

O. Vysochan

Doctor of Economic Sciences, Professor

O. Vysochan

PhD in Economics, Associate professor
Lviv Polytechnic National University

APPERCEPTIVE DEFECTS IN ACCOUNTING INFORMATION SYSTEM

Abstract. The article is concerned with a relevant issue of origin and adverse effects caused by defects of accounting and information system. The aim is the research and categorization of defects related to the perception of accounting information by recipients and the influence of such defects on efficiency of decision-making. Interdependence between the part of information unperceived by the consumer because of defects and coefficient of accounting information perception has been determined in this work. The work is also concerned with the classification of defects that may arise in accounting and information system of economic entities and stem from one of the reasons caused by other information system constituents or their combination: peculiarities (including psychological, medical and biological ones) of the recipient; characteristics of accounting information source; transit properties of transmitting medium; qualitative, quantitative, value and formal properties of accounting information. Factors affecting apperception of accounting information by the consumer have been characterized. Three types of complex apperceptive defects arising as a result of various impact factors combination have been pointed out and specified: type I – due solely to internal factors; transmitting medium, accounting information and its source are not involved in their generation; type II – arise in the course of processing information by the person concerned though their reasons are external; type III – combine characteristics of the first type (source of origin, accounting information, its generator and/or transmitting medium) and the second type (primary cause: internal characteristics of the recipient). It has been concluded that apperceptive defects influence accounting system of economic entity, and they are one of the reasons leading to aberration of accounting and information flows.

Key words: accounting information, recipient, information source, transmitting medium, accounting system, apperception of information.

Problem statement

Accounting information system (that is the total of accounting information, sources of its formation, recipients or users, transmitting medium, links between them, as well as means, methods and procedures used in order to store, redistribute and convert information into resources suitable for the solution of certain problems set by ultimate customers) forms the basis of modern accounting paradigm, and its theoretical and empirical perception remains the subject matter of academic interest of several generations of native scholars and scholars abroad. The chief problem of such research is that accounting information system combines technological and mechanical elements like accounting information with living creatures such as human individuals that take on a role of source and recipient of that information and with their inherent complex “lacework” of psycho-physiological, social and cultural, professional and qualifying individual traits and interpersonal relations. In this case, investigation of certain complex psycho-cognitive constructs, such as perception and processing of information by the ultimate consumer (recipient, addressee), comes to the foreground.

All in all, agreeing with M. Kharlamov that “psychological foundation of successful information processing consists of motivation, information search, understanding of information, memorizing, applying information and its subject matter” [1, p.115], it still should be noted that one of the key elements of information processing is its perception (comprehension) acting as a kind of connecting link between thorough understanding of information and its application.

Perception is a process of reflection of phenomena and things including their properties,

states and components in the consciousness of an individual. The process of information perception is a complex internal work involving all mental processes – attention, imagination, memory, brainwork [2, p. 108]. It is the combination of the last-named ones with the channels of acquisition forms specific chain of accounting information circulation, where the appearance of defects may cause the loss of implicitly the most valuable data for the user.

Topicality of the selected subject is defined by the fact that perception or apperception of accounting information is a basic mental process stability of which directly influences the success of decision making by a recipient.

A person takes the world with the help of certain sensor systems that are modalities (for instance, visual, auditory, kinesthetic, logical) while submodalities are considered to be qualities of perception: they define person's attitude towards the world, so they are sense qualities expressed in small distinctions of sensor systems, characteristics of inner representations composing perceptual experience of a person [3, p. 203]. Absolutely essential though insufficient condition for information perception is that sensory organs receive enough intense, clear, undistorted signals relevant to characteristics of sensory organs and peculiarities of human perception [4, p. 106].

Any surrounding information is perceived by the recipient through sensory organs. Main channels of accounting information perception are visual and auditory with certain priority of the first one because considerable amount of information appears in textual and graphical format. Besides, researchers point out digital channel of perception associated with the ability of a person to abstract and logical thinking. In-depth analysis, inherent to the usage of this channel, is also very useful in the course of processing information data on accounting phenomena and processes. Particular attention should be given to the research into the issues of intuitive channel applicability for accounting information perception, which is known as the one that should be characterized by such qualitative properties as accuracy and unambiguity of interpretation.

Recent research and publications analysis

The following scholars have made a major contribution to dealing with issues associated with information circulation within the system of

accounting: K. V. Bezverkhyyi, T. V. Bochulia, R. F. Brukhanskyi, N. V. Holiachuk, L. V. Hutsalenko, M. V. Dubinina, V. V. Yevdokymov, S. A. Kuznietsova, N. B. Melnyk, I. Y. Plikus, N. L. Pravdiuk, M. S. Pushkar, M. V. Resler, L. V. Rudenko-Sudarieva, Y. S. Tsal-Tsalko, A.Y. Shchyrskya and others. At the same time, interdisciplinarity and complex character of issues associated with theoretical comprehension and practical implementation of this process call for further development of their research.

Purpose and objectives

The purpose of the article is investigation and categorization of defects associated with perception of accounting information by the recipient (called apperceptive defects) and their influence of efficiency of decision making. The objectives based on the purpose are the following:

- 1) establishing interdependence between the part of information unperceived by the consumer because of defects and coefficient of accounting information perception;
- 2) classification of defects that may arise in accounting and information system of economic entities;
- 3) characteristics of factors affecting apperception of accounting information by consumers;
- 4) pointing out and specification of three types of complex apperceptive defects arising as a result of various impact factors combination.

Presentation of basic material of the research and obtained results

Individual peculiarities of world perception and thinking lead to ambiguity of interpretation of certain accounting phenomena and events by various interested parties. It should seem that regulation of the majority of accounting issues in terms of inner state legislation and within international recommendations concerning accounting practice solves the problem. However, its complexity lies in multifaceted plane of human behaviour, sociology and personality psychology. Out of the box thinking, creativity and lateral thinking are among the qualities that nowadays are so valued by highly professional managers, issuing new challenges for accounting system. Form and content of presenting accounting information, in compliance with certain regularities, anyway acquire special features in each specific case.

Individual peculiarities of perception are the following: accuracy, emotionality, quantitative ratio of analysis and synthesis, image and word. Different perception of one and the same objects by different people is due to peculiarities of their previous experience, knowledge, skills, and characteristics of their nervous system type. Some people perceive objects accurately and do not add anything on a personal note in the course of information transmission while others inform on their own attitude towards the perceived information. Integral, synthetic object perception is predominant for some people. Such people reflect the phenomenon in whole, without going into details. Analysis in the process of object perception is predominant for other people. They perceive each phenomenon getting into details [5].

B.R. Mandel [2, p. 110-111] outlines five characteristic features of perception:

- 1) thingness – commitment to the outer world;
- 2) integrity – formation of generalized image of the world around;
- 3) structuredness – capability of arranging material in a certain order;
- 4) constancy – relative stability of the information being perceived, under different conditions;
- 5) sense of purpose – focus on information perception with predictability of definite result and pursuance of it.

According to V.R. Vesnin [6, p. 84-86], the following circumstances define specific features of perception:

- situation in which a person is getting to know certain information and degree of its understanding by the person;
- personal (for a person) and physical (for a person, an object or a process) characteristics of object of which or from which the information is received;
- stereotypes, psychological effects, prejudices.

Here is the graphical model of interdependence between the part of information unperceived because of defects and perception of accounting information by the recipient (Fig 1) with three zones: active imperception (information is not useful); critical reevaluation (information is useful for solving certain problems); trust (information is useful in all circumstances).

An index of accounting information perception is used for technical assessment of the volume of accounting information perceived by the recipient. The index of perception shows the correlation between perceived accounting-informational flow and generated one [7, p. 119].

If there are no apperceptive defects, the value of such index may come close to 1.

Intersection of curves in the graph (Picture 1) indicates an average relationship between the part of information, unperceived because of defects, and the index of information perception ($\approx 0,5$). However, location and value of critical reevaluation zone is much more important for further analysis. Location of critical thinking zone in the graph (left-directed or right-directed shift from the intersection of curves along horizontal axis) depends on accuracy (genuineness) of indices of accounting information quality and its relevance for effective decision-making. If there are a lot of defects, the index of information perception is objectively low. If there is enough evidence for their small amount, the situation is reverse. Confirmation of accuracy or falseness of evidence concerning accounting information defects is a factor that influences the dimensions of critical reevaluation zone. The larger it is, the more doubtful is the accuracy of conclusions concerning accounting information quality. Reduction of its dimensions is possible if there are reasonable grounds to prove of accounting and information flow quality. The situation is particularly critical if the reduction of critical reevaluation zone is accompanied by its left-directed shift along horizontal axis (there is sufficient evidence for a considerable amount of major defects) because it may lead to the complete destruction of communication between producer of accounting information and its consumer as well as reduction of coefficient of such information perception to zero.

Imperception of accounting information by the recipient may be ascribed to the presence of certain defects in accounting system (Fig. 2).

Given the fact that any information system presents a set of interrelated elements that form it, defects in accounting information system usually do not exist autonomously and are characterized by interdependence, integration, dependency, and may be caused by external and internal factors.

In particular, although apperceptive defects arise at the level of recipient, they may be the result of one of the reasons provoked by other elements of information system or their combination:

- 1) peculiarities (including psychological, medical and biological) of the recipient;
- 2) characteristics of accounting information source;
- 3) transit properties of transmitting medium;
- 4) quantitative and qualitative properties of accounting information. The first group of factors is

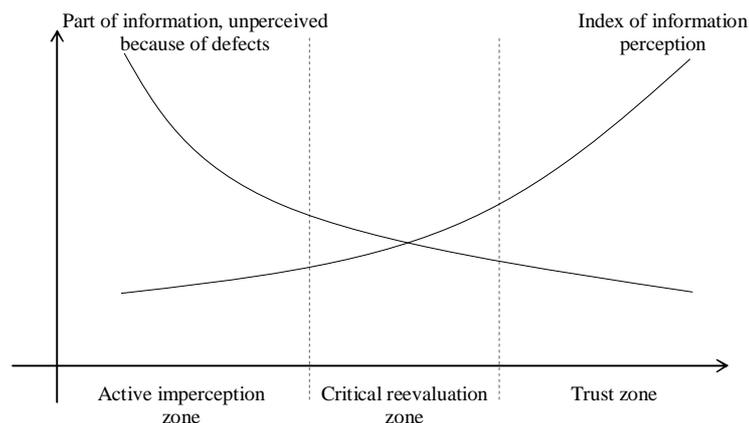


Fig. 1. Theoretical model of dynamic dependence of the index of accounting information perception on the level of apperceptive defectiveness*
* Note: developed by the authors

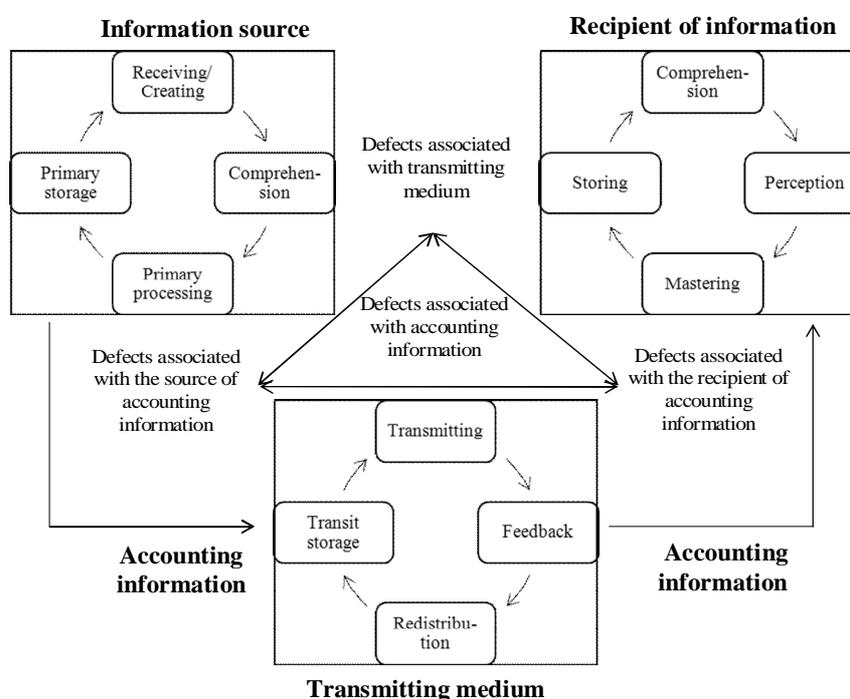


Fig. 2. Defects of accounting information system*
Note: developed by the authors

associated with personal characteristics of accounting information recipient and concerns the processes of its comprehension, perception, mastering and storing; ability to think critically and analytically; Gnostic (cognitive) characteristics; operative memory; professional background, knowledge, skills, qualifications and more. Besides, the point to note is the importance of investigating psychological (personality traits, temperament) as well as medical and biological (poor health, over-fatigue, no contentment with job performance, lack of positive emotions, etc) traits of individuals. Negative effect of the latter raises

barriers of temporary nature on the way towards objective perception of accounting information and its beneficial application. Their elimination is closely related to the creation of maximally comfortable working conditions and promoting proper rest of decision-makers. At the same time, psychological factors are difficult to adjust; they should be taken into consideration when the worker is being employed, functional responsibilities are being distributed, in the process of motivating, appraisal of results of his or her performance, formation of corporate and organizational culture at the enterprise, etc.

The second group of factors is associated with accounting information source. Given the fact that a person is usually the source of information (even when automatic accounting information systems and communication channels are used, people usually have the primary role in the course of comprehension, evaluation, adjustment and taking final decision regarding further transmission of bulk data), a range of its characteristics coincides with recipient's qualities. At the same time, while the ability to produce accounting information according to given quality parameters is important for the first, the ability to perceive and use it in order to make efficient decision is important for the latter. It should be remembered that accountants form structured data files that are maximally applicable for decision makers, with predetermined aim. This means that positive result may be achieved only if there is close cooperation and continuous communication between accounting department employees and end consumers of accounting information.

Causes of defects associated with transmitting medium are mainly in two planes: technical (glitches in channels of communication and information transmission) and social-psychological (conflict situations, problems within socio-professional groups, the phenomenon of collective stereotypy, etc.). Factors of this group may have internal (endogenous) and external (exogenous) nature. Internal factors are the subject of optimization with the aim to prevent or minimize negative effect (shortcomings of paperwork approved at the enterprise may be relatively easily detected and eliminated) while external factors generally may be only detected and taken into consideration (recipients and accounting information generators have limited influence on improving legislative and regulatory background governing a wide range of accounting issues or their specific aspects). Speed increase (reduction of time) of accounting information transmission from the source to the receiver is a prerequisite for reduction of negative effect of transmitting medium defects on accounting information apperception. The longer the process of accounting information flow is, the higher the risks of loss of data topicality and data distortion are.

Separate group of factors is associated with characteristic features of accounting information regarded as report on certain accounting facts or events that may be confined to the following: relevance, accuracy, completeness, faithfulness, topicality, representativity, etc. (qualitative

criteria); volume, transmission speed, noise loss, etc. (quantitative criteria); expenditures for its receiving, processing, traffic and storage (cost criteria); compliance with regulatory, ergonomic and aesthetic requirements (formal criteria). Combination of positive values of these criteria makes it possible to talk about the availability of maximally valuable accounting information resource suitable for solving topical issues in a particular domain of application. However, only their correlation with characteristics of information source, its recipient and transmitting medium lays the foundation for objective conclusions concerning the efficiency of accounting system of economic entity. High quality accounting information flow itself does not guarantee its fullest perception by the recipient.

Therefore, apperceptive defect is a shortage of accounting information perception by the recipient, but it can not be considered in an embodied way, without reference to other elements of information system, such as source, transmitting medium and accounting information itself. In relation to the subject (recipient), defect may be caused merely by internal (inward) factors or may be instigated from outside. Several factors are often combined, creating a complex multifactor that is difficult to determine and in the end has an impact on the efficiency of decision made by the interested party.

We have seen similar dependence while investigating the influence of stereotypy on information perception by the recipient. However, it is important to emphasize that interdependence between the part of information, unperceived owing to defects, and coefficient of perception is not absolutely inversely proportional because accounting information may be ignored by the recipient due to other external factors, which are, for example, connected with the phenomenon of accounting and information flows coherency (for more details, see publication [8, p. 199-200]).

From our point of view, it makes sense to refer to three kinds of apperceptive defects (type I, type II, and type III). Their disposition can be carried out after careful analysis of consequences of accounting information comprehension stage. Comprehension, as a mental process, serves as a peculiar filter with the help of which recipient identifies information suitable for the solution of specific problem out of the data file.

Therefore, apperceptive defects of type I are caused solely by internal factors; transmitting medium, accounting information and its source are not involved in their formation. For example,

accounting information, which is potentially useful to solve the problem, is not used by the recipient due to individual recipient's stereotype towards it (like "accounting information is used mainly for tax accounts"). Apperceptive defects of type II also arise when the information is being mastered by the interested party, though their causes are external. For example, low expertise of accountant causes mistrust of recipient to the information produced by him because of its low quality. Apperceptive defects of type III combine characteristic features of the first ones (source of origin: accounting information, its generator and/or transmitting medium) and the second ones (primary cause: internal characteristics of recipient). For example, excess accounting information leads to over-fatigue of consumer, and, as a result, useful information is lost. Any of three above-mentioned types of defects may do considerable damage. However, defects of type III are the most complicated to cope with due to their complex and integrated nature.

Conclusion and directions for future research

The existence of apperceptive defects is only one of the reasons resulting in aberration of accounting and information flows within accounting system of economic entity (another significant cause is accounting distortion, the origin of which was considered in publication [9]). However, investigation of prerequisites of their origin and elimination methods is integral to improvement of functional efficiency of such system for dealing with management issues.

Major methods of struggling against negative influence of apperceptive defects are the following: development of recipient's own critical thinking; self analysis (including metacognition as a system of person's knowledge about peculiarities of personal cognitive sphere (for example, refer to L. M. Naidonova [10, p.273]); increase in the level of awareness regarding the area of concern, particularly by means of improving the efficiency of communicative relation with accounting department.

Active involvement of accounting information recipient in communication process turns him or her into communicative personality that, according to V. B. Kashkin, possesses "the total of individual strategies and tactics, cognitive, semiotic and motivational preferences, which have been formed in the process of communication as individual communicative competence" [11, p. 46].

Directions for future research concerning the referred issues lie in empiric evidence of theoretical

models presented in the article, regarding the influence of recipient's apperceptive defects on his or her decisions based on accounting information.

References

1. Kharlamov, M. (2014). *Psychological mechanisms for the learning of information by students* Retrieved from <http://repositsc.nuczu.edu.ua/handle/123456789/727> [in Ukrainian]
2. Mandel, B.R. (2016) *Sovremennaiia psikhologiiia massovykh kommunikatsii: istoriia, teoriia, problematika* [Modern psychology of mass communications: history, theory, problems]. Moskow-Berlin: DirectMEDIA. [in Russian]
3. Paliienko, A. (2014). *Specific features of media perception. Vytoky pedahohichnoi maisternosti* [The sources of pedagogical skills], 14, 202–208. [in Ukrainian]
4. Gariaev, A. V. & Gariaeva, T. P. (2008). *Psychological and physiological features of visual perception of information and their accounting when creating educational presentations. Informatcionnye kompiuternye tekhnologii v obrazovanii* [Information Computer Technologies in Education], 4, 106–113. [in Russian]
5. Tretiak, T. M. (2013). *Psychological prerequisites of students' readiness for creative perception of information. Aktualni problemy psykhologii* [Actual problems of psychology], 6 (9), 445–453. [in Ukrainian]
6. Vesnin, V. R. (2006) *Menedzhment* [Management]. Moskow: Izdatelstvo Prospekt. [in Russian]
7. Vysochan, O. S. (2015). *Kontseptualizatsiia rozvytku bukhhalterskoho obliku u sub'iektiv, shcho zdiisniuiut turystychnu dialnist* [Conceptualization of the development of accounting in subjects engaged in tourism activities]. Lviv: Vydavnytstvo Tarasa Soroky. [in Ukrainian]
8. Vysochan, O. S. & Vysochan, O. O. (2016). *Coherence of information as a reason for the breach of the reliability of accounting systems. Yevropeyskyi vybir ekonomichnoho postupu rehionu : materialy Mizhnar. nauk.-prakt. konf. [European choice of economic progress of the region: Proceedings of the International Conference]. (pp. 199–200). May 26–27. Chernivtsi, Ukraine: ChTEI KNTEU. [in Ukrainian]*
9. Vysochan, O. S. (2017). *Accounting distortion: concept, classification, causes and negative effects minimization. Naukovi zapysky Natsionalnoho universytetu "Ostrozka akademiia". Seriiia "Ekonomika"* [Scientific Notes of Ostroh Academy National University, Series "Economics"], 5 (33), 127–132. [in Ukrainian]
10. Naidonova, L. M. (2015). *Psychological features of perception of screen information in adolescence. Aktualni problemy psykhologii* [Actual problems of psychology], 12 (21), 267–275. [in Ukrainian]
11. Kashkin, V. B. (2001). *Universal grammatical concepts. Metodologicheskie problemy kognitivnoi lingvistiki* [Methodological problems of cognitive linguistics], 45–52. [in Russian]