Title

Affective and discursive outcomes of symbolic interpretations in picture-based counseling: A skin conductance and discourse analytic study

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Abstract

The relationship between symbolic expression and affect tends to be investigated from the perspective of recipients in contexts like media, politics and advertising. A more producer-centric context is picture-based counseling (PBC) where clients are prompted by counselors to interpret pictures creatively as part of the treatment process. Nevertheless, the affective and discursive outcomes of these interpretations remain poorly understood. This paper reports a combined experimental and discourse analytic study which compares prompting strategies in terms of affective engagement, contrasts the discourse characteristics of interpretations following 'topic-present' and 'topic-absent' prompting strategies, and offers potential implications for PBC practice. Analysis of skin conductance levels suggests that the two prompting strategies which invite symbolic interpretation are more affectively engaging than the literal control ($F(2,32)=6.356$, $p=0.005$), but not significantly different from each other. A follow-up discourse analysis revealed the prominence of metaphors in symbolic interpretations, as well as nuanced differences between the discourse outcomes of prompting strategies. Topic-present interpretations tended to produce more systematic ensembles of metaphorical expressions, while topic-absent interpretations were less systematic. The combined findings suggest that orienting clients towards symbolic interpretation is affectively engaging, but the ideal prompting strategy is best determined by context-specific circumstances to be judged by counselors.

Keywords: metaphor, picture-based counseling, skin conductance, discourse analysis

Introduction

The multi-faceted relationship between metaphor and affect has received much attention despite contemporary emphasis on its cognitive aspects. A major line of inquiry concerns cross-linguistic metaphorical descriptions of emotional experience (Geeraerts & Grondelaers, 1995; Kövecses, 2000; Lakoff & Kövecses, 1987; Yu, 2008), which interfaces theoretical debates on the universality and culture-specificity of metaphor. Another key aspect of this relationship is how metaphors create public emotional resonance. Metaphorical discourse on important social topics such as immigration (El Refaie, 2001), biotechnology (Holmgreen, 2008), and climate change (Nerlich & Jaspal, 2012) has been interpreted as a powerful way to shape public sentiment. At the level of individuals, experimental studies have also suggested nuanced links between metaphors and emotional engagement. Research on 'figurative framing' (Burgers, Konijn, & Steen, 2016; Burgers, Konijn, Steen, & Iepsma, 2015), for example, underlines individual-level effects of rhetorical devices like metaphor, hyperbole, and irony in different contexts. Relatedly, Jeong (2008) found that pure visual metaphors elicited more positive attitudes than visual-textual hybrids and literal advertisements, and Jia and Smith (2013) showed how negative metaphors triggered opposing attitudes towards immigration policies. In terms of more direct psycho-neurological indicators, Citron and Goldberg (2014) demonstrated that metaphorical sentences activate the amygdala and anterior portion of the hippocampus more strongly than literal ones, implying them to be more affectively engaging.

Much of the above work focuses on affect and discourse from the perspective of metaphor recipients rather than producers. This is expected in contexts like media, politics and advertising which emphasize perceptions at the receiving end. Meanwhile, a context where affective attitudes and discursive outcomes are of immediate relevance to producers themselves is psychological counseling. In this "verbal activity where therapists (or counselors) apply mental health principles to assist clients to modify their behaviors, cognitions, (and) emotions" (Norcross, 1990), both counselor and client-generated metaphors have been claimed to perform important affect-related functions. These include helping clients to express difficult-to-describe feelings (McMullen, 1996), appreciate alternative perspectives (Kopp & Craw, 1998; Lyddon, Clay, & Sparks, 2001), and enhance their sense of participation (Gelo & Mergenthaler, 2012; Rasmussen & Angus, 1996). As Lyddon et. al (2001:270-271) suggest, "metaphors may be

useful tools for helping clients access (and) symbolize emotions that may have been previously unexpressed, unexplored, or even unrecognized". Linguists have in turn argued for a more contextualized understanding of these functions through qualitative analyses of spontaneous in-session metaphors (Needham-Didsbury, 2014; Schmitt, 2014; Tay, 2012, 2013, 2017b). However, it is precisely the spontaneity of metaphors which makes it difficult to integrate in-depth discourse analysis with more controlled investigation of their affective potential (McMullen, 1996). An important innovation which may provide an opportunity to do so is the practice of picture-based counseling (PBC) (Ginicola, Smith, & Trzaska, 2012; Malchiodi, 2003). PBC is not a distinct paradigm like Cognitive Behavioral or Object Relations Therapy, but a supporting activity that can take place anytime within any type of session. Counselors have some degree of control in prompting clients to interpret a picture that allows them to "discuss an issue and express emotions in a creative way" (Ginicola et al., 2012:311). For instance, a picture of an angry man next to his broken-down car may gradually lead to a discussion of self-directed anger as the client perceives the scenario to metaphorically represent his ill-treatment of himself. PBC nevertheless remains poorly understood beyond anecdotal and conceptual accounts (Goessling & Doyle, 2009; Rampton et al., 2007). The absence of standardized procedures (Stevens & Spears, 2009) impedes evaluation of its efficacy, and the actual contents of client interpretations are seldom studied. There is some consensus, however, that metaphor is among the most salient forms of symbolic expression in the process of picture interpretation. This is because pictorial elements often present themselves as convenient metaphorical sources (Pillay, 2009), and while clients also produce other figurative tropes, counselors are more likely to identify and facilitate the elaboration of metaphors (Kopp & Craw, 1998) as the conceptual entities involved in meaning transfer are relatively clear; i.e. aspects of the picture, and the prevailing topic of counseling. In summary, practitioners currently have no standard way to prompt clients, acknowledge the salience of metaphor but do not limit clients to them, and have little empirical evidence on the affective and discursive outcomes of figurative expression in PBC, and how this varies across different prompting strategies.

This paper reports a combined experimental and discourse analytic study on the affective and discourse outcomes of different counselor prompting strategies and subsequent interpretations, with an eye on informing PBC practices. Consider the following (translated) examples of

different initial prompts on the same picture, from actual sessions in a Chinese university counseling centre.

1. □□□□□□□□，□□□□□□□□□，□□□□□□□□，□□，□□□□□□□□ Here is a picture, look at it and think of a small story. Do as you like, use your imagination.

2. □□□□，□□□□□□□□□□□□□□□□？□□□□□□□□□□□□□□？ Do you have life experiences similar to what you see in this picture? What you've witnessed or experienced?

Both prompts reflect the common PBC practice of guiding clients towards symbolic interpretation of the picture without imposing the use of a particular trope. However, there is an important difference between them on the grounds of both metaphor and counseling theory. In Example 1, there is no specified topic to be related to the picture, while in Example 2 it is implied (but not demanded) that the subsequent interpretation should be somehow related to 'life experiences…what you've witnessed or experienced'. Therefore, if counselors and clients indeed tend to collaboratively work towards a metaphorical interpretation (Kopp & Craw, 1998), only the second prompt offers an initial target topic for subsequent metaphor construction. This difference is also relevant from the counseling perspective. Clients often unconsciously relate their image of self to symbolic interpretations (Kopp & Eckstein, 2004), raising the question of whether the prevailing counseling topic should be explicitly incorporated into the initial prompt to facilitate symbolic exploration, or whether the client should be entirely left to explore the connections between the symbol (picture) and self.

We compare these two broad prompting strategies in terms of i) their association with different levels of affective engagement in the subsequent picture interpretation, and ii) the relative discourse characteristics of these interpretations. The first part involves an experimental skin

conductance study using pictorial stimuli while the second part focuses on what are expected and turned out to be the salient phenomenon of metaphor. The research questions are:

1. How do different prompting strategies compare in terms of facilitating affective engagement in subsequent client interpretation?

2. What are the (contrasting) discourse characteristics of spontaneous client interpretations following different prompting strategies?

3. What are the implications of these findings for PBC practice?

Methodology

Participants

34 native Mandarin Chinese speaking university students (10 male, 24 female) participated in this study. Power analysis suggests the sample size to be adequate for a repeated-measures within factors design (effect size=0.25, power=0.92, α=0.077). While the participants were not real counseling clients, employing role-played clients with sufficiently similar background characteristics is an accepted practice in counseling research (e.g. Van Parys & Rober, 2013).

Stimuli selection

The PBC literature suggests that all types of pictures from photographs to abstract art are usable (Malchiodi, 2003). We only considered pictures which have structures and elements reasonably easy to describe in literal terms and to construe as source domains. To avoid ceiling effects which might obscure differences between prompting strategies, we also avoided pictures that may evoke strong emotional responses like disgust, fear, etc. Figure 1 shows the two pictures chosen for the study. Each participant was randomly assigned one of the two pictures and prompted to interpret it three times (once per prompting strategy plus a control prompt).

Figure 1. Picture stimuli

Skin conductance measurement

Affective arousal or engagement is the subjective experience of being emotionally 'charged up'. This triggers unconscious physiological responses (Boucsein, 2012) measurable as skin conductance level (SCL) and response (SCR). Both are widely used in media (Bos, Jentgens, Beckers, & Kindt, 2013; Potter & Bolls, 2012) and clinical psychology research (Lin, Lin, Lin, & Huang, 2011; Marci, Ham, Moran, & Orr, 2007). SCL is the background level of skin electrical conductivity, which reflects a general level of affect over time, while SCR rides on top of SCL to reflect immediate responses to specific stimuli. Both are measured in micro-Siemens (uS), the standard unit for conductance. Note that they reflect the intensity (strong/weak) rather than polarity (positive/negative) of emotional response (Storbeck & Clore, 2008).

SCL/R of subjects were measured continuously at 40Hz with two Ag/AgCl electrodes on the middle joint of the index finger of the non-dominant hand. Audio was synchronously recorded for subsequent discourse analysis. Figure 2 shows the experiment outline.
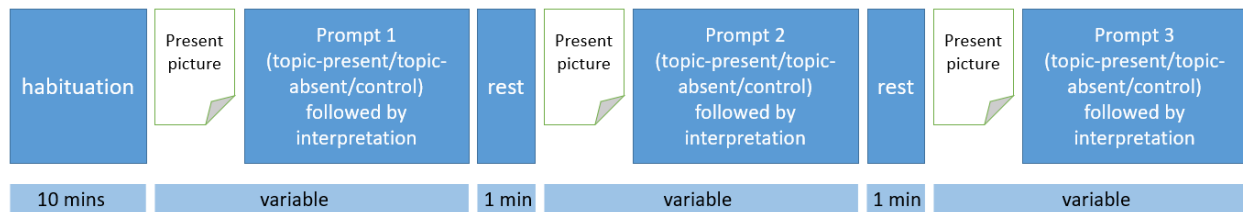
Figure 2. Experiment outline

Participants were given standard instructions (e.g. breathe normally and avoid excessive limb movements) before the experiment, which began with a ten-minute habituation period. They were then shown one of the pictures and prompted three times, once per prompt type (topic-present, topic-absent, control). The prompt sequence was counterbalanced to minimize carryover effects. The translated prompts are:

Topic-present: This picture symbolizes what you think about life. Can you interpret what it means?

Topic-absent: This picture can symbolize anything you like. Can you interpret what it means?

Non-symbolic control: This picture needs to be reproduced by someone who has never seen it. Can you describe it?

Participants responded to each prompt and produced their interpretation for as long as they wanted. A one-minute resting period was then given before the next prompt, to allow skin conductance levels to return to baseline. The average skin conductance level (SCL) for each condition was calculated starting from when verbalization of the interpretation began, and up to the point when it stopped. This gives an overall measure of affective engagement throughout the interpretation process. Variability due to individual differences and other nuisance variables like mood (Boucsein, 2012) were minimized by the within-subjects design, and range-correcting SCL readings with the formula $SCL_{corrected} = (SCL_{observed} - SCL_{minimum})/(SCL_{maximum} - SCL_{minimum})$

such that every reading is a ratio of that person's SCL range (Dawson, Schell, & Filion, 2007). The results were analyzed with a one-way repeated measures ANOVA with prompt type as the independent and range-corrected SCL as the dependent variable.

Discourse analysis

Audio recordings of all interpretations following the topic-present and topic-absent prompts were transcribed and manually examined by two trained raters. While instances of other figurative tropes like metonymy and simile could be found, a decision was made to focus on metaphor for the following reasons: i) as discussed above, counselors have been most keen on and able to relate metaphor to affect-related functions; ii) it was apparent that metaphor was indeed the main strategy used by participants to make sense of the pictures. The transcripts were segmented into lexical units with the *Pangu Fenci* Chinese lexical segmentation software. This was followed by an inductive process of identifying and counting the frequencies of various metaphor-related phenomena. Five variables relating to content, co-text, and structure were identified: source units, target units, metaphor signals, uncertainty markers, and domain switches, all explained below with examples from the present transcripts. These variables are motivated because i) they collectively comprise the basic 'building blocks' of spontaneous metaphor construction, and ii) they allow us to examine the extent to which metaphors produced under different conditions reflect characteristics espoused in the counseling literature; e.g. clear co-occurrence of and correspondence between sources and targets (Sims & Whynot, 1997), and suitable 'hedging' of metaphors to indicate their subjective character (Prince, Frader, & Bosk, 1982; Tay, 2014). Following guidelines for qualitative metaphor discourse analysis (Cameron & Maslen, 2010), inter-rater reliability of these variables was ensured by regular discussion and cross-checking.

Source and target units

In many discourse situations, source and target meanings are conflated into a single form (e.g. *I struggle to convince him*), and the identification of metaphors rests upon the notion that there is some transfer of meaning from the source (or basic meaning) to target (or contextual meaning) (Pragglejaz Group, 2007; Steen et al., 2010). In the present data, however, sources and targets

are often juxtaposed as distinct units and semantically delimited, and are thus relatively easy to identify. Source units are mostly picture elements and their anaphoric pronominal forms. Target units mostly relate to the prescribed target topic in the topic-present condition, and other counseling-related issues in the topic-absent condition. A translated example is given below. 'Thing', 'arrow' and 'it' are source units while 'the things we need in life' and 'process' are target units.

　　□ □ □ <u>□ □ □</u> □ □ □ □ <u>□ □ □ □ □ □</u>. □ □ □ □ <u>□ □ □</u> □ □ □ □ □ □ □ □ 。 □ □ □ □ □ <u>□</u> □ □ □ □ □ □ □ <u>□ □</u> 　This <u>thing</u> represents <u>the things we need in life</u>. And then this <u>arrow</u>, I don't really understand. I think I can see <u>it</u> as representing a <u>process</u>.

<u>Metaphor signals</u>

Variously known as signaling devices (Goatly, 1997), tuning devices (Cameron & Deignan, 2003), and metaphor flags (Steen et al., 2010), metaphor signals refer to linguistic units which draw attention to the use of metaphor, such as the prototypical English example *like* in *my dog is like a cat*. Many researchers also include in this category elements which convey the speaker's stance towards the metaphor. For example, *in a way* in *I was in a way a child again* not only signals metaphor use, but also suggests a hedged comparison. In the present study, however, these stance-marking elements are separately coded (see next variable) because they are often expressed apart from core markers of metaphoricity. Metaphor signals therefore refer only to stance-neutral elements whose primary function is to indicate a metaphorical comparison, not how the speaker feels towards it. The following examples illustrate the use of 'represents' and 'like' in this regard.

　　□ □ □ □ <u>□</u> □ □ □ □ □ □ □ 　I think this <u>represents</u> the relationship between men and women

□□□□□□□_□□□□ , □□□□□□□□□□ That dark blue thing is <u>like</u> the sea, to face many waves alone

<u>Uncertainty expressions</u>

Uncertainty expressions, which express tentativeness towards the metaphor (Cameron & Deignan, 2003; Goatly, 1997), are technically only part of a larger category of stance-marking elements. Their conceptual opposite would be expressions which enhance the degree of metaphoricity, such as *very much* in *life is very much like a journey*. Not unlike spontaneous psychotherapy and counseling talk (Tay, 2014), however, tentativeness constitutes the predominant stance expressed by participants when describing the source, target, and/or relationship between them. Such tentativeness also tends to be expressed in addition to core metaphor signals such as *like.* The following examples are illustrative.

□□□□□□□ , □□□□□ , □□<u>□□□□□□□,</u>□□□ 。 。 。 Here is something like a, looks like a horse from far, but <u>I don't know what it is</u> up close, representing…

□□□□□□ , □□<u>□□□□□□</u>□□□□□□□□□□□□□□□□□□□

□ □ □ There is the moon and the sun, so we can <u>sort of say we are using</u> stars, rivers, seas, and such to describe these things surrounding it

<u>Domain switches</u>

A 'domain switch' is not a tangible linguistic form, but the boundary between a source and target unit. The number of domain switches thus provides a measure of how extensively participants juxtapose a source with a corresponding target when constructing an interpretation. Constant

source-target juxtaposition has been observed to characterize more systematic, 'correspondent type' explication of target topics, and vice versa for more impressionistic, 'class inclusive' type descriptions (Wee, 2005a). In the following example, the two domain switches are indicated by slashes. The speaker describes the source picture, relates it to the target of life, and then switches to the source once more.

□□□□□□□□□□□□□□，□□□□□□□□□□。□□□□□□□□□□□，□□，□□□／□□□□□□□□□，□□□□／□□□□□□□□□□□□□□□□□□□，□□□□□□□□□□□ So he should be able to overcome these obstacles and walk where he wants to. So, I think this picture is trying to show that / life has many choices, and also, / the road you want choose will not be easy and relaxing, but there are still many possible channels.

The variable frequencies were then analyzed in three ways: i) pairwise comparisons of each variable between the topic-present and absent conditions; ii) comparison of the variable correlational structure between the two conditions; iii) qualitative analysis of examples that illustrate the above. Different than the usual focus on substantive contents of metaphors in the discourse analytic and counseling literatures, the present attempt aims at a more structural understanding; i.e. how different theoretically motivated aspects of spontaneous metaphor construction interact with one another, and what this implies for the practice of PBC.

Results and discussion

Skin conductance

Figure 3 shows the comparison of average range-corrected SCLs across the three prompt types (error bars represent one standard error).
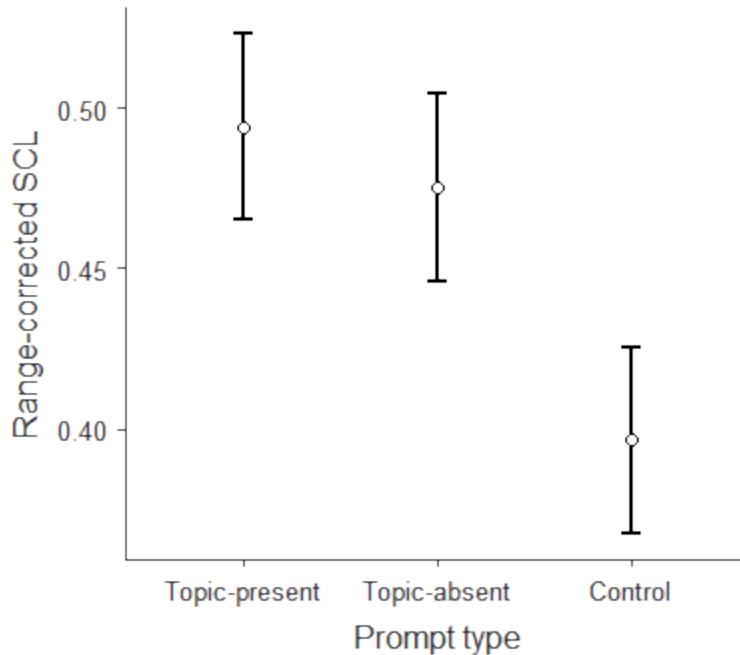
Figure 3. Average range-corrected SCLs across the three prompt types

Average SCL was highest in the topic-present condition (M=0.494 SD=0.163 N=34), followed by the topic-absent (M=0.475 SD=0.168 N=34) and control conditions (M=0.396 SD=0.177 N=34). The overall difference between the three conditions was statistically significant (Wilks' Lambda=0.716, $F_{(2,32)}$=6.356, p=0.005). Post-hoc pairwise comparisons with adjusted α=0.017 show that both topic-present and absent were significantly higher than the control condition (p=0.002 and p=0.012 respectively), but not different from each other (p=0.552). The average time taken to interpret the pictures did not differ significantly by conditions, $F_{(2,32)}$=2.796, p=0.082, and neither SCL (p=0.593) or nor speaking time (p=0.08) differed according to which of the two pictures were used.

These results provide empirical support to conceptual claims in the counseling literature that spontaneous figurative interpretation and expression of counselling-related content is associated with, if not directly evocative of, higher levels of affective engagement. Figurative expressions go beyond mere linguistic representation of emotional states and co-occur with heightened affective experiencing in the specific context of PBC. Since description of the picture structure and elements at 'face value' (i.e. literal description) is shown to be less affectively arousing than

using the same structure and elements as creative bridges towards relevant target topics, it may indeed be strategic on both cognitive and affective grounds for therapists to help clients explore figurative conceptualizations of their issues (Kopp & Craw, 1998). The present study, however, does not consider the qualitative nature or polarity of these heightened affective experiences, which may play a bigger role to determine on a case-by-case basis whether their experiencing is ideal.

Another important aspect of these results is the absence a substantial difference between the topic-present and topic-absent prompts. Recall that the topic-present prompt explicitly requests the subject to associate the picture with a supplied topic, and the topic-absent prompt does not. To the extent that topic-present prompts invite more subsequent use of conventional conceptual metaphors related to topics like 'life', the present comparison relates to existing debates on the relative efficacy of conventional versus novel metaphors in counselling. Some believe that both types of metaphors can be affectively engaging (Angus & Rennie, 1988; Levitt, Korman, & Angus, 2000) while others emphasize the potential and characteristics of novel metaphors (Gelo & Mergenthaler, 2012; Tay, 2017a). The present findings provide no evidence of an affect-related advantage either way, suggesting that context-specific factors such as individual understandings and communication styles may play a bigger role.

In summary, within-subject measurements of skin conductance levels suggest that prompts which invite figurative exploration lead to more affectively engaging outcomes than control prompts. These findings affirm the PBC strategy of using picture structures and elements as figurative (re)sources to explore pertinent target topics. However, whether the topic is pre-specified or left open for clients to define at the initial prompting stage does not appear to make a difference.

Discourse analysis

While the skin conductance analysis revealed no substantive differences, we now turn to a contrastive discourse analysis to further investigate the outcomes of the two symbolically oriented prompt types. As previously mentioned, this involves pairwise comparisons, correlational analysis, and follow-up qualitative analysis. Table 1 shows the mean frequencies

(with standard deviations) and mean normalized frequencies (divided by the number of words in each interpretation) of the five metaphor variables under each prompt type.

Variable	Prompt type	Mean frequency (N=34)	SD	Mean normalized frequency
source units	Topic-present	9.129	7.49	0.03
	Topic-absent	7.032	4.99	0.034
target units	Topic-present	13.323	12.08	0.041
	Topic-absent	8.194	6.65	0.039
metaphor signals	Topic-present	3.258	2.54	0.011
	Topic-absent	2.032	2.27	0.009
uncertainty expressions	Topic-present	5.097	3.53	0.018
	Topic-absent	4.097	2.86	0.019
domain switches	Topic-present	11.774	10.66	0.037
	Topic-absent	8.194	7.35	0.035

Table 1. Frequencies of metaphor discourse variables by prompt type

Pairwise comparisons of the 34 transcript pairs with Wilcoxon signed-rank tests reveal no statistically significant differences in normalized frequencies of all five variables across both prompt types: source units (Z=-0.686, p=0.493), target units (Z=1.195, p=0.232), metaphor signals (Z=1.07, p=0.285), uncertainty expressions (Z=-0.333, p=0.739), and domain switches (Z=0.588, p=0.557). This implies that participants employ these key building blocks of metaphor construction with equal readiness and to similar extents, regardless of the type of prompt received. To understand how these building blocks are related to one another, it is necessary to go a step further to examine their correlational structures. In particular, each correlational permutation between any two variables might have its distinct implications. Figures 2 and 3 are the Spearman's ρ correlational matrices, or 'heatmaps', for the five variables in the topic-absent and topic-present conditions respectively. The more darkly colored the cells, the stronger the correlation.

		source	target	signal	uncertainty	domain switch
source	r_s	—				
	p-value	—				
target	r_s	0.499	—			
	p-value	0.004**	—			
signal	r_s	0.461	0.591	—		
	p-value	0.009**	< .001	—		
uncertainty	r_s	0.382	0.518	0.173	—	
	p-value	0.034*	0.003**	0.353	—	
domain switch	r_s	0.786	0.771	0.567	0.515	—
	p-value	< .001***	< .001***	< .001***	0.003**	—

* p < .05, ** p < .01, *** p < .001

Figure 2. Correlational structure of metaphor discourse variables following topic-absent prompt

		source	target	signal	uncertainty	domain switch
source	ρ	—				
	p-value	—				
target	ρ	0.613	—			
	p-value	< .001***	—			
signal	ρ	0.436	0.604	—		
	p-value	0.014**	< .001***	—		
uncertainty	ρ	0.528	0.679	0.529	—	
	p-value	0.002**	< .001***	0.002**	—	
domain switch	ρ	0.861	0.762	0.609	0.647	—
	p-value	< .001***	< .001***	< .001***	< .001***	—

* p < .05, ** p < .01, *** p < .001

Figure 3. Correlational structure of metaphor discourse variables following topic-present prompt

The first observation across both conditions is that all variable permutations are positively correlated regardless of statistical significance. This is unsurprising and simply reflects the fact that all five variables are co-constitutive in the process of spontaneous metaphor construction. However, the correlations are generally stronger following the topic-present than topic-absent prompt, suggesting nuanced differences in the construction of interpretations. The following discussion focuses on aspects where the correlation is substantially higher (i.e. by at least one α-level, from $p<0.05$ to $p<0.01$ and so on). Illustrative examples will be examined with an eye on potential implications for PBC.

Source-target correlation

Source-target correlation here does not refer to connections between substantive source and target concepts (i.e. conceptual metaphors), but the extent to which source units mentioned in discourse are accompanied by target units. It is substantially stronger in the topic-present (r_s=0.613, $p<0.001$) than topic-absent condition (r_s=0.499, p=0.004), suggesting two distinct discourse strategies in constructing a metaphor-oriented interpretation. Consider the two examples below following a topic-present and topic-absent prompt respectively, from the same participant.

Topic-present

□ □ □ □ □ □ □ □ □ □ □ □ ，□ □ □ □ □ □ □ □ ，□ □ □ □ □ □ □ ，□ □ □ □ □ □ □ □ 。 □ □ □ □ □ □ □ □ □ ，□ □ □ □ □ □ □ □ □ □ □ 。 □ □ ，□ □ □ □ □ □ □ □ ，□ □ □ □ □ □ □ □ □ □ □ ，□ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □

If I were to see this from the perspective of 'life', maybe these rocks, these circular rocks, are the path we walk on. Because the blue color feels like water to me. That is, life is like, life is just like walking ahead in an abyss, and these rocks pave the way for us to walk the path we want

Topic-absent

□ □ □ □ □ □ □ □ □ □ 。 □ □ □ □ □ □ □ □ □ 。 □ □ □ □ □ □ □ □ □ ， □ □ □ □ □ ， □ □ □ □ □ ， □ □ □ □ ， □ □ □ □ □ 。 □ □ □ □ □ □ □ □ □ □ □ ， □ □ □ □ □ □ ， □ □ □ □ □ ， □ □ □ □ □ □ □ □ ， □ □ □ □ □ □ □ □ □ □ □ ， □ □ □ □ □ □ □ □ I think this picture is complicated, because there are many hidden meanings. But in terms of color, it has a lighter color at the top, and it looks like water, like aqua blue below. And this person's legs are exceptionally long, it feels like he wants to cross over, this water, like an abyss. Perhaps he is feeling troubled and wishes to cross over them.

In the topic-present example, the participant follows a consistent interpretation strategy of first establishing the required target ('life'), then referring to some source element(s) ('rocks', 'path', 'water'), then mapping these onto the target ('life is just like walking ahead…'), and then going back to the source again ('these rocks pave the way'), and so on. This pattern is quite consistent across all participants as reflected in the considerable correlation, although not all examples necessarily follow a strict source-target-source domain switching sequence. This style of metaphor construction where source and target are equally highlighted has been observed to typify explicatory genres like popular science texts (Wee, 2005a, 2005b) – interestingly, however, in such texts the task is usually to construct a source in order to account for a structurally complex target, but in PBC the task is to construct a narrative about the target based on a pre-given source. In the mental health literature on metaphor, such a style is also implicitly favoured or emphasized by some practitioners. Kopp and Craw's (1998) seven-step protocol for elaborating client metaphors, for instance, advises counsellors to develop 'connections' between the source and target topic in as much detail as possible. Likewise, Sims and Whynot (1997:343) suggest that "each addition to the development of the image has a parallel, but unstated impact on the other side of the equation", implying the need for counsellors to explore the corresponding

'impact' on the target for every new source element. In the PBC context, where such theoretical ideas on metaphor construction have not been discussed, a more explicatory mode facilitated by topic-present prompts and a structurally rich picture could be ideal in cases where the counselor wants the client to arrive at a structurally coherent narrative about the target topic at hand. Conversely, in the topic-absent example, the participant's interpretation strategy is less focused on a balanced account of source and target units. There is instead an extended, detailed description of the source ('color', 'water', 'person's legs', 'cross over', 'abyss'), followed by a tentative comment on what these elements could symbolize ('feeling troubled and wishes to cross over them'). This appears to be a less explicatory but more exploratory style where the client does not feel compelled to match perceived sources with target counterparts, but is instead prompted towards a more comprehensive, thematic understanding of the source first. This style of prompting and interpretation in the PBC context might then be suitable for counseling objectives centred around initial exploration of feelings, attitudes, and even rapport building (George, Iveson, & Ratner, 1999).

Relative co-occurrence of signals with sources vs. targets

Metaphor signals are defined in this paper as elements which draw attention to metaphor use, which is in turn often expressed in terms of both a source and target unit. It therefore seems intuitive to expect these signals to co-occur equally with both source and target. However, in the present data the target-signal correlation is stronger than the source-signal correlation in both the topic-absent (r_s=0.591, p<0.001 vs. r_s=0.461, p=0.009) and topic-present conditions (r_s=0.604, p<0.001 vs. r_s=0.436, p=0.014). This is surprising because even though the source picture is by definition more palpable in both conditions, and the target topic is undefined in the topic-absent condition, the signaling of metaphor still tends to be more closely tied to statements of the target topic at hand rather than the source. The following two examples from a topic-present and topic-absent interpretation are illustrative.

Topic-present

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Topic-absent

□□□□□□□□，□□□□□□□□□□□□□□。□□□□□□□□□□□□□，□□□□□，□□，□□□□□□□□□□□□□，□□□□□□□，□□□□□□ Firstly there is a fish in the middle, in something like a plate. Then there are things surrounding it like the moon, the sun, or something like a blue tube, perhaps they indicate a period or a cycle of sorts

In the first example, the target topic was fixed as 'life'. The participant begins expectedly with a statement juxtaposing the source ('fish'), target ('person'), and signal ('symbolize'), and then proceeds to elaborate the picture elements in some detail, producing a series of source units along the way. These source units are then collectively linked to several aspects of the fixed target ('setbacks', 'happiness'). Similarly, in the second example, the interpretation begins with an extended description of the source picture before a collective linking of the many source units to the tentatively signaled target topic of a 'period' or 'cycle of sorts'. Both these examples suggest that in the PBC context, even when no specific target topic is provided in the counselor's prompt, people are likely to regard metaphor as a target-oriented rather than source-oriented interpretation strategy; i.e. their elaboration of source elements is diverse but eventually aimed towards producing a description for a more concisely stated

target topic. On the one hand, the willingness and ability of participants to expand upon the source image affirms the general efficacy of PBC and related counseling approaches. On the other hand, it is important for PBC practitioners to critically reflect on when the converse situation might be ideal, and how it could be encouraged; i.e. where clients present a concise description of the source, signal it accordingly, and offer a diverse elaboration of the target topic instead. As the present findings suggest, it may well be the case that PBC provides an initial step towards this. Although source elaboration appears more forthcoming in the narrow context of this counselor-prompted activity, the outcomes and insights can be subsequently followed up with other techniques outside the context of the picture.

<u>Co-occurrence of uncertainty expressions with other variables</u>

The final aspect to be discussed is the expression of uncertainty vis-à-vis other discourse variables. It reveals the greatest contrast between the two conditions, as the correlation between uncertainty expressions and every other variable is stronger in the topic-present than topic-absent condition by one α-level of significance. Recall that this does not mean more 'absolute' uncertainty in topic-present interpretations, but a more synchronized expression of uncertainty with source units, target units, signals, and domain switches. Four examples are provided below, two from each condition.

<u>Topic-present</u>

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not been washed away by the wave of society. His shirt is black, maybe it represents that in actual society he still needs to conceal his thoughts, and not fully speak his mind

Topic-present

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The first example has two expressions of uncertainty with 'maybe'. Both occur at the juncture of prior source picture elaboration and subsequent inferencing about what this implies for the fixed target topic of 'life'. Therefore, they also co-occur with a domain switch from source to target, as well as a metaphor signal ('it represents'). The second example is structurally similar except that it starts with a target topic elaboration, before expressing uncertainty about the source ('I still don't know what these four circles mean'). The sequence is then reversed to resemble the first example, with a source unit ('such long legs'), followed by an uncertainty expression ('does it mean'), and then an inference about the target ('walking a long distance'). Contrast this with the following topic-absent examples.

Topic-absent

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Topic-absent

□□□□□□□□□□□□□□□,□□,□□□□□□□,□□□□□□□□,□□□□□□□□□□□□,□□□□□,□□□□□□□,□□□□□□□□□。□□,□,□□□□□□□。□□□□□□□□□□□□,□□□□□□□□□□□□□。□□□。□□□□□□□□,□□□□□□□□□□□□□□□□□□,□□□□。□□□□□□□□□□□□ I feel this person desires something, maybe he needs to be alone and think deeply, so he has a rich mental world. Maybe, in this environment, he stands in loneliness, and thinks of nothing else. Maybe he once experienced these surroundings. I think this is a person with a story, and this environment is bringing back memories, maybe it's like that. And he is contemplating or hoping for something

In the first example, the uncertainty expression occurs at the beginning ('it probably is'), followed by extensive elaboration of the picture with multiple source units and no target units. In

the second example, three uncertainty expressions ('maybe') are embedded within the source elaboration, but only one uncertainty expression ('maybe') co-occurs with the following target units. Both examples differ from the topic-present interpretations in that there is no systematic relationship between these expressions and the rest of the metaphoric inferencing process; i.e. reference and switching to the target topic, which explains the weaker correlations. Regarding implications for PBC and metaphor use in counseling in general, the expression of uncertainty in healthcare communication contexts remains underexplored (Prince et al., 1982; Tay, 2014). Previous accounts argue that uncertainty in counselor talk is strategic. It conveys recognition that while metaphors are useful because sources are inferentially productive and targets are relevant to the client, source-to-target inferences are ultimately non-factual or approximate. The present findings suggest that spontaneous client discourse also shares these characteristics, but more so when counselors offer a clearly defined target topic. Uncertainty expressions have a higher chance of occurring in a structured ensemble with sources, targets, and signals following topic-present prompts, but tend to focus on source elaboration when no obvious target is in sight.

Conclusion

PBC is an emerging but under-researched context where affective and discursive outcomes of figurative expression directly affect their producers. The present study showed that participants who were prompted towards symbolic interpretation of pictures were more affectively engaged than those prompted towards literal interpretation. This affirms the general efficacy of PBC as a resource to facilitate creative expression. A follow-up discourse analysis affirmed the prevalence of metaphors in symbolic interpretations, with finer differences between the outcomes of different prompting strategies bearing implications for PBC practice. Participants who were given a fixed target topic tended to produce metaphorical expressions in a more systematic ensemble consisting of a source unit, target unit, metaphor signal, and uncertainty expression. On the other hand, although participants who freely decided on the target topic demonstrated less systematicity, they still had little trouble orienting their use of metaphor towards a useful conceptualization of the target. Taken together, the experimental and discourse analytic study suggest that clients can be affectively engaged by orienting them towards symbolic interpretation

in PBC, but the choice of prompting strategy is best determined by context-specific circumstances to be judged by counselors.

There are several limitations to the present study. Firstly, skin conductance levels reflect the intensity, but not polarity or quality of emotions. While it is assumed that the stimuli used in this study would not trigger extreme negative emotions or highly idiosyncratic memories, actual PBC practice is likely to require careful or even intentionally biased selection of pictures for or by clients (Ginicola et al., 2012). A potential extension would be to compare affective and discursive outcomes between counselor and client-selected pictures. Secondly, the present experimental design aimed to replicate the authentic PBC process as closely as possible, with skin conductance levels indicating holistic differences in affective arousal – from the initial prompt to the end of the following open-ended interpretations. It is therefore silent on more specific theoretical questions that can be investigated on their own right, such as whether metaphors directly and causally evoke affective response, or whether the responses were due more to thinking about, or actually verbalizing the metaphors. Lastly, the discourse analysis of interpretations was focused more on their structural composition, and less on substantive aspects such as what types of sources and targets were used beyond experimental prescription. This is also a worthwhile topic for future research, for a fuller understanding of metaphoric creativity in PBC and other language-constituted counseling contexts.

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