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## ПСИХОЛИНГВИСТИЧЕСКОЕ ВОСПРИЯТИЕ АУДИОВИЗУАЛЬНЫХ МАТЕРИАЛОВ

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**Аннотация.** Аудиовизуальные материалы появились в середине 50-х гг. XX в., и с тех пор их популярность растет с каждым днем. В России аудиовизуальный перевод (АВП) таких материалов получил активное развитие лишь в 90-х гг. прошлого столетия. Особенной чертой такого вида перевода является его одновременная направленность на аудиальный и визуальный каналы восприятия реципиентов. На сегодняшний день проблемы понимания и восприятия аудиовизуальных материалов, а также вопросы наличия или отсутствия взаимосвязи между психологическими особенностями индивидов-реципиентов и тем, как ими воспринимается перевод таких типов материалов, остаются малоизученными. В статье приведен обзор литературных источников, посвященных данной проблеме. В частности, рассмотрены современные научные работы, направленные на изучение влияния психологических особенностей определенных групп реципиентов на уровень восприятия мультимодальных текстов – фильмов и сериалов, описаны характеристики АВП такого рода материалов с языка оригинала на родной язык аудитории. В статье также представлены результаты ряда психолингвистических экспериментальных исследований, посвященных проблемам понимания и уровням восприятия мультимодальных текстов. В заключении представлены практические рекомендации по проведению различных типов психолингвистических экспериментов.

**Ключевые слова:** психолингвистический эксперимент; восприятие информации; мультимодальный текст; аудиовизуальный перевод; внимание реципиентов.

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## PSYCHOLINGUISTIC RECEPTION OF TRANSLATED AUDIOVISUAL MATERIALS

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**Abstract.** Audiovisual materials have been continuously growing in popularity since the mid-1950s. It was not until the 1990s that the translation of such materials in Russian Federation was actively developed. By its nature, this type of translation (audiovisual translation or AVT) is simultaneously aimed at the auditory and visual channels of perception of the addressee. However, the problems of understanding and perception of audiovisual materials and the question of whether or not there is a correlation between the psychological characteristics of individual recipients and the way they perceive the translation of these types of materials remains understudied, thus becom-

ing the subject of our research. An overview of the literature on how audience perceptual features affect recipients' understanding of audiovisual fragments has been undertaken in this study. In particular, the study focuses on the levels of audiovisual reception of the recipients, as well as the factors that influence the perception of a specific type of multimodal text such as movies and TV series. Consequently, the main consistencies between two factors were identified: what specific perceptual features the audience has and exactly how they perceive and interpret audiovisual materials translated from the original language into the native language of the recipients. The article also presents some data from psycholinguistic experimental studies on comprehension problems and levels of perception of multimodal texts.

**Keywords:** psycholinguistic experiment, audiovisual translation, perception, reception, multimodal text, associative experiment.

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## Introduction

The research in the field of audiovisual translation (AVT) in the world began around the 1970-s, yet in the Russian Federation, it was not until the 90-s that this type of translation became a matter of concern of the most prominent linguists. The very first serious work in this sphere in the Russian academic circles was conducted by Alexey V. Kozulyaev, who is now considered to be “the father” of the AVT in Russia. Despite the relative novelty of this type of research, the study of the processes behind the audiovisual translation has undergone some profound changes. The vast amount of the research on AVT early on was based on the principles of the descriptive approach [1]. Only with the recent studies the need to consider this type of translation from the psycholinguistic approach emerged.

The necessity of invoking such an approach is primarily derived from the very essence of this type of translation. Audiovisual content is a subset of multimodal text, which implies the engagement of several perceptual channels of the recipient simultaneously. Scholars contend in the case of AVT these are the auditory and the visual channels respectively. According to A. Kozulyaev, though, the perception of audiovisual materials involves addressing four perceptual channels: 1) the non-verbal imagery visual; 2) the non-verbal noise-musical auditory; 3) the verbal auditory and 4) the verbal visual channels. The coherence of audiovisual materials and AVT itself as

well as psycholinguistics is based on the pivotal position of the language in this type of multimodal text; it is the complicated process of reception which is elaborated due to the inaccessibility of several of perceptual channels of the addressees for a several reasons starting from the inability to understand the original language of the material and up to the hearing or sight loss of the audience [2].

The current state of this field of research in the Russian academic circles is characterized by a lack of research on the subject of the correlation between psycholinguistics and the specifics of audiovisual translation. It is therefore particularly crucial to address foreign studies in this field.

The choice of research materials is based on the relative novelty of the articles, i.e. all the materials studied have been published in the last five years, except for the basic works in the field, as well as the direct practical orientation of the corresponding materials.

### **Methods**

As stated above various methods and equipment as well as tools are used to conduct the empirical studies. Generally all of the methods used for the research on the reception of audiovisual materials can be divided into two categories: online – which include such psycholinguistic methods as semantic differential technique (or scale), questionnaires on listening and reading comprehension and vocabulary acquisitions, interviews and other forms of reports – and offline – which include physiological studies and eye tracking method mentioned above [3]. The following subsections will be divided to the description of several methods respectively.

#### **The eye tracking method**

Eye tracking usually implies the measurement of either the point of the gaze (e.g. the line of subtitles) or the movement of an eye respectively. The research is by default conducted with the so-called eye trackers, dives which measure the rotation of an eye. There are several types of these trackers: eye-attached, optical and the one which involves the use of electric potential measurement.

The use of this method is one of the most common among the scholars. Eye tracking method is usually applied in subtitling allowing the researchers to test the viewing speed and its impact on the reception of the addressees. The term viewing speed as opposed to the former reading speed was first introduced by the linguist Pablo Romero-Fresco stating the essence of a process being the coherence between viewing and understanding the subtitles [4]. Hence, the above mentioned act is actually a sophisticated cognitive act.

Generally eye tracking studies on subtitles began in the 1970-s with the need to define the proper speed rate of subtitles. The participants of this study by Shroyer were both hearing and hearing impaired students. After it in the late 90-s several more studies in this field were conducted in the USA by Carl Jensema, who also researched the audiovisual reception of deaf, hard of hearing and hearing people on various types of multimodal texts and the appropriate speed of words displayed on the screen [5].

More recent studies, namely Szarkowska A, Gerber-Moro'n O [6], were focused on the issue of the cognitive approach towards subtitling and eye tracking. What was to be found is the correlation between the decrease of the cognitive load of subtitles and an increase of the speed of reception of subtitles.

Addressing one of the recent studies, the research conducted by Elena Di Giovanni is worth noting. The idea behind the research was to evaluate reception of audiovisual content, namely the video on the screen and different sized subtitles. During the experiment 18 participants were gathered, among which were nine males and nine females. The study focused on four factors, these are fixation duration, fixation count, visit count and time to first fixation, the latter indicates the amount of time passed before the fixation of participants' gaze on the chosen area. The participants were tested on the subject of their gazeplot and possible patterns. For this purpose several observations were made with the total results in the number of fixation counts on faces of characters, subtitles in total (in the English-Italian language pair) and the second line of subtitles specifically per group and per person respectively [7].

Another worth to mention research was specified by Callum Walker. The scientist conceived a quasi-experimental method, which is focused on the natural reading process instead of the scientifically observed surroundings. Among the participants there were thirty one volunteers with different levels of education, namely undergraduates, postgraduates and Durham University's staff. There were seventeen native French speakers and fourteen English speakers. The eye tracking during the study was performed with Tobii TX300 eye tracker. The participants were informed to refrain from head and body movements in order to minimize possible variations in the obtained results. Another precautionary measure provided was an attached questionnaire on the matter of the displayed materials. The intention behind such a measure was solely the preclusion of the 'mindless reading' [8].

Another research on this matter conducted with the intention to compare the conditions of the perception of audiovisual materials, i.e. subtitles provided in the language being studied, and to analyze whether literal and non-literal conditions of perception and ability to recall the information. Among the participants were 26 native English speakers learning Italian at an upper-intermediate level [9].

### **Survey-based reception studies**

One of the least investigated but widely used method of analysis of perception or/and reception of audiovisual materials is the use of questionnaires. One of the studies implementing this method is collaborative, conducted by Kruger, J.L., Soto-Sanfiel., M.T., Doherty, S., and Ibrahim, R. The total number of 143 participants took part in the first experiments within the framework of the study. The participants spoke Spanish (58), English (21), Mandarin Chinese (41) and Korean (22) as their first language; they were randomly chosen to either perceive one of the episodes of House M.D. with or without subtitles. The data on the opinion on the film, character identification, transportation ("the experience of cognitive, affective and imagery involvement in a narrative" [10]), presence (the sense of 'being there', having departed or faded from the immediate environment and arrived or self-located in the mediated environment) and perceived realism were obtained by means of questionnaires. The

questionnaire was provided in a 44-item immersion format, namely the on 7-point Likert scale in a form of post-report either from ‘not at all’ to ‘very much’ or from ‘never’ to ‘always’ [2].

Another study was conducted to explore children’s reaction to translation strategies regularly adopted when dubbing animated films into Spanish. The total number of participants was 160 children aged 4 and 7. The research was focused on the matter of comprehension of lexical and visual items, as well as cultural references. The questionnaires were adapted for the level of cognition of both age groups [11].

Another study the main aim of which was to assess viewers’ (54 participants divided into 3 equal in number groups: each group was assigned to perceive the audiovisual materials on 24-inch TV screen, 15-inch laptop or 5-inch smartphone) comprehension of verbal and visual elements subtitled into Italian. The questions received were either closed multiple-choice questions or open ones. The closed questions were provided to be ranked on a 5-point scale from the categories ‘poor’ to ‘excellent’. The concluding questions of the survey were focused on self-evaluation of the comprehension levels of the participants on the matter of the comprehension of audio and visual components of the material provided respectively [7].

### **Electroencephalography**

A method of studying the reaction and perception of various types of material by an audience, in our case audiovisual material, based on the analysis of received signals and waves of brain activity is called an electroencephalography or EEG. This method is considered to be relatively new in its application in the respective area and to this date very little work has been done to validate different EEG measures for use in AVT research [3].

The study aimed at the investigation of the impact of the subtitles on the matter of perception of multimodal texts, namely audiovisual texts, was conducted as a collaborative study. The study describes two different experiments, one conducted and one to be; the focus of the first one was on the psychological immersion of recipients and of the second one is to be on EEG beta coherence, the need of which is based on the results of the first experiment; it is to be conducted to find objective cor-

roboration for the findings. The study of the cognitive response should be conducted in a sound-proof room in order to limit any possible distraction. The bilingual and multilingual participants are to be shown a 30-minutes clip of an adventure movie *Sherlock Holmes – A Game of Shadows* and their reaction on the segments with high dialogue density is to be collected and analyzed with the Emotiv EPOC+ headset that records EEG data. Prior to the study itself the participants should be asked to look at blank screen and relax in order to establish a baseline. Moreover, they are to be given instruction not to take any stimulants for at least two hours before the commencement of the study [2].

## **Results**

### **The eye tracking method**

The 18 participants of the study – 9 males and 9 females – were examined for the frequency of their fixation and the time passed to the first fixation on the faces of the actors and the subtitles. The difference between the average time to first fixation for the participants, which were shown the material on the TV, was 3.2 times higher than on the phone, and 2.1 times higher than on the laptop. Whereas the time to fixation on the faces was contrariwise higher for the phone – 0.86, while being 3 times lower, namely 0.26 for the TV and 0.18 for the laptop. The data obtained highlights the plausible fixation patterns for all three means of display. The author emphasized the assumption of the correlation between time spent wandering outside the phone screen and the longer time needed for the fixation. As to the total fixation counts, the most results in the category of fixation on faces were obtained on TV – 2086 (115.8 per participant) and the least by phone – 1905 (105.5 per participant). On the contrary, total fixation count on the subtitles was higher for the phone, especially for the second line of subtitles, e.g. 1389 counts for phone and 413 for TV. The screen size of smartphones allows the eyes to move faster between the screen itself, although it has negative impact on the comprehension [7].

Another group of scientists, namely Szarkowska A, Gerber-Moro'н O [6], conducted an experiment on the audiovisual material with the Hungarian subtitles for

non-Hungarian speakers. It was concluded that the subtitle speed did not have an effect on comprehension. The main effect on the comprehension level of the participants was associated with the native language of the participants. The native Polish participants achieved higher comprehension score compared to the Spanish and English (e.g. 88.13, 73.00 and 78.40 for the speed of subtitles of 12 characters per second). The examination of self-reported cognitive load and level of frustration led to the conclusion that the native English speakers declared the highest levels on both indicators, whereas Polish and Spanish participants showed no difference in those indicators. Subtitle speed had an effect on all eye tracking measures. There were no interactions. Slower subtitles induced more fixations and higher mean fixation duration than faster subtitles. The absolute reading time was longest in the 12 cps condition, whereas the proportional reading time was highest in the 20 cps condition.

Study of the eye movements concerning the number of fixations and fixation duration was described by Ragni, V [9]. The results are representative for young adults. The experiment was mainly focused on the comparison of the fixation on different translation conditions: literal and non-literal. Total fixation count on these by all participants was 2,765. Items translated literally were fixated 1,307 times in total, non-literally translated ones 1,458. The total number and length of the fixations made by participants did not change significantly depending on translation condition. Of the total count of fixations, correctly recalled items received 2,127 fixations, incorrectly recalled items only 638. The author then stated the correlation between the amount of time spent looking at the subtitle and an accuracy of its recall. The obtained results were mirrored by another research on fixation duration data, hence, suggesting the dependency of an ability to recall certain information on the fixation count and duration of the subtitle relatively.

### **Survey-based reception studies**

Generally the results of implementation of questionnaires to the research of the specifications of perception or/and reception of audiovisual materials have shown the correlation between the dimensions of the technologies displaying the corresponding



material. It was stated that the level of self-evaluation on TV (i.e. larger screen) was ranked higher by the participants as well as shown via the percentage of the correct replies to comprehension questions. The following scores on the scale from 1 to 5 are represented for the TV, laptop and phone display in the category of overall comprehension of images – 2.61, 2.43, and 2.31; and in the category of overall comprehension of dialogues – 3.55, 3.00, and 3.16 respectively. The results clearly show the predominance of the ‘traditional’ means of perception and dissatisfaction with the modern means for the intake of visual information. The same results were provided with the corresponding questions aimed at the problem of comprehension of the materials. The most correct answers were given by the group of participants assigned to perceive the audiovisual materials via TV and the least correct answers assigned to perceive via phones. The authors were mainly focused on the perception of dialogues, hence omitting the research in the field of subtitling [7].

Another survey-based study in form of questionnaire was divided into several parts, concerning the interest in the audiovisual material seen in general, the responses to educational content, colloquial language, cultural references and songs. The most significant data obtained was on the issue of comprehension of colloquial language in the Spanish dubbed version of the animated films. The authors focused on the conveying of the sarcastic meaning of one of the phrases of the main character Jack Frost from the *Rise of the Guardians*. The author was questioning the ability of children to understand this communicative situation but the results have shown that the majority (63 %) of Year 7 students correctly perceived the situation, whereas 58 % of Year 4 students opted for a wrong answer. The expected results were also obtained for the problem of comprehension of cultural references, namely the Sydney’s Opera House. In one of the scenes of the animated movie *Finding Nemo*, the next destination of a character is described verbally – directions to Sydney – and audibly – mimicking the sound of an opera singer – at the same time. The participants had to link the hints to one of the multiple-choice answers. Only 38 % of Year 7 students and 15 % of Year 4

students were able to select the right answer. The author then emphasizes the possible negative influence of the translation decision (e.g. the dubbing of the above-mentioned films in Spanish) on comprehension levels of the participants [11].

### **Electroencephalography**

Among the studies which were examined, no completed EEG studies were noted. The authors (Kruger, J.L., Soto-Sanfiel., M.T., Doherty, S., and Ibrahim, R.) do, however, mention in the article the necessity of using this method due to the demand for determination whether the immersion effect captured through subjective measures (questionnaires) and objective measures (EEG) are well correlated.

As a subsequent step the authors hope to supplement these subjective measurements with an investigation of the beta coherence between the prefrontal and posterior regions, as determined from the EEG data derived from the methodology presented above. These objective measurements will allow determining whether immersion correlates positively with reduced beta coherence.

### **Discussion**

For the most part the studies are revolving around the so-called ‘reception research’ which implies the research of the perception or\and reception of audiovisual materials in their final stage, though for the last decade the focus on the processes of translation and production of such materials, and hence the process of AVT itself, is coming the object of the research in increasing frequency [1]. There are several main points in these studies with the majority of them being conducted with the use of psychometric equipment and methods. Among them are eye tracking studies mainly focused on the reception of subtitles, namely Di Giovanni Elena [7], electroencephalography (EEG), galvanic skin response and heart rate, namely Orero, Pilar, et al, [3] and many others. Only a few of the studies in this sphere involve the use of the questionnaire method, which is the most accessible for the young scientist, graduates and undergraduates.

It is important to note that the conducted studies are both interlingual and intralingual, i.e. consider the translation between several languages or adaptation of the multimodal texts in the same language e.g. subtitles for audiences with hearing impairments.

The above mentioned researches, namely Kruger, J.L. [12], Romero Fresco [4], et. al., contributed to the implementation of the interdisciplinary method towards the study of AVT and perception of the corresponding materials.

The main problem that still remains in this field is the amount of research conducted. A number of researchers emphasize the need to conduct research in control groups of at least 25 participants. Unfortunately, the results of some of the studies (e.g. Di Giovanni [7]) which were being referred to are provided on the basis of a smaller number of participants. This can contribute to the misinterpretation of statistical power and the inability to provide enough variability in the sample group.

This could be possibly solved by the implementation of several methods into one study as to decrease the possibility of obtaining inaccurate data, especially due to the presence of self-evaluation questionnaires, which enable inflated data to be provided. Although this type of data reception is one of the most accessible for the researches and especially students, it may not represent good probative evidence.

### References

1. Cintas J.D., Szarkowska A. Introduction: Experimental research in audiovisual translation – Cognition, reception, production. *The Journal of Specialised Translation*. 2020;33: 3–16.
2. Kruger J.-L., Soto-Sanfiel., M.T., Doherty, S., Ibrahim, R. *Towards a cognitive audiovisual translatology: Subtitles and embodied cognition*. John Benjamins Publishing Company. 2016; 171–194.
3. Orero Pilar, et al. Conducting experimental research in audiovisual translation (AVT): A position paper. *The Journal of Specialised Translation*. 2018;30: 105–126.
4. Romero-Fresco P. *The reception of subtitles for the deaf and hard of hearing in Europe: UK, Spain, Italy, Poland, Denmark, France and Germany*. Bern: Peter Lang; 2015

5. Jensema C. Viewer reaction to different captioned television speeds. Institute for Disabilities Research and Training; 1997. Available from: <https://www.dcmp.org/caai/nadh30.pdf> [accessed: 08.04. 2021].
6. Szarkowska A., Gerber-Moro'n O. Viewers can keep up with fast subtitles: Evidence from eye movements. *PLoS ONE*. 2018; 13(6): e0199331. Available from: <https://doi.org/10.1371/journal.pone.0199331> [accessed: 08.04. 2021].
7. Di Giovanni E. *Reception studies and audiovisual translation: Eye tracking research at the service of training in subtitling*. Iconesoft Edizioni; 2019.
8. Callum W. A cognitive perspective on equivalent effect: using eye tracking to measure equivalence in source text and target text cognitive effects on readers. *Perspectives*. 2019;27(1): 124–143.
9. Ragni V. More than meets the eye: an eye-tracking study of the effects of translation on the processing and memorisation of reversed subtitles. *The Journal of Specialised Translation*. 2020;33: 99–128.
10. Green M., Brock T., Kaufman G. Understanding media enjoyment: the role of transportation into narrative worlds. *Communication theory*. 2004;14(4): 311–327.
11. De Los Reyes Lozano J. Straight from the horse's mouth: children's reception of dubbed animated films in Spain. Jostrans. *The Journal of Specialised Translation*. 2020;33: 233–258.
12. Kruger J.-L. Psycholinguistics and audiovisual translation. *International Journal of Translation Studies*. 2016;28.2: 276–287.
13. García A. Psycholinguistic explorations of lexical translation equivalents: Thirty years of research and their implications for cognitive translatology. *Translation Spaces*. 2015;(4): 9–28.
14. Orrego-Carmona D., Łukasz D., Szarkowska A. Using translation process research to explore the creation of subtitles: an eye-tracking study comparing professional and trainee subtitlers. *The Journal of Specialised Translation*. 2018;(30): 150–180.
15. Panasiuk I. The free associative experiment as a psycholinguistic investigation method of the translation process: A theoretical insight. *Germanica Wratislaviensia*. 2020;(145): 179–198.
16. Pérez-González L. *Audiovisual translation: Theories, methods and issues*. London: Routledge; 356.
17. Szarkowska A., et al. The effects of text editing and subtitle presentation rate on the comprehension and reading patterns of interlingual and intralingual subti-

titles among deaf, hard of hearing and hearing viewers. *Across Languages and Cultures*. 2016;17.2: 183–204.

18. Kruger J.-L. Eye tracking in audiovisual translation research from: *The Routledge Handbook of Audiovisual Translation*. Routledge; 2018. Available from: <https://www.routledgehandbooks.com/doi/10.4324/9781315717166-22> [accessed: 08.04. 2021].

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