality of life or safety characteristics diverge in vectors. Many assessments and calculations are involved in determining this "zero" value. However, this indicator is influenced not only by internal quality and safety factors. The external element, which is the natural, man-made, and socio-cultural space, plays an equally important role in shaping the constants of value and subjective and practical significance.

One of these external factors is social sustainability (Lee & Jung, 2019). It is noted that all indicators included in the differential scale are based on the principles of social well-being, which are relatively stable. At the same time, social resilience allows for dynamism in this structure. The ability of an individual or society to respond differently to danger and the different

ability to counteract threatening manifestations determine the variability of the parameters of the structural differential. When studying the problem of quality of life, it is necessary to take into account the subjectivity of the concept of well-being (González-Díaz et al., 2021), which determines the complexity of building the parameters of the semantic profile. Therefore, changes made to the semantic profile parameters must be verified (Poschmann et al., 2021).

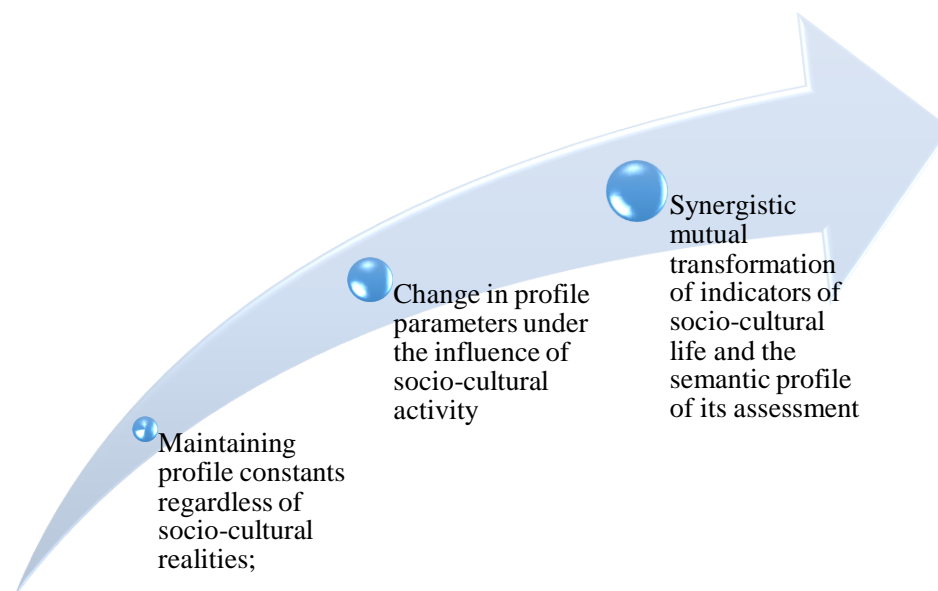
These socio-cultural changes require adjustments to the semantic profile in the context of the problem of quality indicators of human life and public security. The scientific community is faced with the question of the procedure for making changes to the semantic profile. It is obvious that innovative mechanisms are being actualised that allow the designing new algorithms for assessing human living space and including them as constants and parameters in the structural differential. Thus, one of the options for innovative construction of the semantic profile is the use of digitalisation. The "digital twin" (Boje et al., 2020) is an actual reflection of a person, but with coverage of all realised or potential elements of quality of life. It is clear that to process such an array of information, it is necessary to operate with big data and perform complex calculations. The digital world has demonstrated the ability to manage such characteristics, which allows for the dynamism of semantic profile indicators.

All the parameters of quality and safety of life that form the scales of the semantic profile need to be systematised. The standardisation of the semantic profile is a specific process that is streamlined by innovative technologies, in

particular, semantic web technologies (Rhayem et al., 2020). This positioning of characteristics also complicates the process of adjusting profile parameters. The semantic structure has its own format for any conceptual characteristics. The semantic profile of quality and safety of life has the predominant characteristics of biodesign (Karana et al., 2020) and anthropocentrism, as the key object of assessment is a person. The environmental influence (Benabdellah et al., 2021) on the parameters of the semantic profile in the quality of life cluster is increasingly established in the societal and individual dimensions.

Social mobility (Min et al., 2021) is currently the most powerful factor shaping the variability of quality-of-life indicators. The individual and social movement has significantly intensified in a globally integrated environment. Therefore, the parameters of quality of life may be different for one person in different places. And the ability of a person to change their place of residence immediately introduces a variable component to the semantic profile.

The study proposes several formats of the relationship between the semantic profile and the influence of socio-cultural factors (see Figure 2).



**Figure 2.** Formats of interrelation of semantic profile with the influence of socio-cultural factors

Source: authors' own development.

The structuring of the parameters of human life quality and safety is complicated by the inclusion of many factors of new dimensions of the modern ecosystem (Mishra & Chakraborty, 2020), which includes human, natural, and technological potential.

The active use of information technology potential contributes to the expansion of sources of data for the semantic profile. In particular, continuous quantification is becoming more relevant (Huckvale, Venkatesh, & Christensen, 2019). The variety of digital devices that are constantly with a person and are actively used by him or her contributes to obtaining operational data on his or her life. It is worth noting that today the issue of the passive status of these devices is relevant. However, with the development of technological progress, digital elements will become an active participant in human life.

Under such conditions, we can predict changes in the organisation and updating of the structure of individual and social characteristics in the semantic profile.

Under such conditions, the differential scale will finally lose its tie to the established norms, forming an online update mode. It is clear that it is extremely difficult to achieve such a level of assessment of the quality and safety of life, but the guidelines for such a prospect have already been outlined.

Any changes in the formation of the semantic characteristic paradigm should be accompanied by appropriate support tools. It is noted that innovative technological and digital (Ghazal et al., 2020) elements have all the possibilities to provide information, targeted, functional support for changes to the semantic profile.

Using the everyday example of the technological dimension of home security, we can trace changes in the inclusion of indicators in the semantic profile. In the modern technological context, security issues are focused on automating solutions (Zhong et al., 2020). Threats are classified into categories.

This structure is common for the formation of semantic differential scales. At the same time, to build an adequate semantic profile on security, a clear taxonomic correspondence at the level of the threat-parameter of the scale is required. Automation allows for the generation of big data to reconcile these indicators. Innovative elements (Artificial Intelligence, Virtual Reality, Internet of Things (Philip et al., 2021), Big Data, etc.) allow for accurate expression of real and potential danger in the characteristics of the semantic security structure. It is also worth adding that the semantic profile can be filled with indicators from remote access (Rhayem et al., 2021).

Traditional sustainable sources that fill the semantic profile paradigm are concentrated in statistical elements. An example is the International Classification of Diseases, which clearly defines human states: illness-recovery (Harrison et al., 2021). Such indicators can be used as a characteristic of semantic profile scales, which indicate the dichotomy of the state of illness and the state of human health.

For a comprehensive understanding of the algorithm for modifying the semantic profile scale in the cluster of quality and safety of life, it is advisable to consider specific examples of the impact of these changes on research and practice. The COVID-19 pandemic period vividly demonstrated the variations in the semantic profile of the medical-social issue. The global nature of the event contributed to the scaling of the problem, manifested in the diversity of variable parameters introduced into the scale to determine the quality of life under the specific circumstances of the pandemic.

Poudel et al., (2021), for instance, in assessing the quality of life of older adults during the pandemic, incorporated variable characteristics related to pandemic restrictions (social element) and health risks (medical element). The research results were influenced by several crucial factors accompanying scientific exploration - the scale and intensity of the event (COVID-19), which produced changes to the semantic profile of quality of life assessment. As a result, the authors concluded that the impact on the semantic profile

depends not only on the conceptual nature of the factors but also on the dynamics of their integration.

Further research should take into account the scale and intensity of conceptual factors that induce changes in the semantic profile. This, in turn, will ensure the dynamism of semantic scale changes and avoid excessive stability. Such positioning aligns with the requirements of the modern, rapidly evolving global sociocultural space.

The expediency of changes to the parameters of the semantic differential scales is a debatable aspect. The validity of transformations of existing models of semantic differentials and the initiation of new formats should be in demand in the scientific and sociological sense. Wu et al., (2021) point out the need for constant management monitoring of the changes made to the semantic profile.

Making adjustments to the structural elements of the semantic profile should be primarily intellectually supported (Sirichanya & Kraissak, 2021). In this context, it is important that changes are not made without rational justification, but are guided by other approaches (emotional, moral and ethical, etc.).

One of the ways to make changes to the semantic profile is the deep object-oriented semantic change detection framework (ChangeOS) (Zheng et al., 2021). This technique is effectively used in assessing humanitarian threats to the urban environment. The peculiarity of this approach is the inclusion of both global impact factors and local means of countering humanitarian threats in the parameters of the differential scale.

Usually, semantic differentials were compiled separately to determine the level of quality and safety of life at the local (state, regional) level and separately for the global dimension of these parameters. However, modern innovative models of scientific and sociological assessment allow for the integration of indicators of a local group into the global scale and vice versa. Such activity is ensured through the use of information technology tools that allow modelling the situation not in the institutional-linear, but in the functional dimension.

An integral part of the semantic structure of security is human life activity. Hazardous human behaviour (Fang et al., 2021) forms the same security parameters as external threats (natural or

technological). Human behaviour contributes to the formation of the so-called “semantic trajectory” (Arslan et al., 2019), which forms a corresponding profile dedicated to security concepts. Human activity is multidimensional, which makes it difficult to assess it in the context of quality and safety of life. It is difficult to include such dimensions as creativity or moral and volitional qualities in the parameters of a semantic profile. At the same time, without these indicators, the overall structure of a person's life activity will be lost.

The semantic focus on the institutional structure of the concepts of quality and safety of life is gradually losing weight in the scientific and practical discourse, giving way to the principle of the activity of the ecosystem of life activity (Bader et al., 2020). Corresponding changes are expected in the semantic profile methodology. The structure around individual elements (quality, safety, rights) is being replaced by a structure around the holistic life cycle of a person, in which all characteristics of their essence and being are interconnected and form a single space. With such initial data, the completeness of the parameters of the semantic profile, which will be formed by unified universals, changes.

The concept of semantic compatibility (Adamczyk et al., 2020) involves the correlation of the principles of differentiation of semantic profile scales. That is, each new level of the semantic profile scale should have a clear set of distinctive characteristics while maintaining the compatibility of common indicators (negative or positive manifestations). Given the subjectivity of the concept of human well-being, the semantic profile in this regard is mostly strategic in nature (Pomytkina et al., 2020). When the notion of making changes is actualised, it is dominated by the subjective and practical operational nature.

Such a structural transformation will involve other mechanisms for changing the principles and approaches to semantic profile parameters. The profile scales will lose their dominant dichotomous orientation, focusing on the synergistic characteristics of the interaction. In fact, the zero value (or benchmark) will no longer be considered a reference point for positive and negative manifestations of human quality of life. And these parameters themselves will acquire the ability to interchange and intersect, which is impossible in the structural sense of a semantic profile.

In order to avoid contradictions between the ontological dimension of life activity and the practical and everyday segment of quality of life, it is proposed to reconcile these parameters in a single paradigm (Umbrico et al., 2020). Only after these components have been streamlined can they be represented as parameters of the semantic profile. The modern sociocultural space is characterised by dynamic development, which leads to “concept creep”, which causes the semantic expansion of concepts, processes, and phenomena (Haslam et al., 2020). The expansion of life activity deepens the polarisation of semantic indicators of positive and negative manifestations of life well-being. At the same time, expanding human potential promotes understanding between the key principles of quality of life. This, in turn, will be a prerequisite for improving the process of making adjustments to the structure of the semantic profile.

## Conclusions

Thus, the rapid socio-cultural progress creates preconditions for the dynamism of the parameters of life quality and safety. The assessment of life activity is carried out with the help of a semantic profile, the differential scale of which includes various parameters that determine the zero indicator and the positive and negative dimensions that are formed from it. The algorithm for transforming the semantic profile in the context of socio-cultural influence has several levels: fundamental, dynamic, synergistic, which allows us to consider the problem of quality and safety of life in both a stable (mainly institutional) and dynamic (mostly functional) format.

We offer several formats for further use of the semantic profile for assessing life activity: preservation of the existing stable parameters of the differential scale; introduction of dynamic indicators; approval of a synergistic model of the relationship between indicators of living standards in the socio-cultural space and their measurement in the context of the semantic profile. The consequences of changes in the semantic profile determine new characteristics in various spheres of societal activity. Specifically, in the medical field, the scale and intensity of the COVID-19 pandemic have led to alterations in social and medical parameters that define the level of quality and safety of life.

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