Research Article

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The Effects of Sensory Language in Human Trafficking Survival Storytelling: An Empirical Study

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Abstract: Combatting human trafficking calls for new solutions and strategies. The study aims to test whether sensory language promotes the effect of co-presence in media stories. Apart from the methods of corpus and narrative analyses, which showed the prevalence of visual, tactile, and acoustic sensory modalities, and the first-person presentation, an experiment was conducted. Forty Ukrainian humanity students were exposed to narrative text (G1) versus expository text (G2). The Paired Samples *T*-Test showed a significantly higher degree of responsiveness within G1, who were more emotionally involved in the story (V1), felt sympathy for the victim (V2), and imagined themselves being in the same situation (V3). The Independent Samples *T*-Test showed the differences between the reactions of G1 and G2 across six other variables. The results were significant with regards to the feeling of being inside the story (V4), visualising the setting (V6), and the feeling of being touched (V8), and insignificant for the willingness to interview a victim (V5); imagining sounds and voices (V7), experiencing the smell of the places described (V9). The results confirm the value of using media narrative in classroom activities and point to the effect of simulated co-experience evoked by sensory language.

Keywords: embodied simulation; human trafficking awareness; media narratives; empirical; sensory language; education

1 Introduction

The world faces numerous threats, including wars, pandemics, political insecurity, climate change, modern-day slavery and discriminatory practices, migration crises,

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and other upheavals that have become an agenda for governments, NGOs, and universities. Among these concerns is human trafficking (HT). People of all ages and backgrounds can become victims of this crime: the recruitment, transportation, or receipt of people through force, fraud, or deception. Traffickers often use fraudulent, psychologically manipulative, or coercive methods to exploit them for profit (Human-Trafficking. n.d., UNODC 2020, Types of Human Trafficking. n.d., Trafficking in Persons Report 2021). The geopolitical and sociocultural factors shape the country-specific nature of vulnerabilities. Ukraine has been a source country since the 90s rooted in the tradition of believing in the common myth of a better life abroad because of the Soviet "iron curtain" stereotypes. But even with rather stable embedded practices, the country raised the level of social well-being throughout its independence. Thanks to Ukraine's EU integration endeavours, employment and academic mobility granted citizens social advantages. However, with the outbreak of the full-scale Russia-Ukraine war, the HT risks soared. The atrocities and war crimes against civilians and uncertainties situation have forced mass movement abroad and displacement (Annex 1), which predetermines the need for awareness of HT among Ukrainians.

Alongside traditional information campaigns highlighting the traffickers' methods on social media and vulnerabilities, alternative techniques should be developed to influence collective thinking patterns. Behind the scenes of this study are the studies at the intersection of psycholinguistics, cognitive linguistics, neuroscience, social health, media studies, narratology, and pedagogics used to seek effective methods of fostering safe behaviours through interactions with target audiences. Such influence can be exercised by evoking responses through embodied simulation, or sensory perception, which is, according to Stein and Rowland (2011) primary to analytical thinking. Knowledge about the prevalence of embodied perception over analytical thinking can be employed to raise social awareness.

This study is based on the theory of embodied simulation (embodied cognition) (Ospina et al. 2024) or embodied semantics (Aziz-Zadeh and Damasio 2008) that considers how language can stimulate, or, in the case of this paper, constrain, sensory-motor activity and how simulated mental experiences can affect sensory modalities. This approach to raising awareness of HT can help to appeal to sensory perceptions and thus guide the conceptualisation of the mediated reality. While studies on embodied simulation concentrate more on the sensorimotor areas for producing action (Antuñano 2013; Aziz-Zadeh and Damasio 2008; Gallese and Lakoff 2005), the concern of this study is rather about constraining possibly erroneous action as a sensory appeal not to act in response to the lure of traffickers. Therefore, this section provides arguments for applying the embodied simulation theory to HT sensory-rich social awareness, explores media narrative as a resource of simulated sensory input, and explains the educational value of this approach.

In neuropsychology, embodied simulation theory suggests that cognition is closely tied to perception-action processes, deeply embedded in sociocultural contexts. Language is shaped by bodily, physical, social, and cultural experiences (Antuñano 2013; Ospina et al. 2024) gained through our sensorimotor bodily interactions, with language comprehension arising from mental simulations (Galetzka 2017). For instance, imagining visualising an object activates the same brain regions involved as if observing it (Gallese and Lakoff 2005) in actual physical and implicit contexts, thus a subject can construct mental simulations of real-world scenarios (Gibbs and Matlock 2008) and engage in simulated actions "even when these actions may not be physically feasible" (Ospina et al. 2024, 655). Current research on pain representations by Semino (2010) shows that embodied simulation plays a crucial role in shaping fundamental experiences. It can serve as a basis for evoking empathetic responses due to activating specific brain regions linked to the representation of pain when witnessing another individual undergoing it (Ospina et al. 2024). Thus, the established relationship between sensorimotor modalities and language is a prerequisite for raising social awareness against enslavement situations. This research explores the role of sensory language in narrative in perceptions of traumatic experiences of victims of HT. It seeks to collect evidence on whether respondents would be more likely to avoid potentially dangerous situations related to HT if they co-experienced victims' sensations while being exposed to media stories.

A literature review on the sensory properties of narratives compared to expository ones highlights the benefits of engaging the target audience with stories that help exercise social cognitive abilities (Mar 2018) and expand readers' emotional and mental lives beyond the scope of their personal experience" (Cohen 2006). Though literary narratives provide a deeper immersion of the reader into an imaginary and closed world (Tal-Or and Cohen 2010, 403), non-fiction storytelling represents ideologically significant, i.e. socially meaningful, events. In this research, media survival stories are taken as a type of non-fiction narrative as true events coverage for interventions in an educational setting because it is told from a subjective point of view and fosters better engagement, transportability, and response than an expository text, and more referred to real situations than a literary text.

The simulated mental experiences can be created with the help of first-person narration via sensory language representing violence against victims in an HT situation, and their physical and moral distress. Activation of sensory modalities enables readers to be mentally transported into the places through visual imagery, sounds of surroundings, victims' voices, tactile sensations, etc. The point of interest here is how language captures the meanings representing five sensory modalities (Winter 2019): visual, auditory, tactile, gustatory, and olfactory, and whether HT stories have, as termed by McSweeney (1998), their "sensory profile", whether they produce a "co-viewing" (Tal-Or 2016) effect, whether an imaginary process takes

place during exposure, i.e. "being in someone's shoes and seeing the world through their eyes" (Livingstone 1998, 237), temporarily assuming the character's identity (Appel et al. 2015; Gerrig 2018; Green and Brock 2003; Tal-Or and Cohen 2010, 404) based on perceived realism (Green 2004). Scholars agree that mental simulation is the construction of hypothetical scenarios and forms mental models of imagined worlds (Oatley 1995, 53). At the same time, "emotion plays a key role in subsequent cognitive processing, invoking the reader's memory or empathy" (Miall 2011, 323), and "eliciting emotional responses to mass media messages can be an effective means of changing … attitudes, intentions and behaviours" (Dunlop et al. 2008, 52). It is relevant to identify "variables likely to moderate narrative effects" (Hall 2003; Green and Brock 2003) for pro-social purposes with the help of narrative forms of communication, for instance, through empathy as "an affective state that is mediated by an ability of persons to place themselves, … into observed others' emotional experiences" (Zillmann 2006), which opens a niche in the primary prevention of HT. The implications of such an approach lie in the possibility of using the theoretical data retrieved from the above-mentioned fields and empirical data for social impact, particularly, for raising awareness of HT in a targeted initiative by exposing the audiences to sensory-rich media content and inducing the simulated perceptions of the narrated events.

This study aims to measure the readers' emotional responses to sensory-rich HT narratives and evaluate the possible use of such stories in classroom settings to raise students' social awareness. The empirical data were collected in reading and survey activities for learners of English as a foreign language (EFL) while teaching the course on Stylistics of the English language for B.A. graduates from Borys Grinchenko Kyiv Metropolitan University (BGKU). The research question is whether the sensory language used in HT media stories stimulates the co-experiences in readers. The objectives are to establish the links between sensory language and sensory modalities in perceptions of media stories about HT in reading activities achieved through three main stages. Firstly, sensory language and dominant sensory modalities were identified within the corpus of HT media stories. Secondly, a "sensory profile" of victims was traced based on the verbal markers of point of view (PoV) and the image of the victim (IoV). Thirdly, respondents' involvement in the narrated stories was measured to explore whether sensory language can invoke simulated mental experiences.

Two hypotheses were tested. The null hypothesis implied no dependency between sensory language and the degree of emotional involvement in the media content on HT: no signs of simulated co-experience were shown by respondents after being exposed to a media story on HT. The alternative hypothesis implied a dependency between the sensory language used in a media story and the emotional

involvement in the media content, i.e. embodied simulation in the media content on HT, and therefore, significant data pointed out those respondents co-experienced the situations narrated in a media story on HT. The expected outcomes presuppose that respondents could co-experience visual, acoustic, tactile, and other sensations in reading narratives on HT due to which they can imagine themselves in similar situations, potentially identify themselves with victims, feel their painful and traumatic experiences, and later infer this mentally simulated experience as a precaution against actions resulting in getting into situations of HT. The value of this research implies that if the alternative hypothesis is confirmed the sensory-rich narratives can be used as a specific method for instructors to appeal to students' minds through embodied simulations for raising awareness of HT in an academic environment.

2 Methods

The stated aim was met through a corpus analysis, a narrative analysis, and a survey in an experimental reading activity for EFL students. The corpus analysis included processing 35 survival stories retrieved from the *Stories* sections of the online anti-trafficking platforms: *The Exodus Road*, *Deliverfund*, *SafeHorizon*, *Actionaidindia*, and *Polarisproject* with the help of *Sketch Engine*, an online text analysis tool. The unified corpus of language data comprised 28,386 words in total (Annex 2). The manual annotation of the data used narrative, stylistic, and hermeneutic analyses to reveal sensory language manifestations, PoV, and IoV. The verbal markers of the prevailing PoV and sensory language profile of IoV were identified to evaluate the potential immersiveness of first-person media narration about HT and design the experiment. The revealed sensory language referred to visual, tactile, and acoustic modalities. Four narrative fragments (1,165 words) were selected as one pool of narrative content (labeled as G1SensoryPlus) for the experiment, which took 1–3 min to read, highlighted HT forms, and targeted young people. That language material was compared to a news article (Gentleman 2020) (1,087 words) (an expository text labeled as G2SensoryMinus) with no sensory language manifestations, stating facts, statistical data, and attitudinal and moral judgments.

The psycho-pedagogical conditions of the experiment implied surveying in seamless teaching during the 2023–2024 academic year before students. The answers were kept confidential, the responses were anonymised, and participants gave their voluntary consent. Forty humanity students from BGKU, Kyiv, Ukraine. According to the Descriptive Statistics, the social group consisted of female graduates, whose numbers were disproportionate to male graduates: 87.5 % female (35 students) and

12.5 % male (5 students) respondents. The age ranged from 20 to 22, with 21 students aged 21 among them. Therefore, gender and age were considered as vulnerability factors, as respondents lacked life experience and skills to resist potential traffickers. The students preferred reading media about culture, sports, society, and politics. Most of them had heard about HT before but did not consider a similar situation might ever happen to them (Green and Brock 2000).

The respondents, divided into experimental (G1) and control (G2) groups, gave answers before and after reading the media. The questionnaire included nominal (*yes-no*) and ordinal (ranging from *absolutely not* to *fully agree with* responses) scale items: age, gender, reading preferences, and awareness of HT. The answers were processed with SPSS 26 Windows software, which accurately handles the survey data (Peer, Hakemulder, and Zyngier 2012, 148) and provides both descriptive and inference statistics. Within this research, two types of parametric tests are applied. The Paired Samples *T*-Test (Peer, Hakemulder, and Zyngier 2012, 235) is used for *dependent*, *related*, *repeated*, or *paired samples* in a *within-subjects* design. This test revealed the pre-reading and post-reading responses to the same questions in both groups of respondents. The Independent Samples *T*-Test is used for the *between-subjects* design (Peer, Hakemulder, and Zyngier 2012, 231). It was used to reveal the differences between G1 and G2 for the independent variables. Overall, nine variables were tested (Annex 3.1).

The respondents of G1 were reading G1SensoryPlus rich in sensory verbal means, while the respondents of G2 were reading G2SensoryMinus, a news article reporting facts and statistical data. The Paired Samples *T*-Test was applied separately within the two groups to test whether they were *emotionally involved in a situation of HT*, *felt sympathy for victims of HT*, and *imagined themselves in the same situation* before and after they read the texts to establish the dependency between the sensory language and the degree of the reader's emotional response (V1–V3). At the post-reading stage, the students reported their sensations about involvement in the events or self-identification with the victim. Six other variables (V4–V9), tested according to the Independent Samples *T*-Test, were verified for the dependency between the sensory language and the effect of embodied simulation. Students were asked whether they felt *inside the story*, *were willing to interview a victim*, *visualised the setting or a victim's appearance*, *imagined a victim being touched or felt being touched*, and *felt sensations of smell of the places described*. The alternative hypothesis was tested under two conditions: 1) before and after reading G1SensoryPlus versus G2SensoryMinus, and 2) as the difference between responses to G1SensoryPlus and G2SensoryMinus. The results were interpreted in the framework of the potential use of such media stories in primary prevention against HT.

3 Results

The results are grouped as *the corpus and narrative analyses* (Annex 2) highlighting PoV and IoV and *the experiment* (Annex 3). The former implied a detailed review of verbal markers of how IoV is represented: whether it is more self-portrayal and depiction of the physical and psychological states as a first-person account or a journalistic third-person coverage of the HT cases. The latter provides evidence of the respondents' experiences through statistically processed empirical data.

The corpus and narrative analyses. HT survival stories feature a victim as a central character empowered to tell his or her story. The narrative perspective in such media is limited to first-person narration and actuated predominantly as the IoV (Annex 2.1). A victim faces physical and mental situations of being exploited, locked up, and abused, but struggles to find a way out of it. At the same time, the IoV is actuated through sensory descriptions of appearance, physical and mental state, and interactions between traffickers or clients with victims. The victim's profile is augmented by the sensory linguistic portrayal embracing visual characteristics, e.g. appearances, social background, setting, description of places a victim comes from or held in, tactile language representing bodily experiences, mental states, state of health in combination with visual image showing how a victim is physically treated by traffickers or clients, and acoustic language in the silence-voice as opposed to a representation of victim's inner states and physical sensations.

While the 1st person markers prevail, the 3rd person markers are less numerous, however, most instances still refer to IoV, and only some of them point to the images of traffickers, clients, and social workers. The verbal markers of the 2nd-person narration represent a merged PoV (1st- and 3rd-person) (Annex 2.2). Annex 2.3 demonstrates a consolidated set of the IoV-related sensory language, the frequency of such occasions, key and related words, and the number of occurrences in the corpus, while the sensory verbal representations (Annex 2.4) illustrate the varieties of the corpus-extracted linguistic micro-contexts actuating the sensory modalities.

The ***visual imagery*** is created by the representations of a) the setting through local and temporal parameters as social conditions of a victim; and b) the victim's self-perception. The local and temporal parameters manifest in language denoting the continuum from narrowed local focus, e.g. sensations of *being locked up and being inside a closed entity*, *various locations*, *places, streets*, *rooms*, *houses*, *and bars*, to broader localisations such as *names of countries*, *cities*, *states*, *regions*, etc. (Annex 2.3). The sensory language in verbal micro-contexts depicts the surroundings in which victims find themselves when enslaved. The sensation of being locked into an HT situation and the impossibility of breaking free from traffickers is enhanced due to the temporal parameter showing that trafficking is going on all the time (Annex

2.4a). The places are represented as either physical, from certain locations in general to naming specific places with detailed descriptions, or more abstract as the mental state of *being locked up inside*, narrowed to certain rooms, or extended to countries implying the global nature of HT.

The portrayal of victims is actuated through the verbalisation of the appearance of victims when they are being exposed to abuse. Visual sensory language activates the depiction of IoV through the description of the consequences of being exploited, tortured, or beaten. This IoV is generalised as *a young woman*, *girl*, *or child*, *who has visible signs of experiencing violence and being deprived of freedom*. Annex 2.3b shows the frequency of the occasions representing victims' appearances and self-perceptions. The peculiar narrative feature here is that the appearance of the victim is represented through the eyes of the victim herself (Annex 2.4b). At the same time, the visual sensory language representation of IoV refers to 1) naming victims; 2) giving connotative and metaphorical attributes to lifestyles, appearances, and victim's self-perception, e.g. supported with mental verbs, e.g. *view myself*, *watch*, *see myself*, and abstract nouns denoting insights and sudden realisations they are undergoing HT, e.g. *epiphany*; 3) there are frequencies of such verbs as *imagine*, *show*, *watch*, which support the visual representation of the HT situation from the victim's PoV, thus inviting readers to observe the world as depicted by them.

The ***tactile imagery*** is created by sensory language, denoting both a) physical representations and mental states of victims, which sometimes are conveyed figuratively via physical tactile imagery; and b) the way they are treated by traffickers and other people within HT situations. Annex 2.3c shows the frequencies of keywords in representations of tactile imagery in the survival stories, while Annex 2.4c illustrates the sensory linguistic micro-contexts. There is a strong focus on bodily experiences represented as the physical state of a victim who endures and survives all misfortunes; there is no clear division between physical and psychological states, as mental states are often represented either figuratively or from a psychosomatic perspective; most often the physical state of victims is a consequence of violent treatment by other people participating in the HT situation, and there is no strict division between the representation of tactile images as a victim's physical state and the representation of behavioural patterns towards victims.

The ***acoustic imagery*** is shaped by the representation of physical sounds of the victim's experiences such as *screaming*, and *crying*, mental representations of *silence* as an inability to resist HT, *voice*), the suppression of the victim's voice due to fear, internal expressions of emotional states, e.g. *cursing*, and motivation to speak up. These occurrences may be divided as follows: 1) the silence-voice dichotomy, highlighted semantically through sensory words such as *listening*, *ears*, *telling the story* both in literal and figurative contexts; sometimes the concept of silence is represented with conditional sentences *if I spoke*… as an implied negation of the ability to

speak about the problem; 2) the representation of the victim's physical suffering through the semantic depiction of sounds like *crying* and *screaming*, *tone of voice*; and expressions of inner emotional states; 3) the environmental sounds referring to the presence and the volume of surrounding noises, *turn up the TV and turn on the shower*; and 4) attitudes represented by the sensory acoustic language units, e.g. *sound harsh*, etc. In general, such acoustic vocabulary is less prevalent than tactile or visual imagery, which speaks about the hidden nature of HT largely due to under-reporting by victims (Annex 2.5).

The experiment. The data collected were processed with SPSS 26 Windows software by applying The Paired Samples *T*-Test for measurements within the same groups of responses and the Independent Samples *T*-Test for measurements of the differences between the groups to test the hypotheses. The p-value (probability value) is a measure that helps determine the significance of the results. It is considered that if a p-value is less than 0.05 ($p < 0.05$), the results are accepted as significant thus confirming the tested hypothesis, otherwise, a hypothesis tested is refuted.

The Paired Samples *T*-Test used separately for the two groups in three pairs of variables showed that participants experienced emotional involvement in an HT situation, felt sympathy for HT victims, or imagined themselves in a similar scenario before and after reading the texts (Annex 3.2). The table in Annex 3.2.1 demonstrates the data of Paired Samples Statistics for G1 who read G1SensoryPlus. The respondents of G1 showed increased involvement ($p = 0.001$), feelings of sympathy ($p = 0.030$), and their imagining of being in a similar situation ($p = 0.000$) after being exposed to the texts with sensory language. The results of the emotional response to the text for G1 are illustrated in the bar chart in Annex 3.2.1. The respondents of G2 showed only slightly increased involvement ($p = 0.545$), feelings of sympathy ($p = 0.804$), and their imagining of being in a similar situation ($p = 0.249$) after reading G2SensoryMinus. In all three pairs, the p-value is > 0.05, which means that the results are insignificant. The bar chart in Annex 3.2.2. shows less of the reader's emotional involvement within G2 than G1.

After that, all nine variables (Annex 3.1) were tested in terms of the differences between the groups: For this, the Independent Samples *T*-Test was applied. The results proved significant for six variables out of nine (V1, V2, V3, V4, V6, V8). The respondents of G1 who read G1SensoryPlus were more emotionally involved in the situation of HT ($p = 0.004$), felt more sympathy ($p = 0.012$), imagined themselves in the same situation ($p = 0.004$), felt being inside the story narrated ($p = 0.000$), visualised the setting described ($p = 0.000$), and imagined a victim being touched or felt being touched ($p = 0.000$) than the respondents of G2 who read G2SensoryMinus. The mean values in the table demonstrate the Group Statistics for G1 and G2 and are illustrated in the bar chart in Annex 3.3. The bar chart shows that *respondents were*

predominantly emotionally involved in the story/information delivered and felt *sympathy for the victim*, which points to the respondents' potential self-identification with victims. They could *imagine themselves being in the same situation* and experience *the feeling of being inside the story*, which points to the effect of simulated mental experience activated by the sensory language used. The participants also could *visualise the setting described*, and *experience the feeling of being touched*, which points to the co-experience invoked by the sensory language used.

4 Discussion

The results obtained in this study provide evidence of the dependency between the sensory language used in media stories about HT and the effects of co-presence in the situations depicted by victims. The readers' states changed after reading the narrative and expository texts. The measurements showed statistically significant results in the experimental group whose respondents were more responsive: they were sympathetic and inclined to imagine themselves in the same situation, unlike the control group which gave a weaker response to the experimental conditions. The measurements of the independent samples revealed the statistically significant relation between the use of visual and tactile sensory language data in the narratives and the embodied mental simulations experienced by the participants of the experiments.

This research serves as one of the case studies of embodied simulation (Paliichuk 2022, 2023) as a mechanism for understanding concrete and metaphorical language as highlighted in the review by Ospina et al. (2024). In one such study (Galetzka 2017); it was argued that concrete, action-related words rely on sensorimotor activation, with some doubt as to the abstract concepts, which poses certain challenges for embodied theories on cognition. However, psycholinguistic studies highlight that individuals mentally simulate actions, even when such actions are not physically possible (Gibbs and Matlock 2008), as in the study by Semino (2010) which deals with the employment of metaphors in representations of pain. Within this study, IoV was recreated through readers' co-experiencing the physical and mental signs of trauma. This was evidenced by statistically significant results as to the visualising of the setting of HT and the feeling of being touched reported by the respondents. Sensory expressions of victims' sensations should be studied more as visual and tactile imagery, including metaphorical representations of the pain victims of HT undergo. This insight paves the way for new research.

The evidence received in this study proves the links between sensory language revealed in the narrative analysis of the media data set and the activation of embodied simulation experiences during reading the media story by G1 who gave a

more emotional response than G2. The alternative hypothesis was confirmed with statistically significant results in six out of nine variables tested by Paired Samples *T*-Test and Independent Samples *T*-Test. In the measurements before and after reading, respondents of G1 reported being more emotionally involved in the story (V1), suggesting they felt a victim's emotions in the process of reading the media stories through co-experiencing the physical and mental states of victims. The effect of sensory language was also proved with the statistically significant tendency for G1 to feel sympathy for the victim (V2), meanwhile, the results within G2 who read an informative expository text containing facts and data about HT, in general, were insignificant. The immersiveness of such media stories is evidenced by significant results concerning V3, for which most respondents of G1 admitted that they imagined themselves being in the same situation. The differences between the reactions of G1 and G2 across six other variables established by using the Independent Samples *T*-Test highlighted the dependency of the sensory language and sensorimotor reactions. The visual descriptions of the places where victims are transported to and kept stimulated respondents' simulated experiences as the feeling of being inside the story (V4). They could mentally experience being locked physically and metaphorically as trapped in the situation of HT by visualising the setting (V6). The tactile sensory verbal means invoked the feeling of being touched (V8), thus identifying themselves with victims more closely.

This study conforms to the tradition of using statistical methods in experimental pedagogical activities on embodied cognition and simulation (Chesnokova 2022; Peer, Hakemulder, and Zyngier 2012; van Peer and Chesnokova 2024). The reading poetry experiences were explored by van Peer and Chesnokova (2024) by measuring the visual and auditory senses in a set of experiential parameters, among which the cognitive, emotional, and social ones were seen as most influential in learning and aesthetic enjoyment. This study replicates the approaches to empirical research to some extent by providing rigid research and arriving at socially meaningful conclusions.

This study also contributes to the advances of the narratological paradigm in social sciences shaped by the works on suspense, transportation and transportability, and involvement (Appel et al. 2015; Mazzocco et al. 2010; Paliichuk 2018; van Peer and Chesnokova 2024). Its interest in the social impact of the media narratives can be interpreted in terms of immersive journalism, which is "the production of news in a form in which people can gain first-person experiences of the events or situations described in news stories, affords the participant unprecedented access to the sights and sounds, and possibly feelings and emotions, that accompany the news" (de la Peòa et al. 2010). The immersive media storytelling approach can be used to create sensory experiences of HT through the lens of victims. Meanwhile, in pursuing the aim to constrain potentially risky actions by victims in the HT prevention program, due regard should be given to the image of traffickers as potentially

dangerous people, which fits into a network of state-of-the-art studies in the field of media representations of violence and changes in attitudes. For example, Shurma (2024) explores how alleged perpetrators are visually and linguistically portrayed through personalisation in news reporting by highlighting how visual elements depict various groups of perpetrators differing in perceived levels of "dangerousness" within news reports. In another study, the author focuses on the social actors and the language of headlines, photo cuts related to them, and narratives in reporting the MH17 downing (Shurma 2020). In a conceptual paper by Dunlop et al. (2008) in the field of narratology for health communication, the authors note self-referent emotional response that is expected to have a direct effect in motivating behaviour change, particularly as it is likely to be associated with an increase in perceived personal risk, which correlates with the idea of reader's self-identification with victims of HT in embodied simulation experiences ensured with the help of sensory-rich media storytelling.

Some limitations imply why a media text has been used to test the sensorial effects instead of a literary one. One might argue that an artistic text can create more vivid imagery and evoke greater responses to verbal stimuli. Unlike stories in literature, a media narrative evolves around real-life events, has typical plots, and ensures a faster perception of the information reported. Media storytelling can provide a higher degree of urgency in prevention and raising awareness of HT thanks to automated language processing, unlike fiction, in which effects of prolonged perceptions are produced due to an artistic detail or a set of literary devices. Another limitation may concern whether the participants could understand English well enough to experience the sensory effects of the texts compared to the native language exposure. This concern is refuted by the fact that English humanities students have been in linguistic environments throughout the entire period of their studies. Evidence indicates that individuals processing a narrative in their second language feel just as transported into the story as those processing the same narrative in their native language (Chung-Fat-Yim et al. 2019). Another concurrent circumstance that should be considered is that students' responses to sensory stimuli might be affected by experiencing the Russia-Ukraine war that has lasted since 24 February 2024, for instance, the potential HT situation might seem somewhat distant to them while their daily being exposed to direct physical sensory conditions and media-evoked mental simulations of the war experiences.

5 Conclusions

The evidence provided in the study makes it possible to accept the alternative hypothesis about the deliberate use of sensory language in raising awareness of human

trafficking. Adopting such an approach in primary prevention educational activities can let students live through a victim's physical and psychological experience. The implications of the guided reading during the experiment refer to the expectations that respondents would further conceptualise the perceived sensory experience as a constraint or regulator against the potentially risky behaviour, thus, they would be more inclined to avoid replying to the trafficker's offers or promises. Such inferences can stem from the results of embodied simulation as a post-sensorial perceptual outcome of processing the information they are exposed to, which can be verified in further studies of the interrelation of sensory language data and changes in respondents' attitudes, intentions, and beliefs.

The outcomes of the study answer the research question put in the alternative hypothesis and at the same time open an array of perspectives in bridging the content of the curriculum in humanities. In practical terms, by intentionally employing sensory language in storytelling, educators can facilitate embodied simulation, where students mentally engage with real-world scenarios such as HT. As far as the alternative hypothesis proved, sensory-rich narratives should be used in the educational process to increase the level of student awareness of human trafficking and other socially relevant topics, e.g. tolerance, or other issues, which require fostering empathy, self-reflection, critical thinking, and training students to recognise the signs of dangerous situations. This can show instructors how language studies can go beyond mere aesthetic literary appreciation and be directly related to social issues and used to address a problem and equip them with the linguistic tools to make a social change.

The added value of this research lies in its empirical validation of sensory language as a tool to evoke embodied simulation and foster awareness of HT in educational environments. Prior studies on embodied simulation focus predominantly on cognitive and neural mechanisms for understanding language, often exploring metaphorical or abstract domains. This study proved the potential of sensory language within media narratives to address HT and highlighted how first-person, sensory-rich storytelling affected readers' emotional and cognitive engagement. The narrative transportation theory, explored in other studies for measuring empathy and persuasion, correlates with the theory of embodied simulation applied. It means that a sensory-rich text can regulate or predetermine shifts in students' thinking patterns concerning moving abroad for employment or education and possible HT risks. For instance, an implied response, in this case, can be as follows: "*I don't want to become a victim of HT. If such many people are trapped it means I am not immune to it. So, I must be cautious. I should not act as victims did for not to get into a similar situation*". Moreover, traditional humanities curricula in Ukrainian universities mostly rely on literary or expository texts to discuss social issues with limited

emphasis on sensory or immersive storytelling techniques. This study introduces a methodological network for integrating sensory-rich media narratives into humanities education.

The multidisciplinary approach used in this study brings theoretical contributions through synthesising insights from cognitive linguistics, psycholinguistics, neuroscience, narratology, media studies, and pedagogical stylistics. The results confirm that embodied simulation can be intentionally harnessed in educational contexts, such as HT awareness. It introduces a framework where sensory language activates embodied experiences, linking the knowledge of sensory-motor activation to real-world behavioural implications. It has been revealed that sensory-rich stories deepen the embodied experience, making the simulated scenarios impactful. The results prove that sensory language mediates identification and co-presence with victims in HT stories suggesting a shift in shaping pro-social attitudes. The evidence of the interplay of sensory modalities in creating co-experiences enriches understanding of how language can simulate multi-sensory realities. While stylistics traditionally exploits aesthetic and interpretive aspects of literary texts, this study links sensory language to measurable educational outcomes laying a theoretical foundation for using stylistics in addressing social problems, bridging literary analysis with applied pedagogy.

Further study will refine the developments made within the initiative *Changing Young Minds*: *Student Awareness of HT under War Conditions* implemented with the support of the French Research Center in Humanities and Social Sciences (CEFRES) in Prague, the Czech Republic. In exploring post-sensorial perceptual outcomes, future studies can investigate how embodied simulation influences changes in respondents' attitudes, intentions, and beliefs. Such research could involve longitudinal studies to track whether exposure to sensory-rich narratives leads to more cautious attitudes. Another area of interest is the role of sensory metaphorical expressions representing victims' sensations, in fostering readers' empathy. This can be enhanced by measuring the degree of empathy evoked by pain representations in the media. Another line of research is the comparative analysis of fiction versus non-fiction narratives in how these two forms of storytelling evoke emotional and cognitive responses and the motivation to act against HT.

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References

Appel, Markus, Timo Gnambs, Tobias Richter, and Melanie C. Green. 2015. "The Transportation Scale–Short Form (TS–SF)." *Media Psychology* 18 (2): 243–66.

Antuñano, Iraide I. 2013. "La lingüística cognitiva y su lugar en la historia de la lingüística." *Revista Española De Lingüística Aplicada/Spanish Journal of Applied Linguistics* 26: 245–266, https://dialnet.unirioja.es/descarga/articulo/4597643.pdf.

Aziz-Zadeh, Lisa, and Antonio Damasio. 2008. "Embodied Semantics for Actions: Findings from Functional Brain Imaging." *Journal of Physiology Paris* 102 (1–3): 35–9.

Paliichuk, Elina. 2018. "Storytelling in English-language Anti-Trafficking Campaign: A Cognitive Perspective." *Studia Filologica* 2 (11): 100–6.

Paliichuk, Elina. 2022. "Cognitive 'Warning Signs' in Human Trafficking Media Texts." *CrossRoads* 38 (3): 41–65.

Paliichuk, Elina. 2023. "A Spiderweb of Human Trafficking: An Empirical Linguistic Study." *CrossRoads* 43 (4): 124–55.

Chesnokova, Anna. 2022. "Style and Reader Response. Minds, Media, Method." *Style* 56 (1–2): 154–9.

Chung-Fat-Yim, Ashley, Cilento Elena, Ewelina Piotrowska, and Raymond A. Mar. 2019. "Are Stories Just as Transporting when Not in Your Native Tongue?" *Language and Cognition* 11 (2): 285–309.

Cohen, Jonathan. 2006. "Audience Identification with Media Characters." In *Psychology Of Entertainment*, edited by Jennings Bryant, and Peter Vorderer, 183–97. New York: Routledge.

De La Peòa, Nonny, Peggy Weil, Llobera Joan, Bernhard Spanlang, David D. Friedman, María V. Sánchez-Vives, and Mel Slater. 2010. "Immersive Journalism: Immersive Virtual Reality for the First-Person Experience of News." *Presence* 19 (4): 291–301.

Dunlop, Sally, Wakefield Melanie, and Kashima Yoshihisa. 2008. "Can You Feel it? Negative Emotion, Risk, and Narrative in Health Communication." *Media Psychology* 11 (1): 52–75.

Gallese, V., and G. Lakoff. 2005. "The Brain's Concepts: The Role of the Sensory-Motor System in Conceptual Knowledge." *Cognitive Neuropsychology* 22 (3–4): 455–79.

Galetzka, C. 2017. "The Story So Far: How Embodied Cognition Advances Our Understanding of Meaning-Making." *Frontiers in Psychology* 8. https://doi.org/10.3389/fpsyg.2017.01315.

Gentleman, Amelia. 2020. "Number of Slavery Victims in London Up Tenfold in Five Years." *The Guardian*, https://www.theguardian.com/uk-news/2020/jan/30/number-of-slavery-victims-in-london-up-tenfold-in-five-years [accessed August 23, 2022].

Gerrig, Richard J. 2018. *Experiencing Narrative Worlds*. New York: Routledge eBooks.

Gibbs, Raymond W., and Teenie Matlock. 2008. *Metaphor, Imagination, and Simulation*, 161–76. Cambridge: Cambridge University Press eBooks.

Green, Melanie C. 2004. "Transportation into Narrative Worlds: The Role of Prior Knowledge and Perceived Realism." *Discourse Processes:/Discourse Processes* 38 (2): 247–66.

Green, Melanie C., and Timothy C. Brock. 2003. "In the Mind's Eye Transportation-Imagery Model of Narrative Persuasion." In *Narrative Impact*, 337–64. New York: Psychology Press.

Green, Melanie C., and Timothy C. Brock. 2000. "The Role of Transportation in the Persuasiveness of Public Narratives." *Journal of Personality and Social Psychology* 79 (5): 701–21.

Hall, Alice. 2003. "Reading Realism: Audiences' Evaluations of the Reality of Media Texts." *Journal of Communication* 53 (4): 624–41.

Livingstone, Sonia. 1998. "Relationships between Media and Audiences: Prospects for Audience Reception Studies." In *Liebes*, edited by Tamar, and Curran, James. Media, Ritual, and Identity. 237–55. London: Routledge.

Mar, Raymond. A. 2018. “Stories and the Promotion of Social Cognition.” *Current Directions in Psychological Science* 27 (4): 257–62.

Mazzocco, Philip J., Melanie C. Green, Jo A. Sasota, and Norman W. Jones. 2010. “This Story Is Not for Everyone: Transportability and Narrative Persuasion.” *Social Psychological and Personality Science* 1 (4): 361–8.

McSweeney, Kerry. 1998. *The Languages of the Senses: Sensory-Perceptual Dynamics in Wordsworth, Coleridge, Thoreau, Whitman, And Dickinson*. Liverpool: Liverpool University Press.

Miall, David. 2011. “Emotions and the Structuring of Narrative Responses.” *Poetics Today* 32 (2): 323–48.

Oatley, Keith. 1995. “A Taxonomy of the Emotions of Literary Response and a Theory of Identification in Fictional Narrative.” *Poetics* 23 (1-2): 53–74.

Ospina, Diana L. G., Alexandra S. Restrepo, and Mercedes S. De La Torre. 2024. “Embodied Simulation as a Mechanism for Understanding Concrete and Metaphorical Language.” *Revista de Estudos da Linguagem* 32 (2): 641–66.

Peer, Willie, Frank Hakemulder, and Sonia Zyngier. 2012. *Scientific Methods for the Humanities*. Amsterdam, Netherlands: John Benjamins Publishing Company.

Semino, Elena. 2010. “Descriptions of Pain, Metaphor, and Embodied Simulation.” *Metaphor and Symbol* 25 (4): 205–26.

Shurma, Svitlana. 2020. “Manipulative Discursive Constructions in British and Ukrainian Reporting of the MH17 Downing.” *Journal of Contemporary Central and Eastern Europe* 28 (2–3): 225–47.

Shurma, Svitlana. 2024. “Perpetrators in Multimodal Media Discourse: A Case Study of Personalization in Images from the Telegraph.” *Humanities & Social Sciences Communications* 11 (1). https://doi.org/10.1057/s41599-024-03040-2.

Stein, Barry E., and Benjamin A. Rowland. 2011. “Organisation and Plasticity in Multisensory Integration. Enhancing Performance for Action and Perception - Multisensory Integration, Neuroplasticity and Neuroprosthetics.” *Progress in Brain Research* 191: 145–63.

Tal-Or, Nurit, and Jonathan Cohen. 2010. “Understanding Audience Involvement: Conceptualizing and Manipulating Identification and Transportation.” *Poetics* 38 (4): 402–18.

Tal-Or, Nurit. 2016. “How Co-Viewing Affects Attitudes: The Mediating Roles of Transportation and Identification.” *Media Psychology* 19 (3): 381–405.

van Peer, Willie., and Anna Chesnokova. 2024. “The Sound Must Seem an Echo to the Sense: Experiencing Oral and Silent Reading of Poetry.” In *Style and Sense(s)*, edited by Linda Pillière, and Sandrine Sorlin. Cham: Palgrave Macmillan.

Winter, Bodo. 2019. *Sensory Linguistics: Language, Perception and Metaphor*. Amsterdam: John Benjamins.

Zillmann, Dolf. 2006. “Empathy: Affective Reactivity to Others’ Emotional Experiences.” In *Psychology of Entertainment*, edited by Bryant Jennings, and Vorderer Peter. New York: Routledge.

Human-Trafficking. n.d. United Nations: Office on Drugs and Crime. https://www.unodc.org/unodc/en/human-trafficking/human-trafficking.html (accessed June 17, 2022).

UNODC. 2020. Global Report on Trafficking in Persons. https://www.unodc.org/documents/data-and-analysis/tip/2021/GLOTiP_2020_15jan_web.pdf (accessed June 17, 2022).

Types of human trafficking. n.d. Interpol.Int. https://www.interpol.int/Crimes/Human-trafficking/Types-of-human-trafficking (accessed June 17, 2022).

Trafficking in Persons Report 2021 – World. 2021. ReliefWeb https://reliefweb.int/report/world/trafficking-persons-report-2021 (accessed June 17, 2022).

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