Goals and principles of the use of visual communication in extreme conditions

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Annotation — The article represents theoretical and methodical materials to ensure the creation of an effective system of navigation that contribute to the optimal organization of the people movement in extreme situations. It is based on three stages model, which includes the stage of orientation, the set (readiness) for action and actual executive stage (activity). Each of these stages is characterized by its own regulatory processes. The results of using this model helps to construct the system of people special orientation by correct representation of information displays.

Key words - activity, subject spatial environment, content, functional, and "service" parts of action; movement, path, boundary, node, landmarks.

Psychological support of specialists in extreme professions in emergency situations is often associated with the organization of work, both with people and with the subject spatial environment. Their activity can be divided into two parts - content, functional, transforming part and "service" part. The last consists of actions of a "service" which differ from functional nature, and includes the transport functions in the subject spatial environment for the functional association of points of space, connected meaningfully.

The extent and effectiveness of these activities depend on the overall organization of human behavior. The larger the volume of the first part, the more effective the work of specialists. In this regard, the task is to minimize the "service" transport functions of people. Their clear organization can significantly reduce the pressure of the work of specialists and the behavior of victims off.

The purpose of this work is to provide the reader with theoretical and methodological materials to ensure the creation of an effective system of navigation tools that contribute to the optimal organization of the movement of people in extreme situations.

The complexity of the problem lies in the fact that most of the developments related to the organization of the subject activity of people is considered

1. only its transformative part without taking into account the "service" component, since in normal conditions the organization of cognitive and executive actions is quite balanced;
2. psychological features of the behavior of people solving "service" tasks have not been studied, although in extreme situations, this type of activity can significantly prevail over the functional. This work partially tries to eliminate the existing gaps.

The empirical part of the study was carried out in the conditions of the Moscow and, partially, Baku metro. [4] The main methods used in the work are:

• Professiographic analysis of passengers behavior when moving within it;

• analysis of human procedural activity associated with spatial traffic [2, 6].

The empirical study was based on the analysis of graphic representation of the route stages in the subway on familiar and unfamiliar routes by experienced and naive passengers.

P.J. Galperin has brought apart physical and psychological description of behavior. He showed that psychological mechanisms are based on the presence of "control of the acting body or device based on the image of the field and of the action itself" [1 p. 227]. He showed that the procedural allocation in the integral activity is comprised of two stages – the indicative component and the executive component of the activity. The substantive procedural analysis of the activity is an interesting and promising direction in the study of human activity.

Later, the authorof this article has showed that the procedural human activity is associated with a natural sequential change of three, not two stages - the stage of orientation, set (readiness), associated with the decision to make a start of the actual executive stage (activity) and actual executive stage. Each of these stages is characterized by its regulatory processes, and, as noted by P. J. Galperin, physical reactions for the most part are executive actions, which in themselves do not constitute behavior. [1,5,6]

In connection with the above, our study used a more developed, three-stage model of activity analysis.

The process of orientation, involves the identification and use of important reference points for the activity. It ends with the formation of psychosomatic set (readiness) to implement executive activities and then implemented the actual executive activity. [6]. In the case of activity associated with transport functions (movements), this transition is manifested in a change in the nature of motor activity – a change of direction, change of pace and rhythm of movement, change in the nature of coordination of perceptive-motor activity.

Ergonomic assessment of mental processes associated with the people movement in the Moscow metro included the analysis of experienced and naive passengers graphic representation of the route stages in a familiar and unfamiliar subject spatial environment.

As the elements of the environment used to assess the image of the way, we used differentiation of the subject spatial environment of the passenger proposed by K. Lynch [3]. There are:

path – i.e. communication, which moves the passenger from the functional point A to the functional point B;

boundaries – i.e., linear systems which are linked to the path elements of the subject spatial environment;

nodes – i.e. local strategic points where different paths converge, determining changes in the direction of movement and its nature;

landmarks – i.e. reference points, external to the passenger, the elements of the environment allocated to them to facilitate the choice of path when moving. They ensure the adequacy of the subject's actions to the set goals at all three stages of movement regulation. In addition, we included an analysis of the number and content of words accompanying the drawings of the subjects.

It was found that the initial form of mental activity during the movement is, first of all, visual orientation in the subject spatial environment. It includes selection and use

• system of landmarks, allowing you to go from A to B;

• as reference points are used as features of the relief of the subject environment (up and downgrade, turns, specific forms), determining the features of coordination when moving at each stage of the path, and external to the path elements that stand out of the boundaries and direction of movement, and special indicators placed in the course of movement;

• the number of existing elections routes to different nodes.

• an important point of the analysis was the fact that the quality of the indicative activity and its transforming to the set depends on the time required for information processing without stopping in the course of movement;

The study showed that the group of naive users has the greatest difficulties. Difficulties for experienced users appear with the passage of new routes for them. In many ways they approach to the difficulties of beginners.

CONCLUSIONS

To restructure the "service" perceptual-motor activity is necessary to:

• create special reference points - means of navigation, based on the needs of the naive passengers;

• information display facilities, first of all, should provide information content that is assimilated by the passenger in a moving dense stream;

• in this regard, familiarization and assimilation of the content of displays should be completed before the approach to the place of flow separation in the nodes, i.e. the spatial placement of the display should take into account the time required for its perception and information processing;

• dominant in the creation of the display is its information content, not design aesthetic solution, which is significant, but secondary.

Thus, the creation of the navigation concept of organization in extreme situations should be based on a clear elaboration of the organization algorithm of specialists and victims behavior within the zone of work organization and take into account:

• critical zones of the route, the boundaries of which are associated with the presence of the environment elements, leading to changes in the internal users mechanisms management and control of motor activity;

• the need for reliable natural and artificial visual reference points along the route;

• the nature of the discontinuity of people flow;

• special aspects of visual information means perception;

• time needed for information processing from the navigation displays in the process of moving;

• reliability of means of navigation;

• degree of stability of the created routes;

• clear organization and differentiation of the movement direction for different categories of people in space, etc. peculiarities of visual perception of visual information means;

The result will be a reduction in the «service» time required to solve the functional problems arising at point B by reducing the time of people movement to point A. This will be due to the reduction/elimination of additional time spent on the passage of the route on each of its allocated zones, reducing the election of wrong directions, stops, etc.

REFERENCES

[1] Galperin P. J. General view of the doctrine of the so-called gradual formation of mental actions, ideas and concepts / Podg. to the press Stepanova M. A. Vestnik Mosk. UN-TA. Ser.14. Psychology. 1998. №2. P. 3-8.

[2] Galperin P. J. Psychology of thinking and the doctrine of the gradual formation of mental action. Psychology as an objective science Moscow-Voronezh. 1996. P. 272-317

[3] Lynch, K. Image of the city . Moscow: Stroyizdat. 1982. 328 p.

[4] Noskova, O. G., Chernysheva O. N. Analysis of visual communications of the metro. 6th Russian conference on ecological psychology, Moscow, 25-26 October 2012 p. 184-188

[5] Chernysheva O. N. To the question of the psychological content of behavior. Conference dedicated to the 110th anniversary of the birth of P. Ya. Galperin: Collection of theses "New life of classical theory". Moscow. 2012. C. 465-472

[6] Chernysheva O. N. "Problems and paradoxes of ergonomic design of the subject-spatial environment", Psychology of extreme professions: materials of the all-Russian scientific-practical conference (Arkhangelsk, December 18-19, 2014) Arkhangelsk: KIRA, 2015. –P. 184-188