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A spiderweb of human trafficking: An empirical linguistic study

Abstract. The state of the art in human trafficking (HT) prevention requires the elaboration of subtle verbal techniques that can enhance informative awareness campaigns. The paper explores the representations of metaphors in the media about HT through the SPIDERWEB construal and its impact on the youth in Ukraine. Compared to previous decades (Palichuk 2011), the SPIDERWEB metaphor can be observed more frequently in recent publications, encouraging the study of whether it contributes to a stronger reader response. The methods embrace conceptual analysis and an experiment, in which 60 undergraduates (grouped into G1, G2, and G3) took part. Four media fragments were used in three modes: authentic (A), weakened (W), and enhanced (E). In total, twelve variables were tested. The Paired Samples T Test revealed the changes in student post-reading perceptions, with the highest response to E texts (identifying oneself with trafficked persons; imagining oneself being in the same situation; imagining sounds/voices; being emotionally affected). Used for the differences between A–W; A–E; and W–E, the Independent Samples T Test revealed higher degrees for imagining oneself being enslaved in the HT situation; being secluded or isolated; emotionally affected; and being more careful about personal safety, which points to the feasibility of designing anti-trafficking educational content based on the SPIDERWEB metaphor.

Keywords: metaphor, human trafficking, spiderweb, experiment, image schema, social impact, media discourse.

1. Introduction
The social impact of metaphors is multi-dimensional. Metaphor studies are marked by a shift from seeing the metaphor as a means of understanding the world we perceive to using it to influence social behaviours. A particular focus is placed on reconsidering
the role of metaphors in a social world (Julich-Warpakowski & Jensen 2023) and refining
the use of metaphors to address social needs. Thriving on transdisciplinary diversity,
metaphor studies are increasingly linked to socially relevant research areas, embracing
social sciences (Leezenberg 2009; Ghazinoory & Aghaei 2023), healthcare (Jayan & Alathur
2021; Deng et al. 2022), public health (Dada et al. 2021; Olza et al. 2021), and social care
(Siddiqi & Khan 2022; Jen et al. 2022). Metaphors are considered a tool to unveil implicit
knowledge and experiences (Petrucijová & Glumbíková 2021) for reconsidering social
work and educational practices.

As an applied area of research, metaphors are a source for moderating social behaviours
and public opinion, establishing meaningful links with the law (Hanne & Weisberg 2018)
and economics (Zhu 2023), psychology (Landau et al. 2011; De Saint Preux & Blanco 2021),
ecology (Rapport 1995; Currie & Clarke 2022; Pottinger et al. 2022), cross-border security
and migration (De Backer & Enghels 2022), military affairs (Al-Muttairi 2022), media
communications (Flusberg et al. 2018; Hullman & Kwiatkowski 2021), and education
(Farhadi & Winton 2021; Spours et al. 2022), etc. Metaphors are also viewed as a key to
problems when traditional methods do not meet the needs, for instance, in the social
care field, or any other domain where enhanced impact on public opinion is required
to tackle socially relevant issues.

This research deals with metaphorical representations of human trafficking (HT) in
media texts. It focuses on the exploration of the potential of the SPIDERWEB metaphor,
which can be deliberately used for HT awareness by exposing target audiences to media
texts saturated with explicit or implicit verbal manifestations of the SPIDERWEB metaphor,
representing human trafficking as a “biological web weaved by a spider where potential
prey can get in”. Such metaphors can provide media audiences with analogies describing
cases of getting into slavery conditions in the search for a better life, and can lead to repro-
ducing the SPIDERWEB construal in collective perceptions of HT described in the media.

To reveal whether the SPIDERWEB metaphor can be used as a means of warning vul-
nerable social groups, in particular, graduates, about the dangers of getting into an HT
situation, the experimental study was conducted in the specifically Ukrainian context
under the conditions of the increased HT risks arising amid the Russian large-scale war
launched in Ukraine on 24 February 2022 eight years after the annexation of Crimea and
eastern regions. Therefore, the research objective was to verify the potential of cognitive
metaphor theory in learning activities that involve reading. This was done by measuring
differences in student impressions of media content under the condition of the reduced
and extended use of the language means representing HT through the SPIDERWEB
metaphor. The results shed light on whether the SPIDERWEB metaphor could be used
effectively in learning materials about HT risks.

The given study relies on previous findings reconsidered under the conditions of
the current social context in Ukraine. Therefore, it further provides an overview of
the characteristics of HT in light of the specific socio-economic and security context in Ukraine, an explanation of the results and observations made in earlier studies of the representation of HT in the media, the description of the methods and techniques used to meet the objective of this study, as well as the interpretation of the results of the experiment, a discussion of the limitations, and the summary of the major findings of this study.

2. Background to the study
This section explains the relevance of the research under three main conditions. Firstly, the social context in Ukraine is described, concerning the increased vulnerability of youth to HT in Ukraine considering the factors aggravating the situation in Ukraine because of the war and in general. Secondly, it provides a brief overview of previous findings (Paliichuk 2012) considering the cognitive prerequisites of the representation of HT in the media through the SPIDERWEB construal. Thirdly, it highlights the recent observations of contemporary media discourse on HT. Finally, it specifies the research question, hypotheses, objective, and tasks of the study.

2.1. Ukrainian context: migration, vulnerability, and academia
Media coverage of human trafficking (HT) features real-life cases ranging from personal survival stories of victims to reports from police and non-governmental organizations (NGOs). HT includes “the use of force, fraud, or deception in the recruitment, transportation, transfer, harbouring, or receipt of individuals for profit.” (Human-Trafficking n.d.). It takes many forms, with the most prevalent being forced labour, forced criminal activity, trafficking of women for sexual exploitation, trafficking of organs, and people smuggling (The Issues, n.d.). Currently, more than 90% of detected female victims are trafficked for sexual exploitation, with searches for Ukrainian women escort services having increased by 300% (Bahous 2022) within only months of the invasion of Ukraine by the Russian Federation. Media report that “refugee families have fled Ukraine to seek safety. Sadly, their journey is fraught with many dangers and risks, even after they arrive at their destination (How We’re Helping Protect Ukrainian Refugees from Human Traffickers, n.d.).

The report by UNHCR recognises HT in Ukraine as a widespread phenomenon even before the war “thriving on highly adaptable strategies. Potential victims respond to fraudulent employment offers inside the country and abroad, offers of support for accommodation and residence for displaced persons and refugees, and online recruitment and disinformation. “Both the internally displaced and refugees are particularly vulnerable to HT, but also generally the millions of war-affected populations” (Anti-Trafficking Task Force (ATTF) Ukraine, Terms of Reference – May 2022 – Ukraine, 2022), being increasingly exposed to traffickers who take advantage of the vulnerability and trust of the people in need. Despite this, Ukrainians have always striven for free movement of labour
(Panchenko 2019; Nagornyak et al. 2020; Brzozowska 2022; Jirka 2023), being motivated by EU values and practices, which have become one of the triggers of Russian aggression. Now, the prospect of integration in the EU and the forced migration as a direct result of the war have induced students and graduates to cross the border more actively, hoping for a better future. From an economic point of view, highly skilled specialists strive for higher wages, while youth are eager to obtain education in an EU member state to be able to compete as fully-fledged global labour market players. It is reported in a recent study by I. Dolia and E. Klymenko that 50% of respondents would likely go abroad to study and 19% would settle in an EU country. However, these aspirations are shaped not only by personal experience but by stories on social media. At the same time, 41% of respondents said they had no experience of living outside Ukraine, and 10% had only heard about life in the EU from their friends and family, but they were confident that they would be able to find a job there (Dolia & Klymenko 2023). These data point to the high level of vulnerability of Ukrainian youth in terms of the potential deceptive practices they can face.

Considering the current social context in Ukraine, the issue of raising awareness of HT risks for the prevention of slavery exploitation of Ukrainians abroad has become urgent. In addition to traditional anti-trafficking information campaigns by the Ministry of Social Policy of Ukraine, the Ministry of Education and Science of Ukraine, local and regional social care institutions, and NGOs, there should be more effort made to create a subtler impact on vulnerable social groupss. The methods of stimulating students’ emotional perceptions and moral judgments to reduce their vulnerability should be grounded on the evidence of an empirical study and the findings of the research carried out within the cognitive linguistics paradigm, with greater attention paid to conceptual metaphors representing HT in the media. Amid the backdrop of the war in Ukraine, such research would mainly target a female audience, for women have an increased vulnerability to HT-related crimes. A particular social group consists of female graduates from higher education institutions, whose numbers are disproportionate to male graduates, who are prohibited from crossing national borders. This involves two HT risk factors: gender and

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2 Just to name some Ukrainian and international NGOs working with social groups and youth to prevent HT: 1) A21 (Human Trafficking | A21 n.d.) and A21 Ukraine are NGOs working on awareness among high school students (Ukraine – Live Free | A21, n.d.); 2) The IOM Mission in Ukraine provides assistance to internally displaced persons (IDPs) and war-affected people, fights HT (“Everyone Can Fall Victim To Human Trafficking. Even You.” on International Day for the Abolition of Slavery IOM Launches the Awareness Campaign, 2020); 3) La Strada – Ukraine, a public human rights organization working to promote gender equality, peacebuilding, prevention of gender-based violence, including domestic violence, combating human trafficking, and ensuring children's rights.’ (La Strada – Ukraine, 2023); 4) Stem is Fem, an educational project that promotes STEM specialities among high school girls in Ukraine (Home | Stem Is Fem, n.d.) to raise awareness of the opportunities inside the country.
age, as young women and girls lack life experience and skills to resist potential traffickers. It follows that the study should focus on the image of the “victim” as depicted in the media seeking linguistic resources for enhancing the reader’s response to the HT risks.

The recent reports on this issue (Greeneemeier 2015; Mackin 2021; Beating Human Trafficking on the Deep & Dark Web 2021; United We Care 2022; Dickenson 2022; Williams & Muhammad in press) open new vistas for the development of methods to enhance awareness on the internet, including gamification and digital storytelling. The review of the literature data shows the advancement in the study of HT from the legal, psychological, political, economic, and cultural perspectives, with particular attention given to the profile of the victim, the causes, and the factors aggravating the risks of getting into situations of being enslaved (Reis et al. 2022; Ortega et al. 2022). Powerful and innovative research is carried out by scientists in the framework of the digital dimensions of HT, focusing on the challenges related to digital technologies, ensuring the anonymity of Darknet users (Reid & Fox 2020). Nevertheless, much can be done in a traditional educational setting, through immersive reading and observing learning activities incorporated into academic courses in linguistics, pedagogy, psychology, social science, social health, etc. (Paliichuk 2023). Routine activities provide suitable conditions for obtaining empirical data (Chesnokova 2016) in a seamless educational process while stirring the trainees’ emotions and encouraging moral judgments through storytelling, sensory modelling, metaphors, and other techniques that can simultaneously provide educators with observations, insights, and empirical data.

2.2. Earlier findings

Previously, the study on HT was done from the point of view of the linguistic and conceptual peculiarities of its representation in English-language media discourse (Paliichuk 2011). As a result of the conceptual analysis of 600 media texts, a spiderweb-like construal was revealed. HT was construed in the media as a highly organised system of spatial interrelations between actors, with the victim being the central one. This mental image implied the visual resemblance of a spiderweb: the links between actors were like the web threads, and the actors’ actions were directed to the victim as if the victim were a spider’s prey (Fig.1). The term “construal” in terms of the cited study should be understood as the “ability to conceive and portray the same situation in alternate ways” (Langacker 2019: 140). It means that the media construe the impression of HT rather than reflecting reality as it is. The identified actors are the victim, trafficker, family members, law enforcement agencies, governments, and international NGOs. The spiderweb-like construal is predetermined by the close interrelation between all the actors of the HT situation, in

3 In this subsection the italicised terms refer to the conceptual level of HT representation.
which *family members*, *law enforcement agencies*, *governments*, and *international NGOs* are represented by the media as complicit traffickers or clients.

To describe the process of modelling the construal of HT it is necessary to refer to Pr. S. Zhabotynska’s theory of five frames (Zhabotynska 2010). The method implies the analysis of linguistic data at different levels of the conceptual organisation, with five basic frames embracing the limited set of propositions where the most fundamental categories of thought are arranged by the way we perceive things in the experiential world (Zhabotynska 2010: 80). Those five basic frames are the *Thing Frame*, *Action Frame*, *Possession Frame*, *Identification Frame*, and *Comparison Frame*, each having iterative propositions (propositional schemas). The term “proposition” means the most basic unit of meaning in a representation (*University of Alberta Dictionary of Cognitive Science: Proposition*, n.d.). Depending on the type of propositions within a frame, various schemas were modelled. For instance, in the *Thing Frame* the actors’ *qualitative*, *quantitative*, *locative*, *temporative* (*a time parameter*), and *mode of existence* propositions were modelled. The *Action Frame* was modelled through the interrelation of *state*, *process*, *contact*, *causation*, *agent-affected*, *result*, and *consequence* propositions. In the *Possession Frame*, the *part-whole*, *inclusion*, and *ownership* propositions were traced. The *Identification Frame* included *personification*, *classification*, and *characterisation* propositions, while within the *Comparison Frame*, the relations of *identity*, *similarity*, and *likeness* were also analysed, which helped uncover the foundation for the metaphorical projections of HT through the SPIDERWEB image. The sets of five frames of each actor were then put together and the interframe relations between the actors were analysed⁴. As a result, two types of conceptual relations were established: the action towards the *victim* and the interrelationship between other *actors*. Figure 1 shows the *victim* at the centre, highlighting the *actor’s* passiveness, and the other *actors’* stable interrelationships. At the same time, *governments* were described through modal verbs such as *should*, *will*, and *must*, while *law enforcement* and *NGOs* were depicted as ineffective bodies or even as “helpers” of *traffickers*. These frames were used to build the conceptual spaces of *actors*, i.e., “a collection of one or more quality dimensions” (Boden 2009) pertinent to each actor in HT conceptual situations.

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⁴ The terms *qualitative* (*what kind of?*), *quantitative* (*how much/many?*), *locative* (*where?*), *temporative* (*when?*), and *mode of existence* (*how?*), etc. are given in the wording of Pr. S. Zhabotynska’s terminology (Zhabotynska 2010).
Though the SPIDERWEB metaphor was not explicit in the media at the verbal level, multiple other metaphors highlighting the properties of the construal (Table 1) were manifested in media discourse on HT. The verbal traces of the SPIDERWEB metaphor were revealed due to the analysis conducted from the point of view of schemata arrangement in the mapping of the source (Weaving a Web of Wonder | Research Matters, n.d.) and target domains (Paliichuk 2011) (Table 1). According to M. Johnson, the term image-schema (schemata) denotes a “dynamic recurring pattern of organism-environment interactions, it will often reveal itself in the contours of our basic sensory-motor experience” (Johnson 2005: 19).

The table shows the fundamental aspects of a spiderweb construal in terms of the interpretation of metaphors representing the relations between trafficker and victim (Paliichuk 2011) and the properties of the biological phenomena, characterising the trafficker-victim relationship in what is referred to as “predator-prey interactions” in the work by Ludwig et al. (2018). The predominant schemata identified are as follows:

1) containment, which depicts the victim as a passive entity enclosed within a confined space, like prey ensnared in a spider’s web,
2) path, which portrays the victim’s initial actions preceding trafficking and subsequent movement to different locations, like prey navigating towards a cobweb,
3) link and cycle, which represents the continuous and cyclical nature of HT analogous to the process of spider web weaving,
4) centre-periphery, which metaphorically depicts trafficking as a disease with a growing process of spiderweb-like expansion; and
5) light-dark and up-down, which symbolises the invisibility of HT and downward orientation analogous to the downward-hanging properties of spiderwebs.
The system of the outlined schemata predetermines a set of metaphorical projections that are compatible with the holistic image of SPIDERWEB actuating in media discourse on HT through a system of respective lexical and semantic language units.

Table 1. Source-and-target schemata mappings in the SPIDERWEB construal

<table>
<thead>
<tr>
<th>SOURCE</th>
<th>Compatibility with HT Construal Schemata</th>
<th>TARGET</th>
</tr>
</thead>
<tbody>
<tr>
<td>Properties of a spiderweb as a natural phenomenon</td>
<td>HT is a close entity (e.g. trafficked into a variety of situations) = container</td>
<td>HT — containment, a vicious circle: e.g. locked in the world of sexual cruelty, trap, etc.</td>
</tr>
<tr>
<td>“Once it finds a trapped victim, the spider approaches and attacks the prey with its venom, spiral and radial threads, capturing properties of the web”</td>
<td>HT is the victim’s reaction to the trafficker’s lure (e.g. going abroad, agreeing to work for the trafficker) = path (journey)</td>
<td>HT — path (journey): e.g. “Odysseys of hope and drama ending in tragedy”</td>
</tr>
<tr>
<td>“catching a wide variety of prey” ... “a prey strikes the spiral threads” ...</td>
<td>HT is trafficking networks=link</td>
<td>HT — mechanism and links, cycles: e.g. money to a middleman, the cycle will simply continue; “So you just continue in the same cycle...”</td>
</tr>
<tr>
<td>“These webs are composed of several circular threads interspersed with radial filaments, material properties of these spiral threads, spider webs could be reconstituted”</td>
<td>HT is constantly growing, large-scale, global size = mass, count, center-periphery</td>
<td>HT — Center-Periphery (disease): e.g. “epidemic proportion. No country is immune”</td>
</tr>
<tr>
<td>“Spiderweb growing”</td>
<td>HT is an invisible world (Penny’s story is just one of many that remain hidden, human trafficking is the hidden crime of globalization) = down, dark</td>
<td>HT — light/dark, up/down e.g. “The dark underbelly of the tourist trade...”; “they emerge from the underworld”: “It is the downside, “deepen the misery of others; the economic crisis deepens the pool of potential victims”; “We don’t know much about the size of the iceberg that lies beneath”</td>
</tr>
<tr>
<td>“this ‘invisible’ web, hanging down”</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2.3. New observations

Recent media publications on HT have increasingly used the verbal metaphor of a spiderweb, as evidenced by observations over the past decade. This is accompanied by related keywords such as weblinks, trapped, prey, and cocoon.

In the preparatory stage of this research, this trend was investigated in a corpus of almost 109,876 words (4,877 sentences) (ske. li/spiderweb) generated with the Sketch Engine text analysis software. The preliminary findings indicated the frequent use of words such as “web” (151 occurrences), “spider” (124), “catch” (45), and “into” (196), as well as related words like “prey” (12), “trap” (28), “links” (15) “thread” (5), “weave” (3), and “cocoon” (1) in micro-contexts. Typical cases of concordances actuating the SPIDERWEB complex metaphor are as follows:

1. The spider web of human trafficking
2. ‘I’m like a fly trapped in a spider’s web’
3. By this time, the victim is caught in the spider’s web.
4. As a spider spins its web, catches its prey, wraps it, and waits for it to die, a trafficker lures and catches its victim, spins a mental and physical trap around them, waiting for their spirit to break so they can take full advantage of their bodies.

5. Victims of human trafficking have compared the feeling of being trapped in a spider web.

6. The web of human trafficking is extremely complex, and trafficking has reached epidemic proportions on the internet.

7. Victims are mentally and physically trapped in a cocoon, bound by threads of hopes, promises, and dreams of a better life; captured in a web of lies woven by predators.

2.4. Research question, hypotheses, objective, and tasks
Given the recent noticeability of the SPIDERWEB metaphor in media discourse, it has been pertinent to investigate whether it has a stronger impact on the audience compared to other forms of expression of the HT concept. This raises the question of whether the SPIDERWEB metaphor can be employed as an effective tool for developing media policies and educational materials to prevent HT. To address this, an empirical study was undertaken to measure the audience’s response to the social issue framed in terms of the SPIDERWEB metaphor.

The null hypothesis (H0) assumed that there was no difference in the perceptions of HT among students when they encountered explicit and implicit uses of the SPIDERWEB metaphor in the media. The alternative hypothesis (H1) implied a significant difference in such perceptions. The purpose of this research was to investigate the relationship between the use of the SPIDERWEB metaphor in the media and the audience response. For this, two research tasks were completed. Firstly, the verbal traces of the explicit and implicit manifestations of the SPIDERWEB metaphor were registered. The explicit manifestation was identified with lexemes such as spiderweb and respective thematic groups (spider, spider’s web, web, cocoon, prey, wrap, captured, catch, etc.). The implicit manifestation referred to schemata-charged verbal means of expressions: containment (in, into, inside, get into, captivity, etc.), links, process, path, light-dark, up-down, centre-periphery, etc. Secondly, the audience’s reactions to the explicit and implicit manifestations of the SPIDERWEB metaphor in media content on HT were revealed. A tailored methodology was elaborated upon for this study to verify the social applicability of the SPIDERWEB metaphor in raising awareness of HT among Ukrainian graduates.

3. Materials and methods
The methodological framework consisted of a set of techniques employed at various stages of the study to meet the research tasks: observation and corpus analysis, conceptual metaphor analysis, and an experiment.

At the stage of observation, the corpus of nearly twenty-seven thousand words of media publications on HT was compiled with the help of the Sketch Engine tool and
processed as concordances according to the keyword combination spiderweb of human trafficking and related thematic groups, as it has been described above (Subsection 2.3). As a result, a set of four fragments of media texts (T1, T2, T3, and T4) was selected as the experimental language material according to the criterion of the explicit use of the SPIDERWEB metaphor.

At the stage of conceptual metaphor analysis (Lakoff & Johnson 2003; Johnson 2005), the verbal traces of the SPIDERWEB metaphor were identified both according to the explicit manifestation of the metaphor representing HT as a process of weaving a spider’s web and catching the prey and implicit manifestation through schemata charged verbal units. This enabled the formation of experimental texts used under three experimental conditions:

(A) **authentic texts,**

(W) **manipulated weakened texts** (the SPIDERWEB metaphor verbal expressions were replaced with lexical units bearing direct and denotative meanings or actuating the schemata only), and

(E) **manipulated enhanced texts,** (some phrases were extended or replaced with the word combinations actuating the SPIDERWEB metaphor).

For the analysis,

1) the verbal elements under consideration were capitalised in A-texts,
2) capitalised and italicised words – in W texts, and
3) the capitalised phrases in bold – in E texts (Figures 2–5 below).

**Figure 2. T1 A-W-E. (London Police Investigate Case of Women Held as Slaves for Decades, 2013)**
As an attorney, working with survivors of both sex trafficking and labor trafficking (involuntary servitude), I am always starting to understand [1] [HOW MANIPULATIVE THE TACTICS OF TRAFFICKERS CAN BE] TO LEARN THAT ALONE IS NOT ENOUGH [2] [SUBSTITUTE TACTICS MORE COMMONLY USED BY TRAFFICKERS CAN BE JUST AS EFFECTIVE WITHOUT ENGAGING IN ACTIVITIES THAT MAY USUALLY SET OFF COMMUNITY ALARM BELLS OR AMBER ALERTS].

I have learned that [3] [SUBSTITUTE TACTICS MORE COMMONLY USED BY PREDATORS CAN BE JUST AS EFFECTIVE WITHOUT ENGaging IN ACTIVITIES THAT MAY USUALLY SET OFF COMMUNITY ALARM BELLS OR AMBER ALERTS].

[1] THE GOAL IS TO TRAP THE VICTIM AND LURE IT AS IF IT WERE A FLY IN A SPIDERWEB, WHICH MAY HAPPEN BECAUSE OF THEIR EMOTIONAL CONTROL, PSYCHOLOGICAL CONTROL, OR THREATS TO THE FAMILY OR THE VICTIM'S FAMILY.

Figure 3. T2 A-W-E (Jacon-Duffy 2020)

"What we are seeing is that the way that they are brought into being trafficked is that they have someone who is looking after them, who loves them, so maybe targeting someone who is an at-risk group or doing at-risk behaviours," said Const. Dave Wood from the VPD. "The goal is to never allow the human victim to see their own family."

MANIPULATED: G2 (SPIDERWEB WEAKENED) - T4G2

As an attorney working with survivors of both sex trafficking and labor trafficking (involuntary servitude), I am always starting to understand [1] [HOW MANIPULATIVE THE TACTICS OF TRAFFICKERS CAN BE] TO LEARN THAT ALONE IS NOT ENOUGH [2] [SUBSTITUTE TACTICS MORE COMMONLY USED BY TRAFFICKERS CAN BE JUST AS EFFECTIVE WITHOUT ENGAGING IN ACTIVITIES THAT MAY USUALLY SET OFF COMMUNITY ALARM BELLS OR AMBER ALERTS].

I have learned that [3] [SUBSTITUTE TACTICS MORE COMMONLY USED BY PREDATORS CAN BE JUST AS EFFECTIVE WITHOUT ENGaging IN ACTIVITIES THAT MAY USUALLY SET OFF COMMUNITY ALARM BELLS OR AMBER ALERTS].

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Figure 4. T3 A-W-E (Stümpfle 2019)

"What we are seeing is that the way that they are brought into being trafficked is that they have someone who is looking after them, who loves them, so maybe targeting someone who is an at-risk group or doing at-risk behaviours," said Const. Dave Wood from the VPD. "The goal is to never allow the human victim to see their own family."

MANIPULATED: G3 (SPIDERWEB ENHANCED) - T4G3

As an attorney working with survivors of both sex trafficking and labor trafficking (involuntary servitude), I am always starting to understand [1] [HOW MANIPULATIVE THE TACTICS OF TRAFFICKERS CAN BE] TO LEARN THAT ALONE IS NOT ENOUGH [2] [SUBSTITUTE TACTICS MORE COMMONLY USED BY TRAFFICKERS CAN BE JUST AS EFFECTIVE WITHOUT ENGAGING IN ACTIVITIES THAT MAY USUALLY SET OFF COMMUNITY ALARM BELLS OR AMBER ALERTS].

I have learned that [3] [SUBSTITUTE TACTICS MORE COMMONLY USED BY PREDATORS CAN BE JUST AS EFFECTIVE WITHOUT ENGaging IN ACTIVITIES THAT MAY USUALLY SET OFF COMMUNITY ALARM BELLS OR AMBER ALERTS].

[1] THE GOAL IS TO TRAP THE VICTIM AND LURE IT AS IF IT WERE A FLY IN A SPIDERWEB, WHICH MAY HAPPEN BECAUSE OF THEIR EMOTIONAL CONTROL, PSYCHOLOGICAL CONTROL, OR THREATS TO THE FAMILY OR THE VICTIM'S FAMILY.
In the experiment, the extracts of the text were used without coding, to provide equal conditions for the respondents, who were unaware of whether they were reading an original fragment or a manipulated one. In the case of T4 A-W-E, the *enhanced* text was augmented with a video representing the visual imagery of HT because the original version of the text contained metaphors that needed no further verbal extension. In this stage of the experiment, a survey was conducted in early September 2022, subject to students’ voluntary consent. The psycho-pedagogical conditions of the experiment implied a seamless academic process based on the curriculum activities in Analytical Media Reading and Stylistics courses.

The collected answers were processed with SPSS 26 Windows software, a computer program for statistical analysis (Van Peer et al. 2012: 148) which accurately handles the survey data depending on the research purposes. It provides both descriptive and inference statistics. A researcher needs to enter data manually and designate independent and dependent variables, analyse the descriptive data of respondents (e.g.: age, gender, origin, etc.), explore whether the distribution of responses is normal, and then choose the test for the analysis. Within this research, two types of parametric tests The Paired Samples *T* Test (Van Peer et al. 2012: 235) is used for dependent, related, repeated, or paired samples in a *within-subjects* design. This test was used to reveal the pre-reading and post-reading responses to the same questions in all groups of respondents. The Independent Samples *T* Test is used for the between-subjects design (Van Peer et al. 2012: 231). It was used in this research to reveal the differences between the three groups to the independent variables (types of texts A-W-E).
According to the design of the study, respondents were neither aware of the experimental conditions, nor of whether they were reading an original or a manipulated text. The sample included 60 BA undergraduates from Borys Grinchenko Kyiv Metropolitan University, who had taken part in the survey. The questioning suggested unbiased close reading activities and reflective assignments before the students’ awareness of literary devices. The sample comprised 88% female and 12% male respondents, aged from 19 to 23. They had been studying English for 10.6 years, were active social media users (95%), were reading media regularly (98%) predominantly about culture (41.7%), society (33%), and politics (33%), and had heard about HT (81.7%).

The respondents were also divided into one control (G1) group and two experimental groups (G2, G3) according to experimental conditions. The tailored questionnaire was developed to measure the perceptions of HT before and after exposure to the texts in the experiment. Also, G3 watched a one-minute video representing HT metaphorically as a matter of enhancing the emotional pressure on the respondents. Each extract took between 1 to 3 minutes to read (or watch). The experiment focused on two measurements:

1) pre-and-post-reading general perceptions within the three groups, for which the Paired Samples T Test was used; and
2) the differences in post-reading (or watching) perceptions between the three groups in the following pairs of texts: A–W; A–E; and W–E, corresponding to the differences between the groups G1–G2, G1–G3, and G2–G3, for which the Independent Samples T Test was applied.

4. Results
In total, twelve variables were measured. For the Paired Samples T Test, the following five variables were used:

V1: identifying oneself with trafficked persons,
V2: imagining oneself being in the same situation,
V3: imagining sounds/voices,
V4: imagining oneself being touched,
V5: being emotionally affected and general impressions (within the three groups).

For the Independent Samples T Test, the following seven variables were used:

V6: imagining oneself being enslaved in the HT situation,
V7: feeling scared,
V8: being controlled,
V9: being secluded or isolated,
V10: being emotionally affected and differentiated impressions (between the three groups),
V11: feeling empathetic,
V12: being more careful about personal safety.

The parameter of being emotionally affected in HT situations was measured twice in this study as V5 and V10 for different purposes. V5 was used for the Paired Samples T Test to
measure the general impressions of HT media content within all groups of respondents, while V10 was used for the Independent T Samples Test for establishing the differences in perceptions between such groups of participants. This double use of this parameter (in V5 and V10) helped control the consistency and significance of the responses.

4.1. The Paired Samples T Test: Pre- and post-reading general perceptions

In this stage, the Paired Samples T Test was used in three groups separately, which helped discover differences in perceptions before and after reading the texts (watching the video after text 4 in G3). Five pairs of variables (V1-V5) were tested, according to the questionnaire:

V1: Do you potentially identify yourself with a trafficked person?
V2: Do you imagine yourself being in the same situation?
V3: Do you imagine any sounds or voices associated with HT?
V4: Do you imagine any sensations of being touched when you hear about HT?
V5: Are you emotionally affected by HT?

Based on the comparison of the mean data, the results of the Paired Samples T Test showed the following values:

a) The significant result showed a slight increase in the V3 pair, with a mean = 1.3000 – 1.4500 and p=0.041 within G1. The results for other variables were insignificant. The respondents of G1, who read the original texts, more often imagined the sounds or voices associated with HT. In Figure 6 below the significant value is marked in orange.

b) There was a significant decrease in the V2 pair after the respondents from G2 read the weakened manipulated texts, with a mean = 1.8500 – 1.6500, and p=0.021, within G2. The results for other variables were insignificant. This means that the respondents from G2 experienced a decreased degree of imagining themselves being in the same situation as the trafficked persons, which was described in the weakened texts. In Figure 7 below the significant value is marked in orange.

c) There was a significant increase regarding four out of five pairs of variables within G3, whose respondents were exposed to the enhanced texts. The means are V1 (1.8000 – 2.8500), V2 (1.8500 – 3.1500), V3 (1.4000 – 2.400), and V5 (1.4500 – 2.850), with p=0.00. This means that the respondents of G3 more frequently identified themselves with trafficked persons, imagined themselves being in the same situation as HT victims, imagined the sounds and voices related to HT, and were more

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5 “p” stands for probability. In statistics, the p-value is a measure of uncertainty. To accept the statistical results as significant, a p-value must not exceed 0.05 (p<0.05). The conventional significance level of 0.05 is widely accepted. It means that a result with a 5% or lower error probability is considered significant (Van Peer et al. 2012: 207).
affected emotionally by the problem after they had read the text/watched the video\textsuperscript{6}. In Figure 8, the significant values are marked in orange.

\textbf{Figure 6. G1: Paired Samples T Test}

\textbf{Figure 7. G2: Paired Samples T Test}

\textsuperscript{6} The Enhanced T4 was supplemented with a video containing the spiderweb image representing the HT problem.
4.2. The Independent Sample T Test

The Independent Sample T Test was applied to test seven other variables:

V6: imagining oneself being enslaved in the HT situation,
V7: feeling scared,
V8: being controlled,
V9: being secluded or isolated,
V10: being emotionally affected and differentiated impressions (between the three groups),
V11: feeling empathetic,
V12: being more careful about personal safety.

The variables were tested after each text, and the results were compared between the control and experimental groups under three conditions: A–W (G1 vs. G2); A–E (G1 vs. G3); and W–E (G2 vs. G3). The variables corresponded to the following questionnaire items:

V6: Do you imagine yourself being enslaved in the HT situation?
V7: Do you feel scared?
V8: Do you feel being controlled emotionally or physically, or manipulated?
V9: Do you feel secluded or isolated in a closed space?
V10: Are you emotionally affected?
V11: Do you feel empathetic to trafficked persons?
V12: Will you be more careful about your safety?

The results were grouped and broken down for each experimental text (T1, T2, T3, and T4) according to the three experimental conditions:
a) A–W (G1 vs. G2),
b) A–E (G1 vs. G3),
c) W–E (G2 vs. G3).

Figures 9–20 show the significant results by the bars marked in orange amid the non-significant results marked in blue.

4.2.1. The Independent Sample T Test: T1

a) Under A–W conditions (G1 vs G2), the results were significant only for V12. The mean value is 1.9500 for W vs 3.7000 (A), and p=0.000 (Figure 9). This means that the participants showed a lower degree of “being careful about one’s safety” after having read the weakened T1.

b) Under A–E conditions (G1 vs G3), the results were significant for V6 and V9. The mean values are V6 (1.9500 – 2.7500, p=0.03) and V9 (2.2500 – 3.4000, p=0.0005). This means that the respondents show a higher degree of “imagining oneself being enslaved in the HT situation” and a higher degree of “feeling of being secluded or isolated” (Figure 10).
c) Under W–E conditions (G2 vs G3), the results were significant for V6, V9, and V12. The mean values are V6 (1.8000 – 2.7500, p=0.015), V9 (2.3500 – 3.4000, p=0.002), and V12 (1.9500 – 3.6000, p=0.000). This means that the respondents show a greater degree of “imagining themselves being enslaved in the HT situation”, the “feeling of being secluded or isolated”, and “being careful about one’s safety”. All three instances show a significantly higher emotional reaction of the respondents after they were exposed to experimental T1 (Figure 11).
4.2.2. The Independent Sample T Test: T2

a) Under A–W conditions (G1 vs G2), the results were significant for V6, V7, and V10. The means are for V6 (2.2000 – 3.1000, p=0.0045), V7 (3.1000 – 2.1000, p=0.002), and V10 (2.8500 – 3.3500, p=0.049). This means a higher degree of involvement in the imagined HT situation within G2, who read a weakened T2. The degree of “feeling scared” was lower within G2, which might be due to the lack of explicit verbal expressions within the SPIDERWEB metaphor. At the same time, the degree of overall emotional involvement was slightly higher even after reading the weakened manipulated T2 as compared to the responses to the authentic T2 (Figure 12). It can be observed here that the more denotative representation of HT in T2 evokes a higher emotional reaction to the media content.

b) Under A–E conditions (G1 vs G3), there were almost no significant differences between the reactions to the authentic and enhanced T2, except for V9. The mean values are 2.3500 – 3.2500, and p=0.03. This means a considerably higher “feeling of being locked” within G3 after having read the enhanced experimental T2 (Figure 13).

c) Under W–E conditions (G2 vs G3), the results were significant for V7, V8, and V9. The mean values are V7 (2.1000 – 3.5500, p = 0.000), V8 (2.2000 – 3.0000, p = 0.003), and V9 (2.7000 – 3.2500, p=0.0455). This means a greater degree of “feeling scared”, “feeling of being secluded or isolated”, and “feeling of being controlled emotionally or physically or manipulated” within G3. The differences in the perceptions between weakened and enhanced T2 are shown in Figure 14.

![Figure 12. T2: A–W (G1 vs G2)](image_url)
4.2.3. The Independent Sample T Test: T3
a) Under A–W conditions (G1 vs. G2), there were no significant differences between the responses of G1 and G2 to T3, p>0.05. The bars in Figure 15 show a slight increase or decrease in the degree of the reactions to T3 in two experimental groups. However, the result shows no considerable difference.
b) Under A–E conditions (G1 vs. G3), there was a significant difference between reading perceptions only for V8. The means values are 2.3500 – 3.3158, p=0.0035. This means that the participants experienced a higher degree of “the feeling of being controlled emotionally or physically or manipulated” in response to the manipulated metaphorically enhanced T3 rather than to the authentic one (Figure 16).

Figure 16. T3: A–E (G1 vs G3)
c) Under $W-E$ conditions (G2 vs. G3), there was a significant difference between reading perceptions only for V8. The mean values are $2.2500 - 3.3158$, $p=0.0005$. This means that the participants experienced a higher degree of “the feeling of being controlled emotionally or physically or manipulated” in response to the manipulated metaphorically enhanced T3 rather than to the weakened one (Figure 17).

![Figure 17. T3: W–E (G2 vs G3)](image)

4.2.4. The Independent Sample T Test: T4

a) Under $A-W$ conditions (G1 vs G2), the results were significant only for V10. The mean values are $2.9000 - 2.2500$. This means that the participants of G2 showed a lower degree of “being emotionally affected” in response to the weakened T4, as shown in Figure 18.
b) Under A–E conditions (G1 vs G3), the results were significant for V6 and V8. The mean values are for V6 (1.9000 – 2.6500, p=0.007) and V8 (2.3000 – 3.0000, p=0.0285). The participants of G3 experienced a higher degree of “imagining oneself being enslaved in the HT situation” and “the feeling of being controlled emotionally or physically or manipulated” in response to the manipulated T4 enhanced with metaphors (Figure 19).

c) Under W–E conditions (G2 vs. G3), there were significant results for V6, V8, and V10. The mean values are for V6 (1.9000 vs. 2.6500, p=0.006), for V8 (1.8500 to 3.0000, p=0.0005), and for V10 (2.2500 vs. 2.8500, p=0.0265). This means that the participants of G3 experienced a higher degree of “imagining oneself being enslaved in the HT situation”, the “feeling of being controlled emotionally or physically or manipulated”, and “being emotionally affected”. The responses were considerably higher to the manipulated T3 enhanced with metaphors rather than to the weakened one (Figure 20).
5. Discussion

What can be seen from the results of the statistical analysis is that both the Paired Samples T Test and Independent Samples T Test produce more significant values for the Enhanced (E) experimental texts used in G3. It is especially noticeable in contrast with
the *Weakened* experimental text (W), where there is a greater gap between implicit and explicit SPIDERWEB metaphor expressions, while the reaction to the *Authentic* (A) text, which was used as a control text, also yields a significant result in terms of the reader’s response, which in turn points to the practical value of using authentic media on HT in classroom close reading activities.

Specifically, the variables used in the Paired Samples *T* Test were mainly meant to check the general emotional reaction of the respondents to the topic of HT and whether the media content was generally immersive. The participants of both G1 and G2 showed a significant response to one of five variables. They showed an increased post-reading reaction to V2 (*imagining oneself in the same situation*) within G1 and to V3 (*imagining the sounds related to HT*) within G2, while the respondents of G3 were more sensitive to four out of five variables: V1 (*identifying oneself with the victims*), V2 (*imagining being in the same situation*), V3 (*imagining the sounds related to HT*), and V5 (*being emotionally affected and general impressions*). An unexpected finding is that the respondents within two of the three groups showed their emotional and attitudinal reading experiences through the sensory acoustic perception, though the direct use of language units of auditory modality had not been identified in the preliminary linguistic and conceptual analysis. Therefore, it raises the question of further study, namely how representations of deprivation of HT victims’ freedom could entail *imagining the sounds related to HT* (V3) in the reading process and whether there is an objective correlation between these parameters.

In a previous study (Paliichuk 2022) on the transportation effect of the sensory language in the survival stories of HT the manifestation of the visual, acoustic, and tactile sensory modalities in the media narratives and the respondents’ reactions to the respective sensory language were revealed. Namely, in this study, it can be hypothetically assumed that sound imagery may refer to the representation of the victims’ inability to voice their oppressed position under slavery conditions. However, the correlation between V9 (*feeling of being secluded and isolated*) and V3 (*imagining sounds related to HT*) should be verified in further research. If it is positive, therefore, a study on sensorial synergy in HT media narratives should be conducted. Another correlation should be done to trace the impact of the responses to V5 and V10 on V12. If there is a positive correlation between the degree of the emotional involvement of the readers in the HT problem described in the text and the decisions to be more careful about personal safety, further studies may focus on the emotive textual prerequisites of moderating respondents’ behaviours for eliminating the risks of being trapped in an HT situation.

Moreover, the generalization of the Paired Samples *T* Test results refers to which parameters (variables) were most indicative of the respondents’ overall immersion in the experimental texts. As the results showed, those were V2 (*imagining being in the same situation*) (twice out of the three cases) within G2 and G3 and V3 (*imagining the sounds related to HT*) (twice out of the three cases) within G1 and G3. Additionally, the
respondents of G3, who read the *Enhanced* texts, showed a higher response to V1 and V5, i.e., they were identifying themselves with the victims and feeling emotionally affected after reading. The sum of the results of the Paired Samples T Test encouraged the detailed exploration of the sensations experienced by the respondents to register the differences in the perceptions of the media content between the experimental groups.

The consolidated overview of the Independent Samples T Test results gives a bigger picture of the differences in respondents’ perceptions of HT-related aspects. It can be noted that the comparison between two manipulated texts (T1) under the conditions of W–E (G2 vs G3) shows the largest number of variables in terms of significant results, while the comparison between A–E (G1 vs G3) also points to a greater response to the E-text than to the A text. As for T2, there is almost no difference in comparison between reactions to the A vs. E texts except for the feeling of being controlled, which is stable. However, the responses in the contrasting condition W vs. E show more differences, mainly in favour of the respondents’ feeling scared, controlled, secluded and isolated. The responses to T3 show almost no significant differences except for the feeling of being controlled, which is increased in comparison between A–E and W–E. As for T4, a greater response is given in contrast to A–E and W–E. It should be noted that the texts were identical in content, but the conditions for the exposure to T4 were enhanced due to the one-minute video containing visual images of the SPIDERWEB metaphor used as social advertising against HT.

Overall, 27 out of 99 measurements proved significant, which represents approximately 30% of the feasibility of the use of the SPIDERWEB metaphor in the development of anti-trafficking content for classroom activities. This means that the verbal techniques of using the SPIDERWEB metaphor should refer to those parameters of the content writing that correspond to the variables with significant results. These are mainly V1, V2, V3, V5, V6, V7, V8, V9, V10, and V12. At the same time, both V5 and V10 refer to the emotional perceptions of the text. This parameter was used twice, in the Paired Samples T Test and the Independent Samples T Test for controlling the reader’s emotional response throughout the experiment, because it was essential to monitor the change of the emotional state after reading or watching the HT media content in order to trace whether the pragmatic aim of providing a warning about HT danger could be achieved with the help of the authentic and manipulated media texts.

A peculiar regularity can be observed across the significant results, which should be verified for the existence of a negative correlation in further studies. When the respondents showed a significantly higher degree of being emotionally affected (V10), the parameters of the degree of being careful about HT risks (V12) were insignificant, and when a significantly higher degree of being careful about HT risks (V12) was revealed, there was an insignificant result of emotional involvement (V10). It follows that emotional pressure is not that critical for raising awareness. Instead, logically arranged information prompts the audience to think about their safety. On the other hand, there were
no significant results revealed in terms of being empathetic to the victims of HT in all the experimental conditions and cases. It may signify that the texts were reader-centred and targeted at the people to make them experience certain sensations rather than evoke empathy for victims, emphasising the fact that everyone can become a victim, so readers would imagine themselves being a potential victim and experience the feeling of being controlled, and locked in a closed space. This consideration works in favour of using the SPIDERWEB metaphor and related schemata-charged language when developing anti-trafficking warning content.

The limitations refer mainly to the restricted size of the sample from one university and to the fact that, currently, the students experience greater emotional pressure and stress living in danger and threats related to the war in Ukraine. This circumstance may overlap with the awareness of HT risks, even though the problem has become more acute since the outbreak of the full-scale war. However, the respondents constitute a homogeneous audience of young people aged 20, predominantly female respondents.

6. Conclusions
The results of the study uncover the properties of the SPIDERWEB metaphor in structuring the reading experiences within the contours of the spiderweb-like construal through the explicit use of lexemes such as spiderweb and respective thematic groups (spider, spider’s web, web, cocoon, prey, wrap, captured, catch, etc.) and the implicit means, such as schemata-charged verbal expressions: containment (in, into, inside, get into, captivity, etc.), links, process, path, light-dark, up-down, centre-periphery, etc. The series of experimental procedures helped reveal the most prominent reactions of the readers to the media content on HT. It was established that authentic texts containing the verbal manifestations of the SPIDERWEB metaphor evoked the feeling of co-presence within the HT situation. The manipulated texts with weakened manifestations evoked less intensive emotional output in terms of the reader’s reaction while the manipulated texts with metaphorically saturated phrases, deliberately inserted in the text, stimulated a greater response from the participants.

At the same time, the level of empathy for HT victims did not increase after reading the fragments of media texts used in the experiment. Instead, the respondents mainly experienced sensations of imaginary enslavement within the HT situation: being secluded and isolated, controlled, or manipulated, imagining the sounds representing their being in slavery, and being scared, which put them in a state of mind of being more careful about personal safety. Further studies will be mainly aimed at exploring the virtual domains of HT-related crimes, the possibility of using the Internet domain for recognising HT risks, and the development of immersive techniques based on the SPIDERWEB image metaphors for anti-trafficking preventive purposes. In particular, the SPIDERWEB metaphor of HT can be explored through the lens of Internet crimes and the dark and deep
net domains, which is a fusion of the real and cognitive world in a digital dimension. For instance, such research may seek to discover how the SPIDERWEB metaphor can be used in the development of a warning game about HT, such as a storytelling-based game for raising HT awareness (Unity WebGL Player. ACT! Awareness Combats Trafficking, n.d.) that already exists. It may also focus on “predator-prey” interactions (Ludwig et al. 2018) for the development of the trafficker’s portrait and risk recognition skills among students.

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