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The Role of Sensory-Motor Experiences and Embodied Cognition in Container-Based Metaphors in the Language of Jordanian Congenitally-Blind Persons

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Abstract

Empirical research accentuates that blind persons' command of conventional metaphors does not significantly differ from that of the sighted (Sak-Wernicka, 2017; Minervino et. al., 2018). Still, there are several propositions and theories regarding congenitally-blind persons' ability of perceiving conceptual metaphors that are based on sensory modalities (e.g. UNDERSTANDING IS SEEING). On basis of Conceptual Metaphor Theory and with the aid of a corpus of natural data, this study investigates how Jordanian congenitally-blind persons perceive and use the CONTANER image-schema following spatial logics that are based on sensory-motor experiences and behaviours. These logics created meanings that are grounded on the speaker's embodied experiences and conceptualized as spatial schemas of CONTAINMENT, RESISTANCE, MOVEMENT, FORCE, INFILTRATING, ENTERING, and LEAVING. These spatial schemas predominantly reflect the Jordanian congenitally-blind persons' 'embodied cognition' (Johnson, 1987; Gibbs, 2006) and points of view as 'characters' or 'observers' (Cassell and McNeill, 1991).

Keywords: Container, Space, Image-schema, Conceptual metaphor, Congenitally-blind, Jordanians

1. Introduction

Metaphors, as indispensable parts of language and thought (Lakoff and Johnson, 1980), can be used deliberately to understand and structure one domain of experience in terms of another domain of different kind (Johnson, 1987: 15). Thus, they make conceptual linguistic phenomena where a metaphorical expression generally refers to a linguistic unit whose

surface realization involves a cross-domain mapping (Lakoff, 1992: 1) between mental spaces, or conceptual domains of experience (e.g., objects, activities, or states) and some abstract concepts (e.g., emotions). The cognitive theory of metaphor proposes that a conceptual metaphor involves a mapping between a conceptual 'source-domain' and a conceptual 'target-domain'. Whereas a source-domain contains information about main situations based on clear and concrete experiences, a target-domain contains the more complex and abstract concepts. The cross-domain mapping between the two domains involves a systematic association between the elements from the source-domain and their corresponding elements in the target-domain. For example, in the expression '*Her argument is indefensible*', a mapping of elements from WAR (source) domain into the relevant elements from the ARGUMENT (target) domain pertaining to the conceptual metaphor ARGUMENT IS WAR. This cross-domain mapping is part of the cognitive processes which define and characterize how speakers perceive, experience, and communicate (or argue) on basis of their perception and understanding of world structures and realities of wars and conflicts (Lakoff and Johnson, 1980: 3).

Lakoff and Johnson (1980) suggest that most linguistic meanings are based on embodied experiences and meanings that are conceptually understood through spatial cognitive representations, or image-schemas, such as CONTAINMENT, MOVEMENT, and BLOCKAGE. These schemas are recurrent patterns, shapes, and regularities in, or of, some ongoing ordering activities (Johnson, 1987: 29), and they make directly meaningful 'experiential' and 'embodied' structures that arise from, or are grounded in, our recurrent bodily movements through space, perceptual interactions, and ways of manipulating objects (Hampe, 2005: 1).

The CONTAINER-schema plays momentous role in conceptualizing experiences and thoughts especially when communicating deep, or connotational, meanings of concepts on basis of their embodied experiences. It makes the pattern and order to our human actions, perceptions, and conceptions by which we make meaningful connected experiences that we can comprehend and reason about (Johnson, 1987: 29). Accordingly, we could conceptually perceive our human body as a CONTAINER for some CONTAINED SUBSTANCES/OBJECTS such as emotions and ideas that make expressions such as '*Speak from the heart*' that is based on the conceptual metaphor THE HEART IS THE CONTAINER OF EMOTIONS (Kövecses, 2010: 123).

Conceptual CONTAINER metaphors are based on embodied experiences, and that bestows them with an ontological function by which language users understand, or perceive, the world around them in relation to tangible spatial relationships. Nonetheless, one may wonder how CONTAINER-based conceptual metaphors are perceived and verbalized if the speaker's embodied sensory modalities are deficit, or 'impaired'. In other words, how do persons who are congenitally-blind comprehend, and use, spatial image-schemas, such as the CONTAINER, to conceptualize their different experiences, activities, and emotions? At this point, this study addresses how conceptual metaphors that are based on the CONTAINER image-schema are perceived and employed in the language of a sample of Jordanian persons who are congenitally-blind.

2. The CONTAINER Image-Schema

Although image-schemas are often difficult to grasp due to their unconscious origins (Evans and Green, 2006: 180), they help speakers in realizing how meanings, thoughts, and symbolic expressions are grounded in patterns of perception and bodily movement (Johnson, 2005: 18). Image-schemas provide a way of reasoning by which the language users rely, for instance, on their body to continuously engage in sensory-motor behaviours related to balance, resistance, source-path-goal, containment, etc. (Gibbs, 2005: 116). Several researchers have accentuated that we understand metaphorical expressions that are derived from conceptual metaphors because this understanding is 'embodied' in the sense that it involves the simulation of the sensory-motor experiences that lie at their foundation (Lakoff and Johnson, 1980; Lakoff and Johnson, 1999; Gallese and Lakoff, 2005; Gibbs, 2005; Lakoff, 2014; Kövecses, 2016).

The CONTAINER image-schema is pervasive in everyday language and thought by virtue of its ontological nature and epistemic function. Its experiential basis can be traced to our natural acquisition of the CONTAINMENT 'logic' due to our constant interaction with containers of all shapes and sizes (Basson, 2008: 267). Most CONTAINER-based metaphors involves emphasis on the containment of discrete objects within a space and allowing them to be moved in relation to each other (Raykowski, 2015: 109), and that makes a source-domain for the metaphors in which the target is (or is treated as) a discrete entity; as in the expression '*Let out your anger*' (Johnson, 1987: 32). Here, the CONTAINER-schema is employed, in ontological metaphors, to conceptualise abstract concepts and intangible entities ('anger') by source-domains from the domains of physical CONTAINERS or CONTAINED SUBSTANCES/OBJECTS.

When language speakers visualize (and probably 'feel' kinaesthetically) their experiences as similar to that of using objects shaped as containers, their experiences can be then embodied according to binary spatial relationships related to various kinds of containing spaces; such as inside\outside, entering\exiting, or even closing\opening. Accordingly, in conceptual metaphors, target-domains such as emotional states, ideas, and abstract concepts, can be all represented according the corresponding relationship between a CONTAINER and its CONTAINED SUBSTANCES/OBJECTS. That relationship can be elaborated in terms of other image-schemas, such as the notion of *levels* and *layers* which can be both used to express experiences involving some change in the amount, degree, or intensity, of an abstract concept (e.g. emotional states) which are conceptualised as CONTAINED SUBSTANCES (*see* Raykowski, 2015). Therefore, meanings of abstract concepts in target-domains become more accessible because the CONTAINER-schema assigns to them familiar tangible qualities, such as size, capacity, pressure, persistence, from the CONTAINER source-domain.

On the other hand, the logic of the spatial CONTAINER image-schema makes use of relational concepts which Langacker (1987) has called the 'Trajector' (TR), the 'Landmark' (LM), and the 'Trajectory' (TRY). As it is illustrated in Figure (1) below, the TR is the element that is highlighted with relation to a given LM. In addition, the TRY defines a path of motion of the TR in relation to the LM:

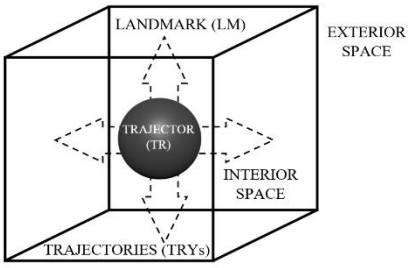

Figure 1. The logic of the CONTAINER image-schema

The CONTAINER image-schema makes a basic conceptual structuring principle of human thinking (Lakoff and Johnson, 1980: 25-32). In the most straightforward uses, it is realised by the use of location prepositions (*in*/*out*, *from*/*to*). Thus, the following prepositional phrases would constitute a conceptual CONTAINER (e.g., '*in my heart*', '*out of your mind*', '*into this life*',…etc.,). Besides, some categories of meanings are characterized by INCLUSION (CONTAINMENT) and REGION (LOCATION), giving us the conceptual metaphors VISUAL FIELDS ARE CONTAINERS as in '*The aircraft* (TR) *is in sight* (LM) *now*', THE MIND IS A CONTAINER OF IDEAS as in '*she promised to keep my suggestion* (TR) *in mind* (LM)', and STATES ARE LOCATIONS as in '*They* (TR) *are in love* (LM)'.

Generally, the conventional sense of the metaphoric expressions involving CONTAINER-schema foregrounds the idea of 'containment' (Raykowski, 2018: 109), more than the intrinsic qualities of the 'container' (LM), the 'contained substance' (TR), or the direction of motion of the contained substance (the TRY). Accordingly, the schematic representation of the metaphor focuses on the CONTAINER-CONTAINED relationships which produce multiple metaphorical features such as containment, penetration, opposing and restricting movement, internal pressure, release ...etc. And these features can be understood in terms of processes of transfer and release, ownership, opposing/opposition, keeping out/in, remembering/forgetting. Meanwhile, some other metaphoric representations pertaining to the CONTANER image-schema might be elaborated; especially the ones related to the physical features of the CONTAIINER such its shape (e.g., round, cube, cylinder, pipe-like); openings (e.g., one or more and large/small or none); relative size (comparable or not) and content (solid, liquid, gas, mixture, etc.). In most of these representations and features, the roles of the LM and the TR are foregrounded and that of the TRY are backgrounded, if not neglected. Nevertheless, speakers comprehend metaphorical expressions by relying on such dynamic, or static, representations and features of spatial concepts, and they employ them to express the behaviour of CONTAINED SUBSTANCES/OBJECTS inside/outside the CONTAINER, and how the CONTAINER reacts to such behaviour; particularly the course of the TR's reaction (TRY).

The experiential bases of CONTAINER-CONTAINED schema can be also deduced from the experience of the effect of changing the CONTAINER conditions and its CONTAINED SUBSTANCE/OBJECT. For example, when increasing\reducing the heat\pressure\quantity of the CONTAINED SUBSTANCE, that involves exerting some 'force' that could change

the state, or course, of the CONTAINED (discrete) SUBSTANCES (TR) inside the CONTAINER (LM) and could lead them to leave the CONTAINER through an opening. Accordingly, the CONTAINER image-schema operates via the speaker's reliance on sensory modalities taking part in interactions and experiences with physical 'objects'; thus, a speaker may acquire the conceptualisation of CONTAINER image-schema through visual experience with specific containers (e.g., walls of a room), or through cutaneous and tactile experiences (e.g., pressure or pain), or through *proprioceptive* experiences which define containers by the ways they limit the speaker's body movements (Raykowski, 2022-In Press: 8). Meanwhile, when hearing a metaphoric lexis pertaining to the CONTAINER image-schema, listeners immediately activate the CONTAINER-schema to decipher the content of the message through the concrete bodily-container representations (Johnson, 1987: 271) that structure their regular recurring physical experiences of placing objects into a bounded container, or taking them out of it.

All sensory-motor processes presented above characterise our human experience and perception; and accordingly, their universality. Generally, CONTAINER-based metaphors are highly conventional, if not dead, because they operate beneath the level of human conscious awareness; we are intuitively capable of comprehending what it means to have a substance contained, or located, within a container. Still, as we generally experience the containment pattern through sensory modalities, our senses are vital in perceiving such experiences. Hence, one may argue that deficit visual perception of containment experiences might affect the extents by which congenitally-blind persons express the world around them.

3. Metaphor and Visual-Impairment

Vision is the dominant sense that can constitute the speaker's spatial experiences; making its a necessary condition for the possibility of real, direct spatial experiences and capabilities (Karlsson, 1996: 304). Such experiences might benefit from the synthesis of other sensory impressions (visual, auditory, cutaneous and proprioceptive) where vision plays a supportive sense. For instance, speakers' sense of the *intensity* of a contained substance and the *extent* of its container can be defined by their sensory modalities such as light, sound, temperature, pressure, and even smell. When associated, such dissimilar sensations from the same container contribute to the full sensory experience of the objects (the container and the contained substances) (Raykowski, 2022-In Press: 8).

Most empirical research on the use of the metaphorical tropes by those visually-impaired persons have demonstrated the paucity of significant differences between the sighted and visually-impaired persons in comprehending metaphors (Pijnacker et al., 2012; Sak-Wernicka, 2017; Minervino et al. 2018). Nevertheless, congenitally-blind persons might show some difficulties in comprehending a particular type of metaphorical expressions, especially those in which abstract concepts are conceptualized in terms of more concrete concepts referred to the visual domain (e.g., *seeing* as in UNDERSTANDING IS SEEING) or comprehending visual, or pictorial, metaphors like the ones found in most pictorial advertisements (Minervino et. al., 2018: 2) or those which might require the understanding of colour relations such as 'warmth' (Shepard and Cooper, 1992).

From a psychological perspective, the perception of metaphorical language by the blind can be accounted for by the theory of 'embodied cognition' (Johnson, 1987; Gibbs, 2006). Embodied cognition is based on the assumption that nervous systems evolved for the adaptive control of action rather than abstract thought (Semin and Smith, 2008: 1). According to this theory, a conceptual structure is grounded in an experiential foundation: specifically, the sensory-motor system (Jelec, 2014: 11), and when encountering a metaphorical expression, brain areas responsible for movement are activated in the ground of our bodily experience and perceptual simulations (Barsalou, 2008). Accordingly, sensory-motor simulations play a significant role in making sense of metaphorical expressions which involve body parts. For example, performing an action corresponding to a base concept (e.g., *grasping*) facilitates the comprehension of sentences in which such concept is employed metaphorically such as in '*he grasped the idea*' (Wilson and Gibbs, 2007; Ackerman et al., 2010; Santana and de Vega, 2011; Gibbs, 2013).

Meanwhile, several behavioural studies have accentuated that concepts are grounded in perception and action (Minervino et. al., 2018: 2). For instance, if an expression involves one modality '*Leaves rustle*', then participants will verify such verbally expressed facts more rapidly after verifying a fact involving the same modality, such as in '*Blenders make noise*', than after verifying a fact involving a different modality such as in '*Cranberries are tart*' (Pecher et al., 2003). Accordingly, congenitally-blind persons who had not been exposed to a conceptual metaphor that is based on a sensory-motor domain (e.g., seeing, painting, reading, illuminating, …etc.) should face serious limitations in comprehending metaphorical expressions pertaining to these domains. Consequently, expressions where the activity of comprehending, for example, is understood in terms of visual concepts such as '*There are some obscure points in the theory*' and '*This is an illuminating paper on the subject*' derived from the conceptual metaphor UNDERSTANDING IS SEEING (Lakoff and Johnson, 1980; Gibbs, 2006) constitute a challenge for congenitally-blind persons.

One may argue here that when congenitally-blind persons perceive metaphors, they could be depending on image-schemas that are primarily based on all sensory modalities except vision. These schemas marginalise the role of vision, and vision-based metaphors, when working on perceiving what is deemed abstract or intangible. Such a theoretical postulation should be questioned by investigating how congenitally-blind persons mange to conceivably comprehend, and produce, utterances derived from, for example, spatial conceptual metaphors although they might have lacked frequent sensory-motor experiences with spatial concepts.

4. The Current Study

This study initiates research on the features pertaining to the language of Jordanian congenitally-blind persons (henceforth J-CBPs); mainly their perception of metaphorical language, and addresses how J-CBPs perceive spatial and experiential image-schemas in expressing their experiences, ideas, and emotions despite of their impaired sensory experiences. Focusing on the ontological and epistemic features of CONTAINER-based

conceptual metaphors, this study relies on the language of a sample of J-CBPs to answer the following three questions:

1. What are the most frequent source-domains pertaining to the CONTAINER-based metaphors used by J-CBPs?
2. What are the schematic logics of the CONTAINER-based metaphors in the language of J-CBPs?
3. On what ontological and epistemic bases do J-CBPs employ CONTAINER-based metaphors in their language?

The data for this study are from the stories of twenty-four J-CBPs (14 females and 10 males) who are native speakers of Jordanian Arabic from the north of Jordan. Their ages range between 21-45 years, and they were recruited for interviews through friend-of-friend sampling method in the period between May-September 2021.

The J-CBPs participants have been individually interviewed in public places by the researcher, and they were first given a brief introduction about the linguistic nature of the study without been informed about its main purpose (i.e., the perception of metaphors). The interviews were semi-structured as the participants were asked to answer few personal questions which survey their daily experiences with blindness, its diagnosis and treatment, their social activities, their entertainment and pass-times, and their education. The interview questions were approved by the Faculty of Postgraduate Studies at Al-alBayt University (Decision No. 600-2019/2020). The language of the interviews was mostly informal Jordanian Arabic with few sporadic shifts towards a more formal style of Standard Arabic or English. The length of each interview was about 30 minutes, and they were audio-recorded (with the participant's consent), and transcribed in Arabic. To ensure anonymity, all personal information which could point to the identity of the participants and the researcher had been removed from the transcriptions. Each interview is stored in a separate (encrypted) file and compiled in a qualitative research software (MAXQDA 2020) to make a small corpus of 56,655 words.

This study is limited to categorize and analyse instances of metaphors based on the CONTAINER image-schema in the language of J-CBPs and according to Conceptual Metaphor Theory (henceforth CMT). Due to limitation of space, the role of social factors (such as age, gender, or ethnicity) and other categories of spatial metaphors (e.g., orientational and movement metaphors) are beyond the scope of this study.

The analysis involved identifying all instances of conceptual metaphors from the spatial CONTAINER-schema in the corpus. The identification process was based on a close inspection of the corpus following *Metaphor Identification Procedure-Vrije Universiteit* (MIP-VU) protocol (Steen et al., 2010). This protocol systematically judges the *metaphoricity* of a candidate word in a text, and it provides a systematic means of identifying metaphorical keywords or lexes (Steen et al., 2010: p. 5–6). Following the protocol, the researcher inspected the transcribed corpus to establish a general understanding of the topics and meanings raised by the J-CBPs. Then, he determined the lexical units in the texts, and for

each lexical unit, he established its meaning in context (how it applies to an entity, relation or attribute in the situation evoked by the text (contextual meaning)). The researcher took into account what comes before and after the determined lexical unit. In the following stage, the researcher determined if each lexical unit has a more basic contemporary meaning in other contexts than the one in the given context. According to MIP-VU, basic meanings tend to be more concrete (what they evoke are easier to imagine, see, hear, feel, smell, and taste), related to bodily action, more precise (as opposed to vague), and historically older (Steen et al., 2010). Then, the researcher examined each lexical unit to see if it has a more basic current/contemporary meaning in other contexts than the given context; then, the researcher decided whether the contextual meaning contrasts with the basic meaning but can be understood in comparison with it. At this point, the researcher could mark the lexical unit as *metaphorical*.

To exemplify from the collected data, a female J-CBP expressed her disappointment from a university professor who mocked her for failing to answer a question correctly in a class by saying:

Example

[Arabic text]	*wu thiqatī bi-nafsī ʾinhadat (Note 1)*
[interlinear gloss]	and confidence-my in-myself ruined-it
[literal translation]	and my confidence in myself was ruined.
[equivalence]	‘then, I have lost myself confidence’ (Note 2).

In this example, the text contains three lexical units *thiqatī* (my confidence) *bi-nafsī* (in myself) *ʾinhadat* (was ruined), and their meanings in the context apply to an abstract character trait ‘confidence’, an entity ‘myself’ and a material process ‘was ruined’. According to *Cambridge Dictionary*, the lexical unit ‘myself’ has a basic contemporary meaning in the context of the text. However, the two lexical units ‘confidence’ and ‘was ruined’ perform differently. The lexical unit ‘confidence’ is an abstract entity that has the basic meaning ‘the belief that you are able to do things well or be successful’, and the lexical unit ‘was ruined’ has the meaning ‘to spoil or destroy something’. Here, the juxtaposition between ‘confidence’ and ‘was ruined’ makes a meaning that is less concrete (what it evokes is more difficult to imagine and see); ‘confidence’ is not a material structure of concrete, bricks, or steel that can be literally ruined or destroyed. Accordingly, both ‘confidence’ and ‘was ruined’ have more basic current/contemporary meanings in other contexts than the ones in the given context. As the contextual meanings of ‘confidence’ and ‘was ruined’ contrast with their basic meanings, but can be both understood in comparison with it, then, the two lexical units are marked ‘metaphorical’. On basis of CMT, the expression gives the meaning of an emotional state, namely disappointment and frustration which have a negative effect, or exerting a FORCE on the speaker’s character trait ‘self-confidence’ and ‘ruined’ it. Thus, a cross-domain mapping between the domains of STRUCTURES which take the form of a CONTAINER (with boundaries and walls) and SELF-CONFIDENCE was established; making the conceptual metaphor SELF-CONFIDENCE IS A STRUCTURE. Following the Trajector-Landmark

logic, this metaphor can be understood in terms of the more generic logical representation THE BODY IS A CONTAINER by which SELF-CONFIDENCE is portrayed as A STRUCTURE that is already CONTAINED inside the speaker's body. Accordingly, 'self-confidence' is ontologically perceived in the utterance above by two CONTAINMENT representations: an overt representation that involves 'self-confidence' been depicted as a CONTAINER (STRUCTURE) (hence a LANDMARK), and the second is a covert representation that involves 'self-confidence' been depicted as CONTAINED (SUBSTANCE/STRUCTURE) (hence a TRAJECTOR). The speaker's utterance above foregrounds the second representation where 'self-confidence' has a structure (TR) that permanently exists in the human body (LM), and that the TR is affected (was ruined) by some FORCE (the professor's words) originated from outside the LM (Note 3).

5. Findings

Following MIP-VU protocol, this study identified 2,873 metaphorical lexes in the 56,655 words corpus. That makes a ratio of about 5 metaphors every 100 words; so, the average number of metaphors produced by J-CBPs almost matches the average number of metaphors found in the language of ordinary persons, which is 3-18 metaphors every 100 words (Steen et al., 2010).

Several metaphorical lexes demonstrate some complexity in their metaphoricity and conceptual grounds as they could be classified under more than two source-domains. For example, the target-domain BLINDNESS, as presented below, is conceptualized as LIFE, WORLDLY-LIFE, PRISON, GRAVE. Such source-domains can be categorized under the CONTAINER-schema and recognized as related to the more generic conceptual metaphors STATES ARE LOCATIONS (Lakoff, 1992: 13); therefore, categorizing them under a set of discrete source-domains was unfeasible. Instead, each identified metaphor was categorized according to its experiential image-schema. This categorization was judged by six informants (2 females and 4 males) who are highly-educated native speakers of Jordanian Arabic and recruited through personal communication. After briefly explaining to them the meaning of a figurative expression, and the main tenets of CMT, the informants were asked to choose one 'best' source-domain from a set of spatial source-domains (e.g., CONTAINER, PATH, MOVEMENT, CENTER/PERPHERY, UP/DOWN,…etc.) pertaining to each expression from a sample of thirty expressions from the corpus. The result was recognizing 1,121 lexes (and short expressions) which could be classified under the spatial CONTAINER-schema. That makes about 39% of the metaphors in the corpus (about 2 lexes per 100 words). Spatial CONTAINER-schema is used by J-CBPs to conceptualize 57 concepts (target-domains); such as abstract entities, character traits, emotional states, body parts and persons (see Table 1):

Table 1. The most frequent target-domains with the source-domain CONTAINER in the language of J-CBPs

Target-Domains	Freq.	%	Conceptual Metaphors
LIFE/WORLDLY-LIFE	147	13.1	LIFE IS A CONTAINER; WORLDLY-LIFE IS A STRUCTURE
BODY/BODY PARTS	126	11.2	A PERSON IS A CONTAINER; A BODY PART IS A STRUCTURE; THE EYE IS A CONTAINER; THE FACE IS THE CONAINER OF EMOTIONS; THE HEART IS THE CONTAINER OF EMOTIONS; THE MIND IS A CONTAINER
A VISUALLY-IMPAIRED PERSON/SOCIETY	112	10.0	A VISUALLY-IMPAIRED PERSON/SOCIETY IS A CONTAINER
IDEAS	84	7.5	IDEAS ARE (HARMFUL) OBJECTS
CHARACTER AND PERSONAL TRAITS	84	7.5	ENTHUSIASM IS A CONTAINER; PERSONALITY IS A STRUCTURE; SELF-CONFIDENCE IS A STRUCTURE
BLINDNESS	70	6.2	BLINDNESS IS A CONTAINER; BLINDNESS IS A GRAVE; BLINDNESS IS A PRISON
WORDS/SPEECH	70	6.2	WORDS ARE (HARMFUL) OBJECTS
EDUCATIONAL INSTITUTIONS/LEVEL	56	5.0	AN EDUCATIONAL INSTITUTIONS/LEVEL IS A CONTAINER
Misc.	372	33.2	A COMPASSIONATE FAIMILY IS A CONTAINER; AN AID-TOOL IS A CONTAINER; AN OPTHALMOLOGIST-CLINIC IS A CONTAINER; A DESPRATE SITUATION IS A CONTAINER
Total	1121		

Table 1 answers the first question in this study which is concerned with identifying the most frequent target-domains for which the spatial CONTAINER image-schema made the basis of the source-domains in the language of J-CBPs.

To answer the second and third questions which aim to identify the schematic logics and the ontological and epistemic bases of the CONTAINER-based metaphors in the language of J-CBPs, this study follows the concepts of Trajector-Landmark (Langacker, 1987), and it argues that the CONTAINER image-schema is realized by J-CBPs by reflecting on their sensory modalities and experiencing the relationships between CONTAINER-Landmarks (LMs) and CONTAINED SUBSTANCES/OBJECTS Trajectors (TRs). Sometimes, these

relationships were elaborated by referring to some implicit directions of movement, or Trajectories (TRYs), and that makes the following five CONTAINMENT logics (Table 2):

Table 2. The CONTAINMENT logics in the language of J-CBPs

	logic	Freq.	%	Example
(a)	TR permanently exists outside LM but exerts FORCE on it.	79	7	THE HUMAN BODY IS THE CONTAINER OF DISEASES; A DISEASE IS AN OBJECT; WORDS/IDEAS ARE OBJECTS
(b)	TR moves from outside LM to inside LM following TRY.	494	44	IDEAS ARE (TRANSFERABLE) HARMFUL OBJECTS; SELF-CONFIDENCE IS A STRUCTURE
(c)	TR permanently exists inside LM and (may) move(s) inside it.	372	33	LIFE IS A CONTAINER; BLINDNESS IS A PRISON; SCHOOL OF BLIND PEOPLE IS A WORLD; MIND IS A CONTAINER
(d)	TR moves from inside LM to outside LM following TRY.	176	16	LIFE/BLINDNESS IS A STRUCTURE; FACE/EYE IS THE CONAINER OF EMOTIONS
(e)	A special logic that is based on logic (d) where an LM2 that contains TR2; TR2, in-turn, makes a new LM1 that contains TR1. Then, TR1 (may) move(s) from inside LM1 to LM2 following TRY.	(43/176)		BLINDNESS IS A WORLD
	Total	**1121**		

These logics a-e can be illustrated as the following:

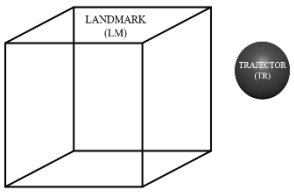

Figure 2.a

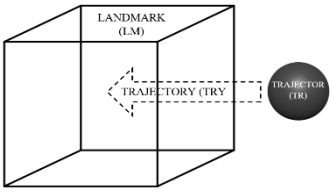

Figure 2.b

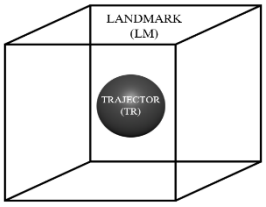

Figure 2.c

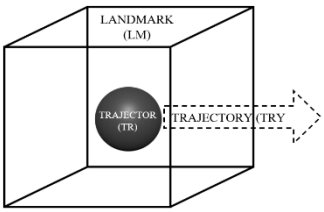

Figure 2.d

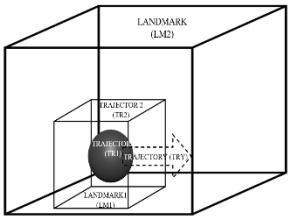

Figure 2.e

The presentation of the findings above demonstrates that the CONTAINER image-schema in the language of J-CBPs is used to conceptualize various concepts such as life and worldly-life, body and body parts, the visually-impaired persons, ideas, character and personal traits, blindness, words and speech, and educational institutions and levels. The conceptualisation of these concepts are not exclusively based on the relationship of CONTAINMENT between a CONTAINER and CONTAINED SUBSTANCES/OBJECTS; instead, J-CBPs rely, as it is illustrated in the following section, on their embodied cognition to continuously engage in sensory-motor behaviours related to source-path-goal, force, resistance, and containment (Gibbs, 2005). Accordingly, non-visual perception of containment experiences can affect the extents by which congenitally-blind persons express the world around them through non-visual sensory-monitor representations of moving, placing, or exerting force on an object within/around a bounded area or a container.

6. The Logics of CONTAINER Image-Schemas in the Language of J-CBPs

The findings above suggest that the CONTAINER image-schema is used by J-CBPs in a manner that reflects their embodied cognition (Johnson, 1987; Gibbs, 2006) by which J-CBPs conceptualise several target-domains in terms of the five logics. Each one of these logics could express how a TR interacts with the LM in terms of sensory-motor behaviours related to source-path-goal, force, resistance, and containment. In the following sub-sections, these logics are discussed and illustrated as they appeared in the language of J-CBPs.

6.1 Logic (a): Being Outside a CONTAINER

We understand logic (a) as there is a ‘static state’ (Hilferty, 1991) where a TR is located outside an LM (Figures 2.a above). In J-CBPs’ language, the LM is mostly their HUMAN-BODY, and the TR is a threat, mostly a DISEASE, that was *out* of the sound person and may ‘target’ the BODY along a TRY. Such scenario pertains to the ontological conceptual metaphors THE HUMAN-BODY IS THE CONTAINER OF DISEASES and A DISEASE IS AN OBJECT. Here, the TR concept is a DISEASE (e.g.,

BLINDNESS/VISUAL-IMPAIRMENT) that is present in proximity to the LM the J-CBP (or their CONTAINER HUMAN-BODY); for example:

(1) *wlādi mā ʿindhum mushkilih.*

kids-my not have-they a problem.

My kids (LM) do not have a problem [impairment] (TR).

'My kids are not visually-impaired'.

The metaphor in (1) indicates that a sound human body of the sighted is EMPTY of diseases. The TR DISEASE is supposedly in another CONTAINER, or in vacuum; thus, it is not controlled by the LM (J-CBPs) and out of their influence. Meanwhile, the supposed TR may exert some sort of FORCE that might affect the physical, or psychological, state of the CONTAINER BODY or its CONTAINED SUBSTANCE (the EYE). The recipient's BODY-CONTAINER could either RESISIT that FORCE or SURRENDER to its effect; leading to of visual-impairment in a later stage. An extension of this logic involves depicting the TR as exerting some 'irritating' or 'annoying' FORCE onto the LM as it is the case of WORDS communicated by another person and heard by the J-CBPs; affecting their emotional state; for example:

(2) *fa-kunt kthīr mutdāiyq min hathā ilkalām we-bidī ʾabatil.*

was-I very annoyed of this speech and want-I stop-that.

I (LM) was too annoyed of that speech (TR) and I wanted to stop-that.

'That argument annoyed me to the extent I was going to leave university.'

Here, the TR (*ilkalām* 'the speech') has a kinetic CONDUIT realization pertaining to the metaphor WORDS/IDEAS ARE OBJECTS. The TR is exerting some immaterialized irritating FORCE (*mutdāiyq*) on the CONTAINER-BODY or its CONTAINED-BODY-PART which is the prototypical CONTAINER OF EMOTIONS (e.g., HEART). Nevertheless, the speakers depict themselves as neither capable of RESISTING that irritating FORCE nor annulling it; meaning that that they (LM) are positioned as falling within the field of influence (short distance) of the TR (*ilkalām*) located outside the LM. Then, J-CBPs perceive themselves as 'patients', lacking agency, and conceivable targets to those irritating words and ideas. Accordingly, logic (a) communicates J-CBPs' feelings of victimization and alienation.

6.2 Logic (b): Moving Into a CONTAINER

In logic (b), the most frequent logic, there is a dynamic state where the TR moves on its own, or is moved by FORCE, along a TRY from outside space into the LM (Figures 2.b above). That logic appears in a large number of CONDUIT metaphors by which abstract entities are conceptualized as TRANSFERRABLE OBJECTS. Accordingly, the exchange of ideas is conceptualized as the transmission (or travelling) of a substance from a speaker along a 'conduit' to a listener (Kövecses, 2010: 74). Speakers put their ideas (OBJECTS/SUBSTANCE) into words (CONTAINERS) and transmits them by a mutually comprehensible linguistic system (along a CONDUIT) to recipients (BEARERS) who, in turn, take the idea (OBJECTS/SUBSTANCES) out of the word (CONTAINERS). The CONDUIT CONTAINER-schema, then, perceives language as the CONDUIT by which speakers communicate abstract ideas, beliefs, facts, and information. What is communicated in the target-domain is structured as CONTAINED in the source-domain, and the source-domains can be identified from the relevant processes (verbs) in the expression. Speakers are then able to produce expressions based on the conceptual metaphors THE MIND IS A CONTAINER and IDEAS (OR MEANINGS) ARE (TRANSFERABLE) OBJECTS/SUBSTANCES and COMMUNICATION IS SENDING (Kövecses, 2010: 74).

By virtue of their ontological nature, CONDUIT metaphors are pervasive in the language of J-CBPs. Several abstract concepts, ideas, dispositions, and moral values and attributes were depicted by J-CBPs as CONTAINED SUBSTANCES/OBJECTS that are BEARABLE, TRANSFERABLE, and DISREGARDABLE. In examples (3-5) below, TR concepts move along an understood, but non-defined, TRY into a LM (J-CBPs' CONTAINER):

(3) *hād alʾishī ʾinzaraʿ bi-dākhilī wu-zād thiqatī bi-nafsī.*

This thing transplanted-it inside-me and increased-it confidence-my in-myself.

This thing (TR) was implanted inside me (LM) and increased my self-confidence.

'This has been instilled into my heart and boosted my self-confidence.'

(4) *ʾakthar ʾishī muzʿij fīhā hwe naẓrit iltulāb.*

most thing annoying-it in-it that gaze the-students.

The most annoying thing in it (LM) is the students' gaze (TR).

'The most annoying thing in this situation is how other students look at you.'

(5) *fa-kān shuʿūr ktīr taʿīs we-ktīr ktīr muḥaṭim lanafsīitī we-maʿnawīyātī.*

so was-it feeling very distressing and very very breaking-it to personality-my and morale-my.

so that was a very distressing feeling (TR) and very breaking to my personality (LM) and morale.

'That feeling was so upsetting and depressing to my moral spirit.'

As we can see, the kinetic nature of the TRs suggests that they exert some FORCE (especially in (4) and (5)) that affects the state of the LM and what is inside it. Nevertheless, in most instances, J-CBPs depict themselves as incapable of BLOCKING (RESISTING) that pungent FORCE. In (5), in particular, PERSONALITY was depicted as A COMPLEX STRUCTURE, or A BUILDNG that was BROKEN by some FORCE (the discouraging words from the speaker's family) that originates from outside the LM and affects what is inside it. That suggests that J-CBPs perceive their SELF-CONFIDENCE and PERSONALITY as the CONTAINED SUBSTANCES/OBJECTS which are placed within the boundaries of their BODY-CONTAINER.

Sometimes, speakers regard themselves as agentive TRs which infiltrate the LM space and stays inside it. For instance, the stages of BLINDNESS and VISUAL-IMAPIRMENT are depicted as CONTAINERS through sensory-motor behaviour with a source-path-goal scenario. That scenario involves the CONTAINER-path taking the shape of a long TUNNEL (LM) where the (TRs) are the J-CBPs who involuntarily ENTERED it; for example:

(6) *bi-tudkhulī bi-marḥalit taʿāyush maʿ ʾilmarad.*

enter-you in a-stage cohabitation with the-disease.

And you (TR) enter a cohabitation stage (LM) with the disease.

'You realise that you have to coexist with your impairment.'

Accordingly, beside communicating ideas through CONDUIT metaphors, this logic is employed by the J-CBPs to communicate negative emotional states such as discontent or being trapped *inside* their blindness.

6.3 Logic (c): Being Inside a CONTAINER

In logic (c), the second most frequent logic, there is another static (and sometimes kinetic) state where TR is inside LM and it is either stationary or partly moving within the boundaries

of the LM (Figures 2.c above). The CONTAINER image-schema could be intrinsic (e.g., THE BODY IS THE CONTAINER OF EMOTIONS and LIFE IS A CONTAINER) or acquired as a consequence of logic (b) (e.g., BLINDNESS IS A PRISON). In the language of J-CBPs, the most frequent realization of this logic involves the representation of the human-body as a CONTAINER.

The BODY/BODY-PARTS CONTAINER-schemas are based on the concept of 'embodiment' which is "understanding the role of an agent's own body in its everyday situated cognition" (Gibbs, 2006: 1). In these schemas, the speakers' perception of containment becomes more centralized and within their own bodies where they depict their bodies, or internal body parts (mainly the 'heart' and the 'mind') as CONTAINERS of feelings and emotions. The BODY/BODY-PARTS make CONTAINERS which bound the J-CBPs' CONTAINED feelings and emotions, and sometimes knowledge. Due to their impaired sensory modalities and experiences, embodiment then makes J-CBPs largely depend on their body to understand how things can be meaningful in accordance with the actions they take, and that can be mainly dependent on the manner by which our human conceptual system extracts and draws upon the perceived similarities between the human body and body parts and environment (Johnson, 1987: xiv).

The majority of the target-domains expressed by J-CBPs using BODY and BODY-PARTS metaphors involved lexes such as *jasadī* (my body) *qalbī* (my heart) and 'my mind' (*ʿaqlī*). Sometimes, the body is conceptualized in terms of PART-FOR-WHOLE metonymy. Still, the conceptual metaphor A (BLIND/VISUALLY-IMPAIRED) PERSON IS A CONTAINER is the most frequently used representation when referring to abstract concepts, such as soul, hope, optimism, disappointment, frustration, or psychological pain, as CONTAINED SUBSTANCES/OBJECTS; for example:

(7) *wu-rijjaʿt rūhī la jasadī lamā smiʿit hada alkalām.*

and returned-it spirit-my to body-my when heard-I that the-speech.

and that returned my spirit (TR) to my body (LM) when I heard that speech.

'That speech has revived my spirit'.

(8) *fa-ṭlʿit bara wu-farraght ʾalamī.*

then-went-out-I outdoor and emptied-I pain-my.

and I went out outdoor and emptied my pain (TR).

'and I left them and went out to relieve my sorrow'.

In addition, the BODY/BODY-PARTS CONTAINER-schemas are used by J-CBPs to ontologically conceptualize their BODY as a CONTAINER OF DISEASES/IMPAIRMENT; for example:

(9) *wu-ʾnā wulādī mā fīhum ʾishī.*

and-I kids-my nothing in-them thing.

and my kids (LM) have nothing (TR) in them.

'and my kids are not (visually) impaired'.

On the other hand, logic (c) appears in the language of J-CBPs to conceptualize their progress (or MOVEMENT) in their formal education where academic 'life', or 'world', is depicted as a CONTAINER for the J-CBPs. This makes ontological metaphors which work on conceptualizing academic institutions (e.g., schools, colleges, vocational institutes, universities) or educational-levels (e.g., primary, secondary) as CONTAINERS using metaphorical lexes such as *dakhalit* (I have entered (or joined)), *fī* (in), *barrā* (outside). In the following examples, a TR concept (teachers and J-CBPs) is within the boundaries of an LM (educational institutions):

(10) *kānū ilmʿalmīn ykūnū mushābihīn lalwaḍʿ ʾili ʾiḥnā fīh.*

were-they the-teachers being-they similar to-situation that we in.

The teachers (TR) were similar to the situation (LM) we (TR) live in.

'The teachers were visually-impaired too.'

(11) *fī ʾihtimām ʾaḥsan lā shak ʾakthar min barrā.*

in care better-it no-doubt more than outside.

There (LM), there is a better care, no doubt, than outside.

'No doubt, more attention is paid to the impaired students in these schools than outside.'

The EDUCATION-CONTAINER-schema is productively used by J-CBPs to give a message about the positive role of the schools for visually-impaired people. These schools were

presented as CONTAINERS where the J-CBPs find a safe haven to learn about the world with the aid of professional teachers.

On the other hand, logic (c) communicates meanings of confinement and entrapments which characterize the life of the visually-impaired person. Almost every participant conceptualized LIFE as a CONTAINER in which they live, interact, and suffer. The metaphor involves a mapping of a generic feature of the CONTAINER as a large and boundless space with the J-CBPs make its CONTAINED SUBSTANCES/OBJECTS which are isolated from an imaginary exterior space, or vacuum. Here, the metaphorical lexis *il-ḥayāt* (the life) makes the linguistic realization of the conceptual target-domain for the metaphor LIFE IS A CONTAINER; for example:

(12) *ʾnā hay il-ḥayā hek ṣārat qudāmī msakra.*

I this life like-that became-it before-me closed-it.

this life (LM) has become closed before me (TR).

'there was no hope for improvement in my life'.

The bounded representation of the TRs in (12) suggests that they are subject to the conditions of their LMs. The speakers perceive themselves as 'patients', and lacking agency, as they (as TRs) are under the control of the bounding LMs. This control communicates both positive and negative senses of control. In the positive sense, the LMs make an innocuous and homogenous space that protects the TRs from the outside space (examples (10) and (11)) pertaining to the conceptual metaphor SCHOOL OF BLIND PEOPLE IS A WORLD. On the other hand, the LM control of the TR communicates a negative sense of confinement and imprisonment (example (12)) pertaining to the conceptual metaphor BLINDNESS IS A PRISON. Thus, in the latter sense, the J-CBPs are always in state of hope of a FORCE that could transfer them (as TRs) from inside the confining LM to the outside world, or at least to a better LM as it's the case of logic (d).

6.4 Logic (d and e): Moving From Inside a CONTAINER

In logic (d) (and (e)), there is a kinetic state where TR moves on its own, or is moved, from the inside space of the LM to the outside along a TRY and by means of causative FORCE (Figures 2.d and 2.e). That FORCE aims to free the TR from the control of the LM and make it more dynamic, or visible; for example:

(13) *kānat ʾiʿāqtī ʿaqabih bas ṭliʿit minhā.*

was disability-my obstruction but got-out-me of it.

My disability (LM) was an obstruction but I (TR) got out of it.

‘My vision-impairment was an impediment, but I have managed to overcome it.’

(14) *hume ʾakīd ʿindhum ḥinīyih min jūwah bas mish ʿārfīn yiẓhurūlī yāha.*
they sure have-they compassion from inside but not knowing-they revealing-them to-me it.
They surely have compassion (TR) inside them (LM) but they do not know how to show it (TR) to me.
‘They are compassionate and sympathise with me but they do not know how to express that in words.’

The dynamic nature of the TR suggests that there is some FORCE that is exerted on the TR and allows the TR to leave the LM without affecting the state of the LM or its other CONTAINED SUBSTANCES. However, more J-CBPs bestowed upon themselves agency attributes (as TRs) who have the willing to leave the controlling LM to another (better) space (example (13)) pertaining to the metaphor LIFE/BLINDNESS IS A STRUCTURE. In few instances (as in (14)), the speakers depict the TRs as capable of controlling that FORCE as it is the case of the metaphor FACE/EYE IS THE CONAINER OF EMOTIONS. The J-CBPs’ family’s *ḥinīyih* (COMPASSION) for their blind daughter is conceptualized as a concealed SUBSTANCE, and that the family could exert some FORCE to *yuẓhir* (reveal) by making it leave their BODY-CONTAINER instead of *yukhfī* (concealing) it.

Sometimes, and with comparison to example (13), the metaphorical lexis *dunyā* (worldly-life) is depicted as a smaller CONTAINER that is located inside *il-ḥayāt* CONTAINER. That means that *dunyā* simultaneously makes a CONTAINER (that bounds the J-CBPs) and CONTAINED SUBSTANCES/OBJECTS (bounded by *il-ḥayāt*). In other words, we have two LIVES which act as CONTAINERS; the first LIFE (*il-ḥayāt*) makes boundaries to a second one, called the WORLDLY-LIFE (*dunyā*) (Figure 2.e). In its most explicit realization, the metaphorical lexis *dunyā* is preceded by a locative preposition such as *fī* or *bi* (both mean ‘in’). For example, a participant expressed his happiness when he was told that there is hope to cure his visual-impairment by stem-cells technology:

(15) *ḥasīt ʾnī kunt bi-dunyā wi-ṭalaʿt ʿa-dunyā tānyi.*

felt-I were-I in a-world and-departed-I to a-world second.

I felt that I (TR) were in a world (LM1) and departed to a second world (LM2).

‘this world could not contain my excitement and happiness’.

The metaphor in (15) involves conceptualizing VISUAL-IMPAIRMENT (i.e., BLINDNESS) as a separate WORLDLY-LIFE (*dunyā*) that differs from other WORLDS; still, all these

WORLDS are bounded by LIFE. In several instances, the metaphorical meaning of blindness is extended to mean a 'confining' CONTAINER, and that is verbalized when using metaphorical lexes from the sensory-motor behaviour of source-path-goal such as *ḥājiz* (barrier) with the word *ʿālam* (world). For example, one participant expressed how she accepted her blindness by saying:

(16) *hūe ʿālamik ʾllī ʾintī ʿāysheh fīh we-bidkīsh tiṭlaʿī minu, ʾllī hūe kaf il-baṣar yaʿnī.*

it world-your that you live-you in-it and want-not-you get-out-you from-it, that it visual-blindness mean-I.

it is the world (LM1+2) that you (TR) live in, and you (TR) do not want to get out (TRY) of it (LM1+2), I mean blindness (LM1).

'you feel imprisoned by your blindness, and that there is no way to escape that destiny'.

And in another example, a speaker hoped that:

(17) *we-inshaʾ āllah rabī raḥ ytaliʿnī min hāda kulū.*

and if will Allah God-my will get-me-out from this all.

By the will of Allah, my God will take me (TR) out of that (LM) all.

'God will take me in hand and relieve me from this misery.'

In examples (15-17), J-CBPs perceive a second LM2 that is bigger, and better, than their LM1 (BLINDNESS). Whether the two CONTAINERS are independent or that one CONTAINS the other is not explicitly stated by the speakers. Still, it is inferred that the most important representation of logic (d) involves TRs RESISTING the confining LMs and trying to leave them. Accordingly, this logic is predominantly employed by J-CBPs to communicate the positive sense of ambition and hope.

The diversity of the metaphorical target concepts and logics reflects the significance of the spatial CONTAINER image-schema in providing the J-CBPs' with a tool to express their experiences by relying on their embodied cognition. The CONTAINER-schema provides J-CBPs with means to perceive the world through some sensory modality that is not entirely based on vision sense. It is noticed that most of the source-domains that are based on the CONTAINER-schema were dependent on the J-CBPs' visual perception and some other sensory modalities (such as grasping objects, exerting pressure, walking along a path, or blocking a moving object) which helped them experience their spaces, perceive them, and rely on them in expressing their world verbally using metaphorical language. Thus, the

CONTAINER-schema has more to its meaning and logic than the conception of CONTAINMENT.

7. Discussion

We have seen that CONTAINER image-schema could give us insight into the embodied cognition of J-CBPs. Two logics are noteworthy when drawing inferences about the schematic representations of J-CBPs' embodied cognition when using CONTAINER metaphors; the first when the TR moves from outside LM to inside LM following TRY, and the second when TR permanently exists inside LM and (may) move(s) inside it. These representations stand for the underlying cognitive processes acquired by J-CBPs through (non-visual) sensory modalities and sensory-motor behaviours and experiences and that explains the pervasiveness of the two logics (b and c) on basis of the J-CBPs' embodied cognition formulated through bodily experiences such as proprioceptive, and kinaesthetic, sensations of the body and co-speech gestures (or '*gesticulation*').

Although vision is the dominant modality that constitutes a speaker's spatial experiences and capabilities (Karlsson, 1996: 304), the metaphorical language of J-CBPs reflects their dependence on a synthesis of cutaneous and proprioceptive impressions pertaining to schemas of CONTAINMENT, (LACK OF) MOVEMENT, and FORCE. For instance, J-CBPs' bodily experience of containment can be defined by their cutaneous sense of pressure and pain. When depicting their bodies as CONTAINERS, J-CBPs remember their own experiences of space, direction, pressure and movements with the aid of the tactile sense that detects pressure and movement on their skin and other proprioceptive senses that affect joints and muscles; and hence functions as the foundation for the communicative senses (Lindström, 2019: 57). With the absence of vision modality, such sensations contribute in compensating the full sensory experience of the objects (Raykowski, 2022 In Press: 8) and recognising all body parts are in relation to each other rather than independent modalities. Meanwhile, the receptors in each body part work on guiding the visually-impaired in planning, placing, and controlling their movements. What is more, the activation of the receptors when stretching and contracting the muscles, during daily bodily activities (e.g., bending), provides the visually-impaired with an approximate realisation of the position of their body parts in relation to their surrounding spaces, whether they move or not, how quickly and in what direction. From such realisation, they learn the image-schemas related to metaphorically express their experiences and emotions and thought using their own embodied cognition. At that point, the J-CBPs' verbalisation of a metaphoric expression is grounded in their sensory-motor system (Jelec, 2014: 11) and their brain areas responsible for movement are activated in the ground of their bodily experience and perceptual simulations (Barsalou, 2008).

On the other hand, gesticulation plays an important role by which visually-impaired persons perceive spatial experience. Gesticulation (or *gesturing*) is a motion that is usually performed with the arms and hands to convey a meaning related to co-occurring speech (Jelec, 2014: 93), and it is often produced unintentionally while speaking (Cienki, 2008). Gesticulation can also involve the head if hand movement is restricted (McClave, 2000). Since these motions are

generally unintentional, the speaker's spoken language is considered the primary information channel, and the gestures make a secondary channel since their communicated information are not as precise as that expressed in speech (Sweetser, 2008: 359). Consequently, gesticulation and discourse are interdependent as both spoken language and gesticulation can involve metaphorical expressions which are communicated to express abstract concepts (Cienki, 2008). Since humans develop their language, and meaningful gestures, from their early childhood through interactions with objects (Bruce et al., 2007), gesticulation does not necessarily depend on their level of vision or their access to visual information (Iverson and Goldin-Meadow, 1997; 2001). Since congenitally-blind persons might have not received sufficient information about language, they find themselves required to exhibit learning strategies by gradually developing mental representations of concepts; especially objects and spaces (Jelec, 2014: 105). Congenitally-blind persons then conceptualise space by depending on their interactions with objects and spaces through their everyday sensory-motor experiences with familiar objects and spaces via hearing, touching, and movement (Millar, 1988).

To explain J-CBPs notable reliance on logics (b) and (c) when metaphorically expressing target-domains, that could be explained by arguing that they spatially express themselves and their experiences from their points of view as a *character* or an *observer* (Cassell and McNeill, 1991). The former is reflected in logic (c) where a TR concept permanently exists inside an LM and (may) move(s) inside it). Here the J-CBP assumes the role of a 'protagonist' LM who possesses (CONTAINS) abstract TR concepts (like being blind, having emotions and character and personal traits). That protagonist, sometimes, acts as a TR concept that interacts within the boundaries of the LM (like LIFE). The experiential basis of such perspective can be any analogous real-life proprioceptive and kinesthetic experience in which a J-CBP uses a hand-gesture with his open palm (for example, filling it with money) or feeling full, and satisfied (or uncomfortable), after a heavy meal, or being confined to a small space (like a bedroom). On the other hand, in logic (b), where J-CBPs are the TARGET COTAINERS of the MOVING TRs concepts (mostly diseases (impairment), or harmful ideas and words pertaining to CONDUIT metaphors), the speaker's point of view is echoed from the a third person perspective; an observer – a speaker who is outside the LM. The experiential basis of this can be any analogous real-life proprioceptive and kinesthetic experience in which a J-CBP has once experienced by gesturing; for example, moving one hand quickly and colliding it with the other hand when describing an accidental collision with a wall or a person, or being in-need for constant spoon-feeding from an assistant or a guardian. Therefore, logics (b) and (c) are used by a J-CBPs to reflect upon their perspectives, a character or an observer, and verbally position themselves as reference points in most of the spaces they assume; mostly with reference to their own bodies. Such reflexion could be explained from '*egocentrism'*, the phenomenon in which self is used as the main point of reference (Heller and Kennedy, 1990). Accordingly, J-CBPS' embodied cognition prompts them to maximally attend to internal cues which depend on their perception of the surrounding space and objects which define their point of view. Then again, J-CBPs were more inclined to neglect external cues, and barely use CONTAINER-based metaphors from logics (a) and (d) in which they did not perceive themselves as the main reference point.

8. Conclusion

This study addressed how conceptual metaphors from the CONTAINER image-schema are perceived and articulated in the language of a sample of J-CBPs. It illustrated how the basic spatial 'embodied cognition' of those persons works on creating meanings on basis of embodied experiences and are verbalised using spatial schematic representations and conceptualised in terms of sensory-motor behaviours, such as CONTAINMENT, RESISTANCE, MOVEMENT, INFILTRATING, ENTERING, and LEAVING. The J-CBPs used these representations to express their experiences, activities, feelings, and emotions by metaphorical expressions pertaining to the CONTAINER source-domain and grounded on 'spatial' and 'embodied', rather than visual, structures.

The CONTAINER image-schema is substantial linguistic tool to the J-CBPs when conceptualizing their experiences and thoughts; especially when communicating ontological meanings of concepts related to their impairment. In addition, they are used to communicate evaluative judgements regarding their experiences with visual-impairment and society; such as the case of images of victimization, alienation, entrapment, and confinement. Although most of these concepts and judgements are perceived on basis of CONTAINER-CONTAINED relationships, there are other noteworthy spatial relationships of MOVEMENT and causative FORCE; such as entering, exiting, infiltrating, and resisting which could have gradually developed over age; especially, by the speakers' dependence of gesticulation.

This study is a preliminary understanding of the linguistic behaviours of J-CBPs when metaphorically expressing abstract and concrete concepts using the CONTAINER image-schema. In addition, this study could initiate more investigations into sensory aspects of image-schemas. As this study relies on language and language-schemas as a mediator, it could not show that they mediate understanding of language; rather the metaphoric or metaphoric-like language could be understood directly through the spatial-motor and/or visual-spatial-motor experiences without the mediation of language schemas. This is a general concern about image-schemas that could be noteworthy in understanding how the blind understand language. For instances, few studies have tackled the issue of metaphoric gestures (*see* Iverson and Goldin-Meadow, 1997; 2001) and how the visually-impaired differ from the sighted in acquiring and mastering these modes of communication; so, "future work is needed to determine the breadth of the blind individual's gestural repertoire" (Iverson and Goldin- Meadow, 2001: 421). Herein, visual-impairment makes a vital subject for further research on the relationship between sensations, embodiment, and cognition with the linguistic behaviours of the visually-impaired. For instance, taking into consideration that all the participants were adults (between 21and 45-year-old), age could be a pivotal factor on the type of metaphors frequently used. The study postulates that J-CBPs' mature sensation-modalities could provide constant experiences with space and objects and can establish a reliable source for conceptualising concepts through sensory-motor and tactile experiences. Still, more experimental study, conducted in more controlled environments, could prove, or disprove, such postulation.

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Notes

Note 1. The transliteration of the Arabic utterances follows the conventions of the *International Journal of Middle East Studies*; available via https://www.cambridge.org/core/journals/international-journal-of-middle-east-studies/information/author-resources/ijmes-translation-and-transliteration-guide

Note 2. The 3-tier glossing-rules adopted in the examples aims to convey the metaphoric sense of the utterances and their equivalent translation in English; all translations were checked by a professional translator.

Note 3. It is more conventional in (Jordanian) Arabic to depict ‘self-confidence’ as a CONTAINED SUBSTANCE using the metaphoric keywords *yizīd* (increase) and *yunqus* (decrease). Hence, some external FORCE affects the ‘amount’ of confidence that a speaker’s body/mind/heart ‘contains’.

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