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Training physicians to work in a second language

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Abstract

This study highlights the importance of targeting practices that facilitate physician-patient communication in language courses for health professionals. The aim of this study is twofold. Firstly, it examines if and how physicians with a second language deploy metaphors to facilitate understanding. Secondly, it investigates how this practice can be enhanced through communicative training. The study comprises two separate parts, each with a different approach, method, and participants. Study 1 investigates the use of metaphors in authentic situations from outpatient clinics, where physicians consulted patients in L2 Norwegian. The data consists of transcripts of video recordings and an interview with one of the physicians. Study 2 examines the outcomes of an intervention during an intensive language course before the physicians' arrival in Norway. The data in this study include oral and written production, as well as an interview with one of the participants. Study 1 revealed contexts in which migrant physicians deploy metaphors to facilitate their communication in L2 and types of the expressions they use. Study 2 showed that stimulating metaphor awareness might be beneficial for metaphor use in communication and comprehension in visual representation, which in turn can support L2 communication in the physicians' everyday practices.

Keywords: second language physicians, second language communication in healthcare, metaphors in healthcare, language training for healthcare providers, migrant physicians, health communication

1. INTRODUCTION

The global shortage of healthcare providers calls for greater than ever mobility in the sector (WHO 2016, 2020). In Norway, nearly 18% of active physicians have foreign origins (Norwegian Medical Association 2022). Despite different motivations for moving to a new country, all of the physicians face a common challenge: consulting patients in a second language (L2). Potential miscommunication in healthcare has been investigated by many, though mainly from a patient's perspective (Cano-Ibanez et al. 2021). Studies on how foreign physicians manage their daily work linguistically often focus on linguistic shortcomings and emphasise their harmful effect for treatment and patients' well-being (Alpers 2016; Skjeggestad, Gerwing & Gulbrandsen 2017; Baquiran & Nicoladis 2020; Chandrashekar & Jain 2020; Kauff et al. 2021; Berbyuk Lindström & Girardelli 2023).

The aim of this study is to examine how migrant physicians with a limited command of Norwegian facilitate patient comprehension by tapping into multilingual resources and using metaphors. Additionally, the study seeks to explore how this can be enhanced through communicative training.

2. LITERATURE REVIEW

The body of research on health professionals performing in a second language remains scarce. The key challenges identified in the existing studies include limited linguistic repertoire (Johannesen & Hellesø 2019) and difficulties in word retrieval and comprehension that health professionals experience in their daily performance (Berbyuk Lindström et al. 2006). These challenges are then exacerbated by the patients' speech rate and linguistic variation (Berbyuk Lindström et al. 2006; Pitkänen et al. 2021; Solarek-Gliniewicz 2024). Due to these challenges, L2 speaking health professionals may disregard or misunderstand patients' symptoms described in unfamiliar terms (Pitkänen et al. 2021) or record less detailed information (Johannesen & Hellesø 2019).

Research to date has also identified several communicative strategies used by L2 speaking medical professionals to mediate these difficulties: repetition (Berbyuk Lindström 2008), reformulation and repairs (Berbyuk Lindström 2008; Kahlin et al. 2018), follow-up questions (Tykesson et al. 2019), adapting speaking style and reliance on non-verbal communication (Jain & Krieger 2011). Studies that have examined the impact of communicative training found that physicians' interactional competence can be stimulated by introducing role-play tasks focusing on practices such as back-channeling, asking follow-up questions or initiating repairs (Tykesson et al. 2019; Gelis et al. 2020; Yu et al. 2023).

What has not been examined to date is the use of figurative language in L2 physician –patient interaction. Therefore, the purpose of this paper is to enrich the picture of L2 healthcare communication by studying physicians' use of metaphors in L2 (Study 1), and how this use can be encouraged in language instruction (Study 2). Unlike previous research, which primarily focuses on challenges and strategies, this study emphasizes a potential linguistic resource available to physicians and explores how teaching strategies can facilitate the development of this resource.

The reason metaphors should be incorporated in physicians' language training is the role they play in effective communication within healthcare (Landau et al. 2018). Several areas of medicine—such as oncology, psychiatry and palliative care—have developed their own metaphoric conceptual apparatus, present in professional publications, therapy and interactions between healthcare professionals, patients and relatives (Casarett et al. 2010; Magaña 2019; Hauser & Schwarz 2020; Mannsåker 2022; Rasmussen et al. 2022; Bronnec et al. 2023). Metaphors are used to make complex health conditions and procedures easier to access, and

to illustrate the nature and advances in a treatment process. Metaphors also provide tools for communication within traumatizing experiences, such as pregnancy loss (Turner et al. 2022). The supportive effect of metaphors has been attested mostly by studies relying on data retrieved from patients (Landau et al. 2018; Spina et al. 2018; Munday et al. 2020; Saatci & Aksu 2020; Wilding et al. 2023). According to these studies, the physicians who use metaphorical expressions are perceived as better communicators. The effect has also been investigated from a health professional's perspective (Malkomsen et al. 2022). The number of such studies is rather limited, but they all conclude that metaphors are perceived as a useful tool (Lazard et al. 2016; Littlemore & Turner 2019; Malkomsen et al. 2022); nevertheless, no studies to date have looked into the use of metaphors by L2 physicians.

3. THEORETICAL FRAMEWORK

3.1 THE COGNITIVE METAPHOR THEORY

To understand how metaphors work and how metaphorical concepts rely on one's conceptualizations from L1, it is necessary to consider them through the lenses of Lakoff and Johnson's (1980) cognitive metaphor theory and its updated versions (e.g., Kövecses 2020). The theory suggests that metaphor is an integral part of human language and is frequently used as a resource by which we discuss abstract and complex ideas in terms of more concrete entities one knows from their bodily and daily experiences. In view of the theory, we say that X is Y, where X is the abstract concept and Y is easier to grasp. Cognitive metaphor theory entails mapping concrete concepts from a so-called source domain onto a target domain comprising more abstract ideas. Each underlying (conceptual) metaphor can be realized by several metaphorical expressions, i.e., linguistic instantiations (Lakoff & Johnson 1980). Thus, *extinguishing fire* and *burning sensation in a joint*[1] represent the same concept, in this case, inflammation equals fire. Metaphorical expressions can be conventionalized, which means that they are well established in the language, often fixed and included in dictionary entries, such as *to feel under the weather*. Novel metaphorical expressions, on the other hand, are unfixed, often created at the time of speaking and are based on common knowledge, or the knowledge shared by the speakers, such as *fire in the wrist*.[2]

3.2 METAPHORS AND SECOND LANGUAGE

Explaining a difficult concept (target domain) by deploying a concept form everyday life (source domain) are often recognized and understood across languages, as long as the speakers share experience and conceptualizations. This can be attested by the FIRE metaphor broadly used during the Covid-19 pandemic (Semino 2020), or broadly used WAR metaphor, e.g., *a constant barrage of criticism* 'a large volume of criticism from multiple sources', *a marketing blitz* 'intense and concentrated marketing campaign'. Yet, metaphorical expressions might be confusing in a second language context, as they often differ between languages in terms of imagery, lexemes or structure. The following examples all use a word for 'cold' as a vehicle and thus appear similar on the surface. However, they carry quite different meanings: English *get cold feet* 'get scared' and Arabic *ḥaaṭiṭ rijle:h bmay baardih* 'put feet in cold water' = 'relax', Norwegian *holde hodet kaldt* 'keep cold head' = 'stay calm' and Polish *zachować zimną krew* 'keep cold blood' = 'stay calm'. Golden and Szymańska (2022) differentiate between expressions with complete, partial and no equivalence: complete equivalence means

[1] Example from Study 1.
[2] Example from Study 1.

that the expressions in L1 and L2 are identical in terms of structure and lexemes they contain, whereas partial equivalence means that lexemes might differ slightly, such as in Norwegian s*kyte seg i foten* 'shoot oneself in the foot' and Polish *strzelić sobie w kolano* 'shoot oneself in knee'. Golden and Szymańska (2022) found that L2 metaphorical expressions with complete and partial equivalence are easier to comprehend, which is in line with the theory of crosslinguistic influence (CLI). The theory implies that the languages one speaks interact with each other. Specifically, CLI suggests that elements from a person's first language can influence their second language in various ways, affecting vocabulary, grammar, pronunciation, and even pragmatic aspects, such as how politeness or formality is conveyed. Furthermore, CLI can also affect conceptualizations and perception of certain phenomena (Jarvis & Pavlenko 2008; Pavlenko 2009; James 2018). This dynamic interaction means that learning and using multiple languages can shape one's linguistic competence in complex and nuanced ways. CLI's supportive effect on comprehension of metaphorical expressions has been demonstrated in several studies (e.g., Boers & Demecheleer 2001; Türker 2016; Golden & Szymańska 2022). In L2 production, CLI and the equivalency between expressions in L1 and L2 can manifest in transferring expressions one is familiar with in L1, which can, but does not necessarily lead to misunderstandings.

Littlemore and Low (2006) point out that metaphoric competence is of major importance for communicative competence, contributing to grammatical, textual, strategic and sociolinguistic competence, among other things. For this reason, it is relevant for L2 learning, teaching and testing from very early stages of training, as metaphoric competence develops in tact with linguistic competence (Littlemore & Low 2006; Littlemore 2019). In the healthcare context, the ability to understand and use metaphorical expressions is particularly crucial. Metaphors can help healthcare professionals explain complex medical conditions and treatment plans in more relatable and understandable terms for patients. They can bridge the gap between medical jargon and patients' everyday language, enhancing patient's comprehension and engagement. Furthermore, effective use of metaphors can foster empathy and build stronger patient-provider relationships, ultimately contributing to better healthcare outcomes.

4. RESEARCH DESIGN

The objectives of this study are twofold. Firstly, it seeks to analyze whether and in what manner physicians who are proficient in a second language utilize metaphors to enhance comprehension. Secondly, it aims to investigate how this practice can be augmented through communicative training. As such the study addresses different research questions. As this required separate approaches and methods, two independent studies were carried out. Study 1 investigates the types and origin of metaphorical expressions, whether the expressions have the same facilitating purpose as when the physician and patient share L1 (Landau et al. 2018) and to what extent the physicians use metaphors as a conscious communication strategy. Study 2 is a case study that examines if the production and use of metaphors can be stimulated in language training. The studies share neither data nor participants, therefore they are presented independently, but discussed together as both of them aim to provide insights into acquisition processes and use of metaphors in L2 physicians.

4.1 STUDY 1 – FIGURATIVE LANGUAGE IN AUTHENTIC L2 PHYSICIAN-TALK

Study 1 investigated the use of figurative language in authentic situations where migrant physicians spoke to their patients in Norwegian, which was the physicians' second language. The study targeted the following questions:

1. What types of metaphorical expressions are to be found in physicians' L2 use?
2. Can the metaphorical expressions be traced to the physicians' L1?
3. Do the expressions serve the same facilitating role as the expressions used by physicians operating in their L1?
4. Do the physicians use metaphorical expressions as a conscious communication strategy?

4.1.1 METHOD

Data in this study comprises transcripts of video-recorded consultations from Norwegian outpatient clinics.[3] In total, there are nine physicians with L1 Polish who consult 40 L1 Norwegian patients in L2 Norwegian. The recordings were made for multiple research purposes related to healthcare communication. As such, the data was not tailored for metaphor research. Thus, the nearly 24-hours-long material was analyzed manually by the author for the occurrence of metaphorical expressions. Ultimately the transcripts of three physicians were selected for further analysis. The choice was made based on the total number of metaphorical expressions, which was partially influenced by the length of the recordings. The physicians selected for the study had the most recordings, and thus the occurrence of metaphorical expressions in their output was highest. The material was then analyzed to target the research questions. Identifying the type of expressions (conventional vs. novel), the contexts in which they were used, and purposes they served allowed for the comparison of the distribution of metaphorical expressions used by physicians operating in their L1. As conventionality is a continuum, dictionary searches were conducted to distinguish between conventional and novel expressions a dictionary searches were made. Although this method can be open to dispute, it allows to differentiate expressions that are present in the dictionary (i.e., established in the language and possibly acquired by physicians through exposure) from those that are not established (conventionalized). Context often revealed the function of the metaphorical expressions, such as when personification was used to clarify device functions. The comprehensibility of the expressions, evaluated by repairs initiated by a patient, indicated whether they served the same communicative function as when both the physician and patient shared the same language, i.e., whether they facilitated communication. Subsequently, equivalence with expressions in the physicians' L1 Polish was analyzed to determine whether there was any supportive effect of the physicians' L1 (complete or partial equivalence vs. no equivalence). Table 1 displays the number of metaphorical expressions present in the material. The data was also supplemented with a short interview with one of the physicians to learn whether they used metaphorical expressions as a conscious strategy, which helped to answer the last research question.

PARTICIPANT	**GENDER**	**NUMBER OF PATIENTS**	**TOTAL LENGTH (min.)**	**NUMBER OF EXPRESSIONS**
Internal medicine specialist	F	6	244	42
Rheumatologist	M	12	231	35
Cardiologist	M	5	113	37

Table 1. *Data selected for the study.*

[3] The data was collected by the author and her colleagues from NorPol Project: *Second-language communication in workplace settings — the case of Polish migrants in Norway* (NorPol) in summer–autumn 2021 and transcribed by a research assistant. The author herself refined the orthographic transcription of the material selected for the study and translated it for dissemination purposes.

4.1.2 PARTICIPANTS

All three physicians chosen for the study were in their late forties and had completed their medical studies and specializations in Poland. Before moving to Norway, the physicians completed an intensive Norwegian course concluded by a language proficiency exam corresponding to B2 level, and at the time of data collection, the physicians had lived and worked in Norway for nearly ten years. This implies that they had been exposed to Norwegian both as a foreign language and second language and had experienced interactions with a wide variety of users. Additionally, all three participants shared L1 Polish and self-reported a good command of English.

4.1.3 RESULTS

Individual spread. The number of metaphorical expressions used by each physician varies. This can result from the physicians' individual characteristics, such as being a verbaliser[4] or an imager, but also from the amount of material and type of consultation the physicians were involved in. The number of metaphorical expressions used can therefore be regarded only as a general overview of how the physician population distribute them, whereas the analysis is qualitative.

Comprehensibility. None of the patients in the material asked for clarification after the metaphorical expressions were used. Neither did their non-verbal communication display any bafflement. They also responded in ways that reflected an understanding of the metaphorical expression, and some of them repeated the expression further in the conversation. Additionally, the expressions in the material were based on connections that already exist in Norwegian, e.g., *å slokke brann i håndleddet* 'to extinguish fire in the wrist' can be understood through other expressions that link problem or urgency with fire, such as *å føre noen ut av ilden* 'to lead someone out of the fire' or *det brenner under føttene* 'it is burning under the feet'. This means that if the recipient is accustomed to using fire-related vocabulary to talk about problematic situations, understanding the expression used in this context will likely not pose any challenge. Moreover, the interpretation of most metaphorical expressions involves the recipient using contextual information to adjust the meaning, ensuring that the interpretation fits the usage context (Berthelin 2022). Therefore, it is reasonable to assume that *extinguishing the fire* and other expressions used by the physicians were not understood literally, and were fully comprehensible to the L1 patients.

Although each physician used expressions in a slightly different context, the expressions seem to serve three main purposes: to illustrate a health condition that can be unpleasant or abstract for the patient (*we have to strengthen the wall in your abdomen, your intestine is trying to find its way out*, *we have to extinguish the fire in your wrist*, *the pillows in your knees are flat*), to explain how a device works (*the pump talks to the sensor*), and to compensate for lexicon shortages (*the pump and the sensor argue, the fire will not die out itself*). The last point is rather hard to determine when looking at the material, but one of the physicians confirms it the subsequent interview. All these functions support communication and comprehension between the physician and the patient, which is the very same purpose the expressions have when the physician and the patient share L1 (Landau et al. 2018; Spina et al. 2018).

Expression type. The material contained both conventional expressions, such as *holde sykdommen i sjakk* 'keep the disease in check', and novel expressions, like *slokke brann i håndleddet* 'extinguish fire in the wrist'. The ratio of conventional vs. novel expressions was

[4] While verbalisers process information in word form, imagers process information in terms of images, and are thus inclined to increased production of metaphorical expressions (Boers & Littlemore 2000).

first computed in total—respectively, 34% and 66%—and then for each of the three participants, where the internal medicine specialist, rheumatologist and cardiologist respectively used 33%, 31%, 38% conventional and 67%, 69%, 62% novel expressions.

L1 equivalence. The conventional and novel expressions were further analyzed in terms of equivalence with expressions in the physicians' L1, Polish. In total there were 33% conventional expressions with complete or partial equivalence (e.g., *alt er på plass* 'everything is in place', *holde sykdommen i sjakk* 'keep the disease in check') and 67% with no equivalence (e.g., *på forhånd* 'in advance', *å høre med noen* 'to check with somebody'). For the novel expressions, such as *kul i magen* 'sphere in the stomach', *å reparere veggen* 'to repair the wall', *hjemmelekse med diabetes* 'homework with diabetes'), the numbers were respectively 87,5% with complete or partial equivalence and 12,5% with no equivalence. The high percentage of conventional expressions with no equivalent in L1 might indicate that the expressions were learned via input, like instruction or colleagues. Contrastingly, the high percentage of novel expressions with L1 equivalence could suggest that the participants rely on their L1 knowledge and imageries when using novel expressions in L2 Norwegian.

4.1.4 INTERVIEW

The analysis identified three main purposes for which physicians deploy metaphors: to make a complex health condition or procedure more accessible to patients or relatives, to compensate for lexicon shortages, and to illustrate how a device works. The last case was especially prominent in one participant, an internal medicine specialist, who demonstrated repetitive use of the same type of expression. All of them were linguistic representations of the metaphor MACHINE is PERSON, which presents an insulin pump as a creature capable of carrying out cognitive and executive functions like thinking, realizing, analyzing, making decisions and talking: *pumpen er klok* 'the pump is smart', *pumpen bestemmer selv* 'the pump decides itself'. To investigate whether her use of metaphorical expressions and personification was conscious, the physician was interviewed in L1 Polish shortly after the medical appointment took place.[5] The task in which the physician was asked to explain how an insulin pump works in L1 Polish revealed a clear overlap with how the physician presented the device in L2 Norwegian. When asked if she was aware of her use of metaphorical expressions in L2, the physician first denied it, assuming metaphors featured rather sophisticated language ("*no, quite the opposite! I was trying to make it simple*"). However, when presented with a few examples from the material (*the pump thinks that everything works fine*, *the pump talks to the sensor*), the physician stated that she always intends to make her communication as clear as possible, so that the patients can comprehend her ("*I just wanted to make it simple, so that what I say is understandable*"). The physician also admitted deploying "well-proven" methods she knows from her practice in L1, when a difficult issue needs simplification ("*I'm an old physician and I know what works and what doesn't*"). The physician relies on metaphorical expressions in order to replace complicated medical terms ("*instead of saying revascularisation of coronary arteries […]* [I say] *look into blood vessels to check the flow*"). Another situation where metaphors come in handy according to the physician is when one lacks a lay word, which was often the case when she started her practice in Norway ("*in the beginning I didn't know everyday words, so I could talk about coronary angiogram […], but what the patient understood out of it was another thing*"). All of these reflections support the findings from the study, providing an overview of the situations in which the physicians resort to figurative language. Metaphors are an important part of physicians' communication strategies, helping

[5] The interview was audio-recorded and then transcribed and translated by the author into Norwegian and English for dissemination purposes.

them to elucidate complex concepts to individuals without medical training. However, the extent to which their use is intentional remains unclear. Additionally, the influence of the L2 dimension is neither clearly discernible nor particularly relevant in this context. However, if metaphors play a vital role in effective communication with patients, and physicians rely on them to facilitate understanding, those practicing in their L2 could benefit from targeted training in metaphor usage.

4.2 STUDY 2 – METAPHOR STIMULATION IN LANGUAGE TRAINING

The results of Study 1 indicate that the physicians deploy metaphors and metaphorical expressions to support their comprehensibility and communication when performing in L2 Norwegian. What the results do not show, is whether the choice of metaphors is a deliberate strategy related to L2 performance, or a general communicative practice applicable to any language. The way the physicians use metaphors is often built on conceptualisations and experiences with use of metaphors they know from L1. Several studies have shown that metaphoric competence in L2 develops in line with other language skills (Littlemore et al. 2014), but that the process can be facilitated by strengthening the link between expressions in L1 and L2, or by making the learners reflect on differences between the expressions (Deignan et al. 1997; MacArthur 2010; Hoang 2014; Hoang & Boers 2018). Therefore, stimulating the physicians' metaphor awareness during language training could be beneficial for its development and would probably enhance the use of metaphors with equivalents in L1. To investigate whether this can be achieved, an intervention study was developed. The aim of the study was to investigate whether stimulating metaphor awareness by a. introducing metaphors commonly used in professional texts and videos, as well as authentic expressions used by patients and therapists, and b. cueing the participants to reflect on equivalence between metaphorical expressions in the target language and languages they speak. The research questions were as follows:

1. Does presenting metaphorical expressions in input result in physicians internalising and using these expressions?
2. How do the physicians experience the effects of the intervention?

4.2.1 METHOD

The study[6] was integrated in an intensive language course with clear goals and substantial time constraints, hence the method used in the study had to meet certain requirements. The training was carried out during a 90-minute session allocated to professional language. It was necessary to target vocabulary and communication skills the physicians would use in their future work, so metaphor training was just one part of it. As a result, the input had to be varied and cater for both receptive and productive skills. This called for diversity in input and output tasks. The training program comprised systematic input provided on five (round 1) and four (round 2) consecutive days. Metaphorical expressions presented in the input, such as written texts and videos, were highlighted. Participants were then asked to reflect on their similarity to expressions in their L1 and English. Teaching material designed for the study comprised exercises targeting vocabulary and exposing the participant to authentic language. The written material included extracts from medical books, course books and blogs on mental health, whereas the video and audio recordings comprised patient stories, vlogs and explanations by health professionals. Additionally, the physicians were presented with

[6] The study, i.e., materials selected and adopted for the training as well its structure, was designed by the author; the teaching, data collection and analyses were also carried out by the author.

a selection of authentic novel expressions. These were extracted from interviews with patients and therapists in Norwegian mental healthcare, such as *scratching the surface*, *removing the weed in one's head*, *going down into the dark*, *removing tartar*, *feelings with no makeup* (see Malkomsen et al. 2022). The expressions in the input varied in terms of conventionality (conventionalised vs. novel), idiomaticity (fixed vs. non-fixed) and vocabulary (frequent vs. infrequent words). Each time a Norwegian expression was presented, the physicians were encouraged to share expressions their patients would typically use when describing a certain condition in L1 and then try to provide their counterpart in Norwegian and English. The goal of this exercise was to establish a common point of reference, as the participants did not share L1. Every round of input was followed up by a control task (oral, written or both). The oral production was audio-recorded[7] and the written production collected and analysed for the presence and origin of the metaphorical expressions (expressions from the input/other expressions, expressions with/without equivalents in the physicians' L1 or L2 English). The oral tasks involved either explaining a certain condition to a teacher or engaging in a role-play, where the teacher acted as a patient or a relative to whom the condition was explained. The written tasks focused on explanations and symptom description. This approach also provided insight into how expressions were used across different types of tasks and whether certain tasks elicited more expressions. In total, the physicians were presented with between 12 and 47 metaphorical expressions each, covering six mental conditions. To gain better insights into the participants' reflections on the learning process, comprehension and use of metaphorical expressions in L2 Norwegian, one of the physicians was interviewed on day 10. The training was structured as follows:

ROUND 1	**Condition**	**Input**	**Examples**	**Output**
Day 1	Anxiety	video with professional explanation professional text	*a shadow that follows you* *a tight knot in your stomach* *a ticking bomb*	Oral task: explanation
Day 2	Panic attack	video with patient's story video with explanation	*to shock the body* *to restart a nervous system* *the body pushes the alarm button*	Written task: explanation
Day 3	Panic attack	professional text brainstorming		Oral task: role-play (relative)
Day 4	Depression	brainstorming text from a course book	*immersed in darkness* *dark thoughts*	Oral task: role-play (patient)
Day 5	Depression	pateint's story list of authentic expressions	*to stand on the bridge* *to have a low battery*	Written task: explanation

[7] Transcribed and translated into English by the author for dissemination purposes.

ROUND 2	Condition	Input	Examples	Output
Day 6	Psychopathy	professional text brainstorming	*psychopaths are cold*	Oral task: explanation
Day 7	Psychopathy	professional text	*they can damage you* *you have to put up a wall* *they have a different composition*	Written task: explanation
Day 8	Dementia	text from a course book brainstorming	*slow funeral* *insight in dementia* *to shadow your spouse*	Oral task: role-play (relative) Written task: explanation
Day 9	Alcohol addiction	professional text	*to take back the steering wheel* *to be lost in the desert* *to live in a haunted house*	Oral task: role-play (patient)
Day 10	–	–	–	Interview on metaphor use

Table 2. *Overview of training and control tasks used in the study.*

4.2.2 PARTICIPANTS

The participants (P1 and P2) were two specialists recruited to a psychiatric ward in Norway (P1: male, 32, L1 speaker of Bulgarian and Spanish; P2: female, 40, L1 speaker of Slovak). Both participants reported and displayed a good command of English and reported a basic command of German.

The physicians attended a daily Norwegian course with textbooks and additional materials targeting their medical practice and everyday life. The 3-month course was held five days a week, six hours a day, and progress was measured with weekly tests. Before arrival to Norway, the participants were expected to master Norwegian at CEFR B1 level and then progress to B2 level within six months of their arrival. To secure the learning outcomes, the physicians were tested with proficiency exams at A2, B1 and B2 levels. The language training took 6–7 months in total, and the intervention study was carried out throughout ten days divided into two rounds. At the onset of the study, the participants were approaching their B1 exam. In line with the B1 level description, they had mastered most of the grammatical structures, their vocabulary was sufficient to cover general topics, but speech was not always fluent. The second part of the study took place one week before the B1 exam, i.e., three weeks after the first round. P2 had withdrawn from the course, hence the data in round 2 was elicited only from P1.

4.2.3 RESULTS

The analysis used in this study is qualitative, but it is necessary to include numbers for the expressions present in the input and in the output in order to evaluate efficiency of the training. Due to small numbers, no statistical analysis was carried out. The results from round 1 revealed differences between the participants' output. In total there were 59 metaphorical expressions related either to anxiety, panic attack and depression. P1 used 12 metaphorical expressions in both oral and written production. However, only one of the expressions he used originated from the input (*å flykte fra en situasjon* 'to flee from a situation'). The remaining 11 had a source either in his L1 Bulgarian or L2 English. P2, on the other hand, was more eager to use expressions from the input, both when speaking and writing. Of the 15 expressions she used, 8 could be traced back to the teaching material (*å rømme fra kroppen* 'to escape from the body', *fanget i egen kropp* 'trapped in one's own body', *trykke på en knapp* 'push a button'). The remaining 7 had equivalents in her L1 Slovak or L2 English.

CONDITION	INPUT	OUTPUT P1	OUTPUT P2
Anxiety and panic attack	12	5 (1)	15 (8)
Depression	47	7 (0)	2 (0)
Psychopathy	13	6 (0)	–
Dementia	35	4 (2)	–
Alcohol addiction	13	3 (1)	–

Table 3. *Metaphorical expressions in the input and control tasks. (Only the first occurrences are included in the total count. The numbers in parentheses indicate expressions present in the input).*

Out of 59 expressions presented in the input, only 9 were present in the output. All the expressions (in total 29) used by the participants had either full or partial equivalence in their L1 or L2 English.

The input in round 2 comprised 61 expressions related to psychopathy, dementia and addiction. This time P1 used 13 expressions, of which 3 were present in the input (one expression came from round 1). Similarly to round 1, all the expressions had equivalents either in the physician's L1 Bulgarian or his L2 English.

The aim of the analysis was to determine whether the expressions provided in the input during the training would be acquired and actively used. Furthermore, the analysis was to show whether the expressions used by the physicians had equivalent in their L1 Bulgarian and Slovak and L2 English. The results suggest several important findings. Firstly, the input appeared to be of minor importance and did not significantly contribute to the development of metaphor fluency. This can possibly be explained with the input being too advanced and inaccessible for the participants, characterised by low-frequency words, weak imagery, and a lack of equivalence in their L1 or L2. Moreover, the input seemed to cater only to a specific type of learner who acquired the expressions as regular lexical units without recognising their metaphorical aspects. Lastly, it is possible that the actual uptake of the input did not manifest in the participants' output but is instead present in their mental lexicon.

4.2.4 INTERVIEW

Although the results from the output provided limited information about the effect the training had on the participants, they did contribute to shedding light on research question 1, i.e., whether presenting metaphorical expressions in the input results in physicians internalising and using the expressions. To learn how the physicians experienced the effects of the intervention (research question 2), P1 was interviewed on his use of metaphorical

expressions in L1 and L2 Norwegian. The interview was 16 minutes long and was conducted in Norwegian[8] on the last day of the language training. The interview comprised three sections: general metaphor awareness, the training's effect and the physician's individual use of metaphorical expressions. The physician displayed a high level of metaphor awareness, i.e., what role they play in physician–patient communication in general, but also with respect to the particular setting—a psychiatric unit, where patients with certain conditions may benefit from metaphor use as these simplify conversation (patients with depression or addiction), whereas with others metaphors should be avoided so that the communication remains clear (psychotic patients). Later on, the physician pointed out that conventional metaphors are often used to assess patients' abstract thinking. Further analysis investigates the experience of efficacy of the metaphor training and takes into account P1's reflection on his use of expressions in L2, their sources as well as mechanisms behind their comprehension, production and retention.

Importance of metaphor training. The physician could hardly recall any intervention during the language training (3, 5)[9]. After being reminded of the activities deployed during the course, he stated that being introduced to metaphorical expressions before encountering them in context was of no advantage to him (20, 21, 22, 24). The meaning was easier to access when expressions were embedded in a text or a conversation (20).

EXCERPT 1[10]

R: […] you remember when P2 was still here, you got lists of expressions like that and then we watched videos and we read texts. Do you think it was helpful?

P1: **(*looking confused*)**

R: Don't you remember?

P1: **What did we do? We watched videos**

R: Yes, […] I said that I got in touch with a psychiatrist who gave me a list of expressions that patients use and we talked a bit about what was metaphorical and what was not

P1: Right, now I remember!

R: But were there any expressions you actually learned from the input, or not really?

P1: Maybe. Or maybe it went to my subconsciousness, I mean it is not conscious

R: […] But let's say you are working with a Norwegian text. Does it help to have words and expressions explained in advance before you read or after you read the text?

P1: Could you say it again?

R: Sure. For example, when we read a text, I give you a list of expressions and ask if you know what they mean, or I explain them for you. Do you find it helpful or do you prefer to read the text and then find expressions yourself, and then explain them, translate them into Bulgarian or Spanish and English? Which way do you think works better for you?

P1: **Well, I think I have to have the text first and then see what it means in a context […]**

[8] The interview was transcribed and translated into English by the author for dissemination purposes.
[9] Examples from Excerpt 1.
[10] Bold = words and expressions in English; R = researcher, P1 = participant 1.

21 **because if you prepare me with expressions before the text, it's out of context and I**
22 **forget them**
23 R: Right, ok, so you think you need a context […]
24 P1: **I do. Otherwise I forget it right away.**

Transfer from L1. The participant was rather resistant to use expressions presented in the input, and the results indicate that he rather relied on expressions transferred from other languages he knew. He also said that metaphors he used came naturally (3, 5).[11] When asked about the origin of his L2 metaphorical expressions, he admitted that he searched for similar expressions in English, but ultimately all the expressions he used in Norwegian originated from his L1 Bulgarian (8, 10). As the participant had two L1s he was asked why the expressions did not originate from Spanish, to which he replied he moved to Bulgaria at the age of seven and that was when his abstract thinking developed (11).

EXCERPT 2

1 R: […] and what is it like to use metaphors when you speak Norwegian? How do you
2 come up with them?
3 P1: **It comes naturally**
4 R: Ok
5 P1: **It does. I don't think about metaphorical expressions**
6 R: I get it. But they have to originate from somewhere. Do they come from Spanish or
7 from Bulgarian, you think? Is it so that you try to translate the expressions you know?
8 P1: **I guess they come from Bulgarian**
9 R: Why not from Spanish?
10 P1: **I don't know. They come from Bulgarian. Maybe because I have lived in Bulgaria**
11 **ever since I was seven and that's when you start to think in an abstract way**

The role of equivalence. P1 emphasized the role of context on comprehension and possibly retention (4, 6, 7, 8).[12] However, this was not the case when the expressions had equivalents in his L1 (4). Equivalence between expressions in L1 and L2 was also highlighted as a prerequisite that enabled remembering new expressions. Without equivalence, the expressions would not remain in his active lexicon for long (6, 8, 12). The physician admitted that he felt comfortable about transferring expressions from L1 (17, 21). Finally, he expressed his concern about being unable to pick up culture-specific expressions in Norwegian (6, 7). He suggested that such expressions should be highlighted in language training.

[11] Examples from Excerpt 2.
[12] Examples from Excerpt 3.

EXCERPT 3

R: When you try to learn expressions in Norwegian, such as, the apple doesn't fall far from the tree […] what is the process? Is it like ok, we have this expression in Bulgarian and this is the Norwegian equivalent, or do you need a context, to see it in a sentence?
P1: **If the expression is the same as in Bulgarian, I don't need a context.**
R: I see
P1: **I know what it means […] but I remember there was one expression that I didn't know from Bulgarian and I had to look it up in a dictionary […] and check how to use it. I forgot what the expression was**
R: Haha, ok
P1: I looked it up, but shortly after it was gone
R: Was it completely different from Bulgarian?
P1: **Very different!**
R: Ok, so it probably helps to have an equivalent in a language you know from before?
P1: It does! It helps a lot
R: […] when you take an expression from Bulgarian and use it in Norwegian, do you ever think that it may not work the same way?
P1: I'm not sure. **We'll see if it works**. **I have seen so many similar expressions**
R: Such as?
P1: Tornado in a jar, storm in a jar
R: Ok, so you try to find links with English expressions too?
P1: **This too. But I think every expression I use in Norwegian comes from Bulgarian**

Individual preferences. The last excerpt illustrates that the physician recognizes himself as a high-imager, i.e., a person prone to frequent use of metaphors and metaphorical expressions. He said that his performance in the target language rather reflects his way of thinking and communicating than a conscious linguistic strategy he relies on (3, 5, 6).[13]

EXCERPT 4

R: Do you think you use any of the metaphors you have learned during the course? or do you actually use your own expressions?
P1: Hm, **maybe I use my own expressions**
R: You do! That's right!
P1: **It is difficult to change abstract thinking** […] **very difficult**. **This is like the implicit and other things**. **It's a part of the communication**. **It's impossible to change it**!

[13] Examples from Excerpt 4.

The passages above suggest that P1 utilised both his L1 and L2 to comprehend and acquire new expressions, as well as to incorporate them into his own production. This phenomenon is anticipated, as it is well-documented that language learners draw upon their prior linguistic knowledge when faced with the challenge of learning a new language (e.g., Cummins 1981). As the physician's uptake demonstrated in the output was scarce, he would probably rely on the transfer even if not encouraged by the training. Learning new expressions, especially these without equivalents in L1 and presented without a context proved unsuccessful. P1 did not express any reluctance in transferring expressions from his L1, and perceived the transfer as the main force behind L2 production. However, he left it for the conversation partners to decide if the expressions would be understood. He also expressed concern about expressions that are typical of the region or the language: "*it will be better [than learning from a text] if I use them [expressions] more in a situation and place, to understand how they are related to their [Norwegians'] culture"*.

5. DISCUSSION AND CONCLUSIONS

The study of L2 metaphorical expressions in professionals is grounded in Jarvis and Pavlenko's (2008) theory of conceptual transfer and Littlemore's (2019) theory on metaphor awareness development in L2 speakers. Two studies were conducted involving physicians who communicate in L2 Norwegian. Study 1 demonstrated that metaphorical expressions used by the L2 physicians facilitate physician–patient communication, just as L1 metaphors do. The L2 physicians showed a strong preference for novel expressions, most of which could be traced to their L1. These preferences were further supported by Study 2, with novel expressions with L1 origin in the output data, as well as P1's reflections on his use of metaphorical language, and in the effects of the intervention. These findings can be regarded as evidence for crosslinguistic influence as a supportive factor for comprehension and production of L2 metaphors. What remains unclear is whether physicians intentionally use metaphorical expressions as a deliberate strategy to enhance their communication in L2, or if this practice is generally employed regardless of the language being used.

The possibility of stimulating metaphor awareness and fluency (see Littlemore et al. 2014) in L2 learners was investigated in Study 2. This was to be achieved by highlighting metaphorical expressions in the target language and enhancing the link between the learner's L1 and the target language. The predicted result was an easier uptake, better retention and increased production based on expressions and conceptualisations from L1. The analysis revealed that the process plays out differently depending on the learner type. P1 had a natural tendency to use his own expressions and ignore the training, which manifested in very few input expressions in the output. P2, on the other hand, was eager to use expressions presented in the input. Due to P2 dropping out, the study was not completed in line with its original design. Although it was not possible to gain full insight into L2 metaphor production and organizing new knowledge by interviewing P2, the study did render several points to consider if the intervention were to be replicated. Mapping the learner type at the onset of study would be a good point of departure. This could be carried out in the participants' L1 and L2 to check their tendency for using metaphorical language, which would enable making predictions regarding the learning process and its possible outcomes. More selective design of teaching materials is also a point to consider. Linking expressions in L1 and L2 can be difficult if an L2 expression contains an unfamiliar word. To make L1's supportive effect more accessible, one should exclude such expressions from the input. Study 2 confirmed the importance of the context expressions are embedded in. Therefore, when designing training materials, one should make sure that new expressions are always presented in a context. Selecting control tasks

to measure the uptake should allow free production where metaphorical expressions manifest. Ideally, when testing expressions related to a certain condition, both written and oral production should be investigated. The study showed that oral and written explanations, as well as role-plays where a physician talks to relatives, are better suited than role-plays with patients for eliciting expressions. In the latter, the conversation was often limited to an interview with very standardized questions. Calibrating these factors could possibly provide more insight into the dynamics between the input during language training and expressions in physicians' L2 performance. Metaphor training might have a different effect on verbalisers and imagers (Littlemore 2005). Whereas the former might benefit from such training in form of a boost of their L2 lexicon by adding ready-made expressions to it, the latter might not demonstrate a visible effect. What could be beneficial for both groups is introducing culture-specific concepts that L1 patients can refer to (e.g., winter sports, knitting, fishing or sailing in the case of Norwegian). As metaphors in physician–patient communication make things easier for both parties, irrespective of whether they share L1 or not, they should be offered more attention in communication training for special purposes. The kind of exercises which would be most effective in targeting these special purposes remains a point for future study.

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