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Social representations and themata: The construction and functioning of social knowledge about donation and transplantation

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This study extends previous research investigating the social representation of organ donation and transplantation (Moloney & Walker, 2000, 2002) by exploring the accommodation of contradiction (Wagner, Duveen, Verma, & Thelmel, 2000) within consensual reality (Rose et al., 1995), and the role of themata (Markova, 2000) in a representation. The study employed a mail-out questionnaire embedded with eight experimental conditions, which manipulated two tasks, scenario rating scale and word association. WMDS (INDSCAL) analyses demonstrated that the dialectical concepts of life and death are generative of a contradictory representational field that is maintained through the differential elicitation of the normative and functional dimensions (Guimelli, 1998) of the representation in accordance with social context.

Media coverage of organ donation and transplantation is characterized by both positive and negative reporting. On the one hand, newspaper articles tell of the lives saved and the hope given by the procedure of donation and transplantation, while on the other hand, reporting details organs being removed without consent, a lucrative trade in organs on the black market, and body organs being found stored in jars on laboratory shelves (Moloney, 2002). Despite this obvious contradiction in the coverage of donation and transplantation, donation programmes continue to rest their public approach on two assumptions: firstly, that the low number of organs donated for transplantation is dismal, implying that donation rates should match the number of organs needed for transplants; and secondly, that negative reporting by the media will discourage the donation of organs. Both assumptions presume linear causality between what can be conceptualized as a stimulus and the behavioural response. But are matters really this simple?

In this study, we address the notion of contradiction, in particular its accommodation and function, in social understandings of organ donation and transplantation within Moscovici's (1984) conceptualization of social knowledge as social representations.

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Within the theory of social representations (Moscovici, 1984), notions of stimulus and behavioural response, and, thus linear causality, become redundant (Duveen, 1994; Wagner, 1993). Two characteristics define how a social representation is conceptualized here. One is that understandings about a social issue, such as organ donation and transplantation, are socially derived through discourse and interaction, so that 'once formed a social representation comprises certain patterns of thinking, action and interaction which, when collectively concerted, create and construct a social object' (Wagner, Valencia, & Elejabarrieta, 1996, p. 332). The second is that a social representation is dynamic; it has the propensity to accommodate contradiction, tension, and debate (Rose, Efraim, Joffe, Jovchelovitch, & Morant, 1995).

Social representations are socially constructed through discourse, action, and interaction; hence their derivation from the totality of social practices implies the representation simultaneously comprises both the impetus for behaviour, and the behaviour itself. Thus, notions of intentional causality become redundant, as a social representation is considered to describe, not cause, behaviour (Duveen, 1994; Wagner, 1993, 1994). The socially derived nature of the representation also implies that the collective elaboration of the representation is valid to the group as a whole, not the individual *per se*. Social representations, therefore, describe the behaviour of individuals via their social groups, not the behaviour of individuals themselves (Wagner, 1993).

From the inception of the theory of social representations, Moscovici (1984) has stressed the dynamic nature of social representations. Yet, a social representation is often conceptualized in terms of a cohesive, coherent system, one where difference, contradiction and diversity, the very ingredients of dynamism, have tended to imply the existence of two or more representations of the same social object. For example, a basic tenet of core theory, a well-established theoretical position in the social representations literature, is that the core elements in a representation generate the overall meaning of the representation. They are characterized by a high degree of stability, inflexibility, and resistance to change, and constitute much of the consensus in the representation (Abric, 1993, 1996; Guimelli, 1993, 1998; for alternative conceptualizations of social representation see Bauer & Gaskell, 1999; Doise, Clemence, & Lorenzi-Cioldi, 1993; Lorenzi-Cioldi & Clemence, 2001).

While the notions of centrality and generativity are essential in the determination of a representation, the inflexibility, coherence, and implication of statis associated with these characteristics do not imply the dynamism suggested as being so essential to a social representation. In extrapolating how a fluid conceptualization of a social representation might accommodate such characteristics, we discuss the meaning of consensus, and the generation of contradiction.

The socially derived nature of a social representation automatically implies some type of consensus; otherwise the collectively concerted understandings that constitute a social representation would not exist. However, if we talk of a representational field with a contradictory make-up, the notion of consensus, as in majority agreement of a cohesive system of values, ideas, or beliefs, is unable to accommodate the notion of contradiction within a collectively concerted set of understandings.

An alternative to the more traditional notion of consensus within a representation is that of consensual reality (Rose *et al.*, 1995). Rose *et al.*, take the position that social representations are embedded in historically constrained social knowledge, and are generated in the communicative practices of everyday life. In these practices there is tension and difference as individuals within society construct and construe the

historically derived social knowledge through discourse and interaction. Consensual reality is, therefore, the tacit understanding of the shared, historically-derived meanings about the social object, which, through their origins, are not homogeneous. It provides mutual ground for people to discuss, argue, and negotiate. Consensual reality does not imply that individuals hold the same views, rather that there is an awareness and understanding of the common views by all individuals, such that even though an individual may not personally agree with one or the other views, they can easily engage in discussion involving one or the other viewpoints (Rose *et al.*, 1995).

The generation of contradiction within one representation can also be discussed from the role of dialogical taxonomies in the genesis of a social representation.[1] Markova (2000) argues that dialogical taxonomies relate to the idea that phenomena are embedded in social thinking with their respective antinomies, among which there is a mutual interdependence and tension. Thinking in oppositions, or antinomies, is part of cultural socialization; what is long is referenced by what is short, what is day by what is night (Markova, 2000). In the context of social representations theory, Markova suggests that oppositional taxonomies become what Moscovici terms 'canonic themata' (see Abric, 1996; Markova, 2000; Moscovici 1993; Moscovici & Vignaux, 1994).

In proposing the notion of canonic themata, a relatively new tenet in the theory of social representations, Moscovici (1993; Moscovici & Vignaux, 1994) proposes that the genesis of a social representation is shaped by central notions of knowledge that exist in the collective memory of a society. Markova (2000) suggests that the notion of themata should be conceptualized as being mutually interdependent taxonomies that take the form of themata in the generation of social representations.

> Thus while the idea of antinomies and/or polarities is an essential characteristic of dialogical movement, rather than being conceived as different guns in battles by different armies, to achieve their force, antinomies must be conceptualized as mutually interdependent. Taking the form of themata in the theory of social representations, this force is achieved (p. 444).

Markova explains how oppositional taxonomies become themata through being problematized. The oppositional taxonomy, due to a crisis, the development of a new technology or an unforeseen event, becomes the focus point in how the event is socially defined. The tension, conflict, and ensuing debate created within society engenders a 'dialogical reconstruction' of the boundaries of the taxonomy, which spurs the genesis of a social representation (p. 447).

Previous research

Moloney and Walker (2000, 2002) demonstrated that the social representation of organ donation and transplantation (at least in Western Australia) is characterized best by a representational field centred around conflicting images of a 'gift of life', and the 'mechanistic removal and replacement of body parts'.

The first of these studies traced the development of the social representation of organ donation and transplantation from the time of Christian Barnard's first heart transplant in 1967 through reports carried by the West Australian newspaper. The study suggested that the representation was initially sparked by the public fascination with this frightening, but captivating, new medical technique. Hence the representation in

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[1] *See Billig (1987, 1988, 1991a, b, 1993) for a discussion of contradiction within common-sense thinking; see Moloney and Walker (2002) for a discussion of Billig's position in relation to social representations theory.*

the early days was a medicalized understanding defined in terms of the surgeon, and the life that 'he' could give. In the 1980s, and after a resurgence of transplant operations due to the advent of immunosuppressant drugs, (and possibly reflective of an agenda by the medical profession), organ donation and transplantation was defined in the context of what it meant to the non-medical world, and, as such, gave emphasis to the donor as the giver of life.

The findings from this study suggested that what may be two separate contradictory representations was possibly, instead, one conflicting representational field that had formed over time; the initial medicalized understandings never completely dispelled, but instead modified to coexist with newer non-medicalized understandings about organ donation and transplantation. The direction of the representational field had formed around the 'dialogical reconstruction' of the life-death taxonomy, sparked by the medical technique of organ transplantation.

The subsequent study (Moloney & Walker, 2002) used focus groups to develop these findings by looking at how people talk about the issue of donation and transplantation. This study found there was unanimous support for the idea of donation and transplantation; it was a noble idea, a worthwhile altruistic act that benefited humanity. The unanimity of this support suggested there was a normative response to the issue of organ donation and transplantation. However, qualifiers to this response, consensual in content but not personal endorsement, were frequently given, for example, fear about brain death, disfigurement, trade in human organs, and the role of the medical profession in the donation and transplantation process. These qualifiers appeared to suggest a functional response that reflected the relation of the individual to the representation. The normative and functional dimensions of the social representation (Guimelli, 1998) are discussed later. This study suggested that the pro-donation and qualified stances were dovetailed within one representational field pertaining to both organ donation and transplantation, and were elicited according to the context or direction of the focus group's discussion.

Contradiction within social representations

Our findings of a contradictory representational field pertaining to organ donation and transplantation appear at odds with much research that suggests, tacitly or otherwise, that a representational field is cohesive and coherent (e.g. see Abric, 1993, 1996; Guimelli, 1998). Although contradiction is commonly considered in social representations research, and is acknowledged as being a characteristic of discourse (Wagner *et al.*, 2000), it is also often interpreted as emanating from different contradictory representations due to the assumption that a social representation is locally consistent, a cohesive entity (for alternative conceptualizations see Bauer & Gaskell, 1999; Doise *et al.*, 1993; Lorenzi-Cioldi & Clemence, 2001).

We argue here that any consideration of consistency within the representation field should be considered in view of functionality, particularly if social representations are considered to be 'elaborations for social groups serving to maintain the stability of their particular life-world' (Wagner *et al.*, 2000, p. 304). This implies that the function of the social representation may determine its structure.

This point concerning functionality of a representation is reiterated by Gervais and Jovchelovitch (1998; Jovchelovitch & Gervais, 1999) in their research into the social representations of health and illness in the Chinese community in the UK. Here, a hybrid representational field was found that combined both Chinese traditions and western medical knowledge, and while Gervais and Jovchelovitch state that this mixed field

was paradoxical, they also stress that it was functional. It allowed the Chinese community in the UK to sustain its cultural identity, and to deal with the challenges posed by their host nation. Moreover, they found that this apparent contradiction of medical knowledge was not a contradiction at all, describing it as two ways of knowing that reaffirmed the most essential feature of Chinese thinking: a combination of opposites. The role of contradiction in social representations is also discussed in a study of the social representations of madness in Putna, India (Wagner *et al.*, 1999, 2000). Here, contradictory representations of traditional and Western psychiatric notions of mental illness were found to exist in specific social settings. Wagner found not only were the two representations anchored to specific situations and attributed to specific social groups, but also the interviewer-interviewee situation itself created a demand characteristic, which solicited the Western representation associated with the rhetoric of modernity. Wagner linked the lack of homogeneity in the local belief systems to the dynamics of change within societies, especially in the case where there is a prolonged contact with Western cultural products.

Current research

The research of Gervais and Jovchelovitch (1998; Jovchelovitch & Gervais, 1999) and Wagner *et al.* (1999, 2000) raises the question of whether the social representation of organ donation and transplantation is best understood as one representational field with a contradictory make-up, or as two homogenous but contradictory representations. While it may seem to be simply a question of semantics, one or two representations, on the basis of our previous research the existence of a conflicting representational field, is both theoretically provocative and practically informative. Theoretically, it speaks to the issue of consensus; it emphasizes flexibility and dynamism in how a representation is conceptualized, which has implications for our understandings of the processes of representational change (see Markova, 2000). Pragmatically, it offers an explanation for the contextual variability in responses to the discussion of organ donation and transplantation, and the disparity between perceived intent and actual donation rates. It also allows us to think of contradiction in social thinking as normative, and directs us away from the scientific notion of linear, rational thought to a more holistic view where circular thinking and contradiction are central to dialogue and exchange.

In pursing this question of one or two representations, two points are particularly relevant. Firstly, how would contradictory elements coexist within a representation? Secondly, to what extent does the choice of methodology determine the answer?

Previous research suggests the central issue for coexistence is the functionality of the representation (Gervais & Jovchelovitch, 1998; Jovchelovitch & Gervais, 1999; Wagner *et al.*, 1999, 2000). Research in a more controlled experimental setting suggests that functionality may be served through the differential activation of the dimensions of the core of the representation (Guimelli, 1998). Rouquette (1994, as cited in Guillemi, 1998) investigated the social representation of the crowd by manipulating different practices with regard to crowds and populations, concluding that the core elements in a representation are weighted differentially in the definition of a representation, and do not contribute to the functioning of the central core in the same way. This non-equivalency is hierarchical in that certain core elements are normative, fundamental, and more decisive than others in the definition of the representation. Other elements are functional, are activated differentially by the context of the situation in which the representation is elicited, and more closely linked to the social practices that individuals maintain with the object of the representation.

The second issue in relation to the coexistence of contradictory elements within a representational field concerns the nature of the methodology, and how this is understood in relation to the thought processes used, in particular reflexive and non-reflexive thought. Reflexive thought involves conscious processes based on reasoning and reflection; where non-reflexive processes are unconscious, habitual and automatized (Markova, 1996). The distinction Markova (1996) makes is that social discourse, as in interview or focus group data, is generated through the respondents being asked to provide rational answers, give consideration to something that somebody has said, to explain or elaborate a position. It is thought based on reasoning and reflection. Thus, responses investigating a social representation through a methodology that uses reflexive thought, such as focus groups, may not necessarily equate with responses from a methodology that uses non-reflexive thought processes, such as word association tasks where the subject is asked to write down the first words that spring to mind.

This difference is reiterated by Szaley and Deese (1978), who discuss how discourse, rational answers, and considered thought depend upon the demands of communication, while associations, as in word association tasks, are free from the intent to communicate organized discourse, and as a consequence, the expression of thought is easier when relations between words are free from the requirements of syntax and morphology. Association data has, therefore, a character of spontaneity that allows aspects of subjective meaning to be revealed that may not be exposed if participants respond within the conventions of discourse (Deese, 1965; Szaley & Deese, 1978).

Reflexive and non-reflexive thought occur simultaneously, and while it is not possible to equate the elicitation of a social representation neatly with either, the possibilities should be considered (Markova, 1996). Thus, the question does arise of the extent to which the results from our two previous studies (Moloney & Walker, 2000, 2002), concerning one versus two social representations of organ donation and transplantation, relate to the methodology used and the type of thought processes implicated.

This led us to consider that the conflicting representational field of organ donation and transplantation is a merging of two understandings that have formed over time, neither of which singularly captures the complexity of the dilemma, or resolves the tensions that this medical technique has come to represent in society. Consequently, we hypothesized that this coexistence between the two understandings is maintained by the elicitation of the normative and functional dimensions of the core of the representation. In particular, we sought to determine whether there were one or two social representations pertaining to organ donation and transplantation, and whether, if the latter were the case, aspects of the representational field could be elicited according to the context in which the representation was evoked.

Method

A mail-out questionnaire was sent to a randomly selected sample of 1584 residents from eight Federal electorates in Perth, Western Australia. The questionnaire design encouraged the use of both reflexive and non-reflexive thought processes, and allowed experimental manipulation, in that eight different versions of the questionnaire were sent to randomly selected subgroups of the population. The questionnaire consisted of four main parts.[2] scenario and ratings scales, word association tasks, personal decision

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[2] *There were other sections in the questionnaire that are not presented here.*

to donate, and demographic information. The experimental manipulation involved eight experimental conditions derived through factorially crossing three factors: scenario type (gift of life vs. mechanistic), scenario order (gift of life first vs. mechanistic first), and word association stimulus word (organ donation vs. organ transplantation).

Word association tasks

A word association task with a context/non-context experimental manipulation was used to investigate the representational field of organ donation and transplantation, and the differential movement of the core of the representation. In the questionnaire, subjects were presented with a stimulus word (organ donation or organ transplant) that was preceded by either the context/non-context manipulation, and asked to write the first seven words, or phrases, that came to mind when they thought of that stimulus word. The gift of life, and the mechanistic removal and replacement of body parts scenarios described next, constitute the two context conditions, while the placement of the word association task at the start of the questionnaire constituted the non-context conditions.

Scenario and rating scales

The scenario and rating scale methodology was devised to experimentally elicit aspects of the representational field. This involved the construction of two different scenarios and one set of 25 rating scales. The 25 rating scales consisted of a word or phrase accompanied by a 5-point Likert-style rating scale. One of the two scenarios, with the same rating scales, was used in each version of the questionnaire. The respondents were asked to read the scenario first, and then indicate the extent to which each word came to mind when they imagined the scenario they had just read.

The two scenarios were constructed using characteristics of the focus group discourse that conveyed the gift of life or the mechanistic removal and replacement of body part images of organ donation and transplantation (taken from Moloney & Walker, 2000, 2002). The intention was to construct polarized scenarios of organ donation and transplantation.

In constructing the gift of life scenario, the issue of organ donation and transplantation was situated in the lay world, and described in terms of families and people. The focus was the role that the donor played in enabling another human being to live. In the mechanistic removal and replacement of body parts scenario, organ donation and transplantation was situated in the medical world, and referenced against the medical profession. The focus was on the benefits that the donation and transplantation process would bring to the recipients. The donor was portrayed as a passive entity, a composite of parts that could be removed and replaced (see Appendix for scenarios).[3]

The rating scales were also constructed from the focus group discourse (Moloney & Walker, 2002); this was considered to enhance the validity of the scales because the participants had used these particular words or expressions to convey the 'mechanistic' and 'gift of life' images in discussing organ donation and transplantation. Furthermore, the discourse was generated through group, as opposed to individual, discussion, and was thus socially derived through the processes of group interaction.

First, paragraphs were identified in the focus group discourse that conveyed the image of organ donation and transplantation either as the mechanistic removal and

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[3] *A manipulation check confirmed that conveyed the intended discourse characteristics associated with the two images.*

replacement of body parts or as a gift of life. The same discourse characteristics were used to identify such paragraphs as were used to construct the scenarios.[4] An independent rater then recorded the phrases/words within these paragraphs that constructed the mechanistic and gift of life images. In total, 256 phrases/words were identified. These were homogenized using the criteria adapted from Di Giacomo (1980) and Rosenberg and Jones (1972). This resulted in 25 word/phrases indicative of either the mechanistic or gift of life images: 13 phrases equated with the mechanistic image, and 12 with the gift of life image (see Table 2). Each word, or phrase, was attached to a 5-point Likert-type rating scale, where 1 = *does not make me think of this*, and 5 = *really makes me think of this*. The words were randomly ordered, and this order was consistent across all eight experimental conditions.

Experimental conditions

There were eight experimental conditions corresponding to the eight versions of the questionnaire (see Table 1). The conditions were derived though a manipulation of order, scenario type, and word association stimulus. The remainder of the questionnaire was held constant through the eight conditions.

Table 1. The eight experimental conditions

Experimental condition	ABR	Placed first in questionnaire	Followed by
Condition 1	MD	Mechanistic scenario	Wd Association, organ donation
Condition 2	MT	Mechanistic scenario	Wd Association, organ transplant
Condition 3	DM	Wd Association, organ donation	Mechanistic scenario
Condition 4	TM	Wd Association, organ transplant	Mechanistic scenario
Condition 5	GD	Gift scenario	Wd Association, organ donation
Condition 6	GT	Gift scenario	Wd Association, organ transplant
Condition 7	DG	Wd Association, organ donation	Gift scenario
Condition 8	TG	Wd Association, organ transplant	Gift scenario

A cover letter that described the questionnaire in terms of a generic investigation of health issues was included. No reference was made to organ donation and transplantation.

Results

Response rate

Of the questionnaires posted, 532 were returned completed (a 34% response rate). Response rates did not vary significantly across conditions.

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[4] *Thus, a paragraph was identified as mechanistic discourse if it contained one or more of the following discourse characteristics: organ donation and transplantation was discussed in a manner that suggested the removal and replacement of body parts; organ donation and transplantation was discussed in reference to the medical world, and/or the medical profession; the body was described in terms of a composite of parts; the donor was negated, or the role of the donor in the donation and transplantation process was minimized. Similarly, if the paragraph had one or more of the following characteristics it was identified as gift of life discourse: organ donation and transplantation was discussed in a manner that suggested it was the gift of life from one human being to another; organ donation and transplantation was discussed in reference to families and people; the role of the donor was central in the discussion about the donation and transplantation process.*

Socio-demographic characteristics

Of those who returned a completed questionnaire, 61% identified themselves as male, and 39% as female. The mean age of the respondents was 46 years; 64% identified themselves as Australian born, and 34% as a migrant. The highest single migrant grouping was from Britain (19%), followed by the Netherlands (1.5%), India (1.2%), Egypt (0.8%), Italy (0.8%), and Malaysia (0.8%). The average length of time spent in Australia by all migrants was 28 years.

Of the respondents, 23% indicated they were affiliated with a religion or a particular form of spirituality, and the majority (80%) of these identified themselves as Christian, Church of England, Baptist, or Catholic. Other smaller religious/spiritual affiliations were identified as Buddhist (3.5%), New Age (3.5%), Muslim (1.7%), and Greek Orthodox (1.7%).

Of the respondents, 39% stated that they had indicated either on their driver's licence or on a donor card that they were willing to donate their organs; 11% indicated they regularly donated blood, with a further 21% saying they donated blood occasionally; 3% indicated they had donated another bodily substance, such as plasma, bone marrow or reproductive tissue.

Statistical analyses

Multivariate statistical analyses were used. This included INDSCAL, a weighted multidimensional scaling programme, which first computes an aggregate solution across conditions, then through subject weights, computes a measure of the salience of a particular dimension in the condition's judgment of the stimuli.[5]

Word Association Task

The word association tasks were analysed through a series of INDSCAL analyses (ALSCAL; Takane *et al.*, 1977), cluster analyses, and statistical analysis of INDSCAL subject weights. After data cleaning and homogenization, and a ranking of word association by frequency within and across conditions, 25 associations were the most frequent both within and across the eight conditions: life, death, help, family, gift, good, kidney, donor, heart, save, doctor, generous, second chance, eye, hope, hospital, sad, lung, spare parts, decision, accident, operation, liver, necessary, and happy.[6] A 25 × 25 matrix of co-occurrence was constructed, in which cell entries reflected the absolute frequency that each word co-occurred with all other words. The main diagonal reflected the absolute occurrence of that word in the matrix.[7]

Choice of INDSCAL

Many of the studies that engage in multivariate analyses of word association tasks use two-way multidimensional scaling or correspondence analysis (see Di Giacomo, 1980;

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[5] *The INDSCAL model analyses several dissimilarity or proximity matrices that may correspond to either individual subjects or groups. The model portrays differences in the way the individuals or groups have perceived the data, assuming therefore that individuals or groups may vary in the importance they attach to the dimensions of the stimulus space (Schiffman et al., 1981). Another distinguishing feature of the INDSCAL model is that the axes are uniquely determined, and changes to their orientation would, theoretically, confound the optimality of the solution. The dimensions in the INDSCAL solution are thus considered to be fixed, unique and directly interpretable, and represent the direction where the variation among the subjects is the greatest. Interpretations of the group space are toward the axes or dimensions rather than the group space itself (Arabie, Carroll, & De Sarbo, 1987; Carroll & Chang, 1970; Coxon, 1982).*

[6] *The association happy was the next highest occurring association across stimulus words, but not within associations made to the stimulus words organ transplant.*

[7] *Full details of the frequencies of the word associations are available in Moloney (2002), or from the first author on request.*

De Rosa, 1987; Doise *et al.*, 1993; Markova *et al.*, 1998; Wagner 1997; Wagner *et al.*, 1996). One of the problems with both two-way MDS and correspondence analysis is that in order to extract a specific structure that pertains to a social representation, the responses are homogenized in the extraction of the solution (Doise *et al.*, 1993). Thus, the view of the representation is static and objectified (for an exception, see Wagner *et al.*, 1996).[8] It is argued here that INDSCAL, in contrast to two-way multidimensional scaling and correspondence analysis, has the propensity to provide a dynamic interpretation of the data because it doesn't assume homogeneity in the salience or importance that subjects (or groups) give to the common referent structure that the aggregated data represents. Specifically, in relation to the elicitation of the normative and functional dimensions of the core of a representation (Guimelli, 1998), INDSCAL allows for a position of commonality in the extraction of a background of shared reference points, against which the differential movement of the core by subject weights can be observed. Moreover, such a position of commonality is considered here to reflect the notion of consensual reality.

Multidimensional scaling is primarily a descriptive technique. In order to investigate the representational field of organ donation and transplantation, and the differential movement of the core of the representation, a series of analyses were conducted. First, an analysis of the non-context conditions was performed in order to determine whether there was one, or two social representations of organ donation and transplantation. Second, the effect of context was investigated on the associative field of organ donation and organ transplantation. Specifically comparisons were made between the associative fields for the non-context and context donation and transplant conditions and, through this comparison, the core elements identified in the representation. Finally, an analysis of all conditions was performed that illustrated the differential movement of the core elements in relation to the context/non-context manipulation.

Many analyses of word association data that use MDS interpret the solution two-dimensionally so that associative relations in semantic space can be visually identified. In view of Guimelli's (1998) argument for the differential movement of the core, optimization of fit is of concern; otherwise the advantages offered by INDCAL would be blurred by the homogeneity effected through a poor fit of the data to the configuration. Thus, the solutions presented are considered to be the best compromise between interpretability and fit, and in all but one instance (see Fig. 5) are three-dimensional.

Non-context stimulus words

In the first instance, analyses looked specifically at the associations made to each non-context stimulus word.[9] These solutions showed a similar clustering of items, a significant dimensional correlation between the solutions for organ donation and organ transplant (Dim 2, $r = -.598, p < .01$), and the centrality[10] of the associations life and death to the stimulus words.

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[8] *Wagner et al. (1996) is an exception here in that his use of stacked matrices and correspondence analysis allowed for a comparison of different conditions within the one configuration.*

[9] *Moloney (2002) reports analyses preceding this that investigated the associations made in response to the stimulus words organ donation and organ transplant that were not preceded by context. This allowed the associative fields for each stimulus word to be observed free from the scenario contexts.*

[10] *By centrality, we are referring to the consistent positioning of these associations at the centroid of the configuration; signifying that these words are not only the most frequently co-occurring associations, but they have the greatest number of co-occurrences with other associations in the configuration.*

Following this, an analysis performed on the four non-context conditions (across stimulus words) revealed, (a) the centrality of the associations life and death across conditions, and (b) a significant differential weighting on Dimension 2 by stimulus word, $F(1, 2) = 216.60$, $p < 01$, such that the donation condition attributed significantly more salience to Dimension 1 than to the other dimensions, while the transplant conditions attributed significantly more salience to Dimension 2 than to other dimensions, Dimension 1, $F(1, 2) = 1.61$, *ns*; Dimension 3, $F(1, 2) = .86$, *ns*.

The cross-sectional view of the three-dimensional INDSCAL solution (Fig. 1) shows Dimension 1 is defined at one end by the associations hope, decision, generous and sad, against gift and heart, kidney, eye, lung, and liver at the opposing end. This was interpreted as the gift of organs against the emotive outcomes of the decision to donate, with a dimensional focus of the emotive meaning of giving organs; that is, organ donation. Dimension 2 is defined at one end by spare part, good, second chance, help, decision and save, against hospital, accident, kidney, eye, liver, and happy at the other end. This was interpreted as the removal of organs versus the emotive meaning of the decision to do so, with a dimensional focus on the emotive outcomes of the decision to transplant, that is, the focus is the removal of the organs.

The vector plot of subject weights (shown in Fig. 1) reveals that the donation conditions attributed more salience to an arrangement of words that associated body organs with gift against the positive outcomes of this gift (Dimension 1). This is in contrast to the transplant conditions that attributed more salience to an arrangement of words where the medicalized aspects of transplantation are associated with the body organs against the positive outcomes of this, associated here with spare parts (Dimension 2). Central to all 3 dimensions are life, death, family, and doctor.

These analyses suggest that there is one representational field that pertains to both organ donation and transplantation, and that any difference between associative fields for the two stimulus words reflects a simple difference in perspective. Organ donation is about the gift of organs in the broad sense, whereas organ transplantation is about the removal of organs in a medical setting. Both perspectives are associated with similar positive outcomes, except that the associations made in relation to organ transplant are associated with, and thus defined in relation to, the term *spare parts*. Importantly, the analyses suggest organ donation and organ transplantation are not two perspectives on two separate issues; rather, they are differential perspectives, linked though a centrality of a few common items about the one social issue.

The effect of context on the representational field

The analyses derived from associations made in response to non-context stimulus words, are considered to be a valid means of revealing subjective meaning that is free from the intent to communicate some particular aspect of discourse (Szalay & Deese, 1978), and therefore, we argue, indicative of the content of a social representation. However, in relation to the structure of a social representation, such an analysis does not delineate between the core and peripheral elements within the representational field, which is important in testing our hypothesis of the existence of one, not two, representations.

Two theoretical positions would suggest that the effect of context should also be considered in the determination of a representation field. Firstly, there is the tenet that core and peripheral elements are differentially affected by contextual variation (Abric, 1993, 1996), and secondly, there is the tenet that the normative and functional dimensions of the core of a representation can be elicited according to context (Guimelli, 1998).
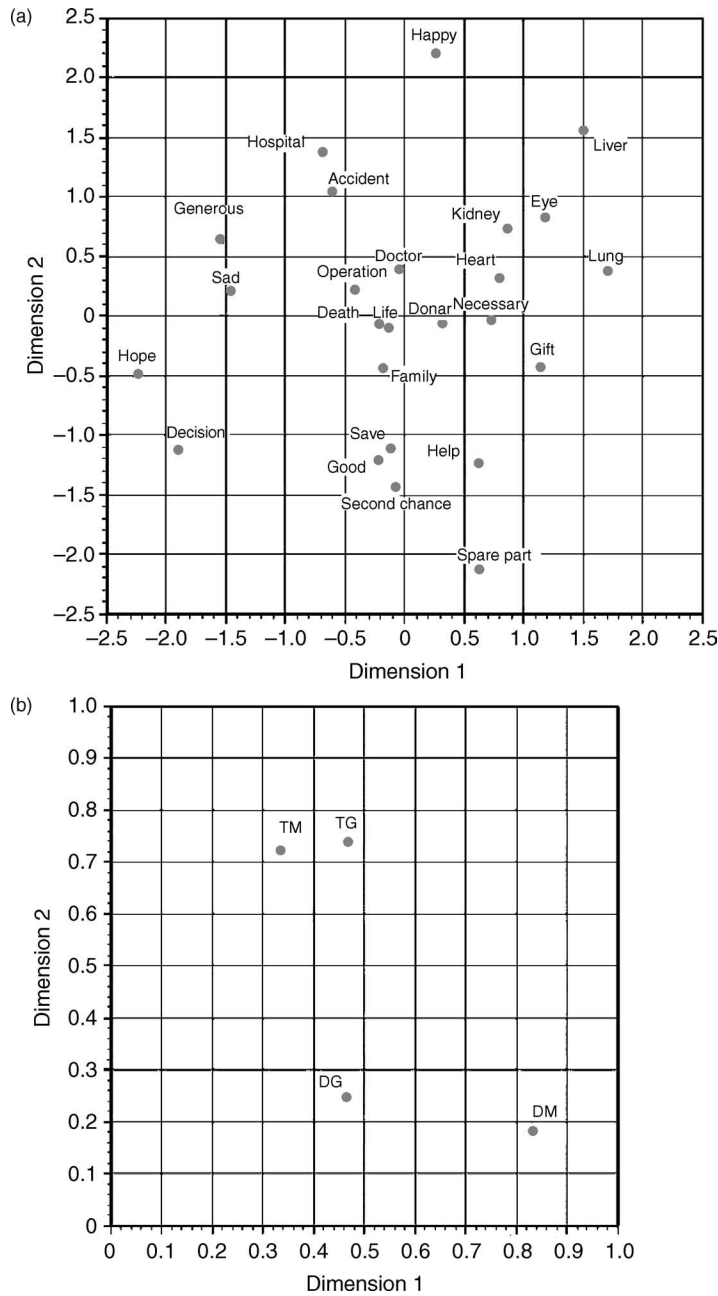
Figure 1. (a) Dimension 1 by Dimension 2 of the three-dimensional INDSCAL configuration for the non-context donation and transplant conditions: S-Stress = .138 (2-dim . 235, 4-dim .124), RSQ = .859 (2-dim .759, 4-dim .853); Dim 1/2 $r = -.07$, *ns*; Dim1/3 $r = -.05$, *ns*; Dim 2/3 $r = .06$. (b) Vector plot of subject weights derived from the three-dimensional INDSCAL solution for the non-context donation and transplant conditions. Similar results were found for weight ratios.

A widely held theoretical position holds that the structure of a representational field comprises core and peripheral elements, and that the effect of context, through non-negotiability and stability, facilitates the differentiation of the core/peripheral distinction (Abric, 1993; Moliner, 1995). Due to the organizing and meaning-bearing function of the central elements within the core, the core has been thought to be irrefutable, non-negotiable, and stable, and thus unaffected by contextual variation. In contrast, the peripheral elements are considered flexible because they integrate inter-individual variations, such as personal experiences and practices, into the representation, and adapt the representation to the reality of the moment (Guimelli, 1998; Moliner, 1995).

Drawing from a word association study of War and Peace that involved contextual manipulation, Wagner *et al.* (1996) argue that the central core of a representation is not a simple organizing principle, but a group of elements that form a stable structural unit that remains relatively unaffected by situational variation. Wagner *et al.,* manipulated the context in which the word associations were elicited. The matrices of associations were stacked and analysed by correspondence analysis. Those elements that preserved their structure across the contextual manipulations were identified as core elements, and those that did not preserve their structure as peripheral elements.

Guimelli (1998) extended the initial core/peripheral distinction established by Abric (1993, 1996) to argue the core of a representation is hierarchically organized into normative and functional dimensions. The normative dimension is considered to be linked to the values, norms or stereotypes of the group to which the representation pertains, and allows evaluative judgments to be made about the social object. It is clearly marked by ideological and historical factors, and may situate the symbolic meaning of the elements. The functional dimension concerns the instrumental relations that individuals maintain with the social object, and is directly related to the social practices they may have in relation to the object. Moreover, the normative and functional dimensions are non-equivalent and hierarchically arranged, and can be elicited according to their contextual relationship with the social object. Thus, in keeping with the theory of the central core, where central elements are considered to manage the meaning of the representation as a whole, central elements are more frequently related to the other elements of the representational field, or have a larger number of semantic relationships than do peripheral elements (Guimelli, 1993).

This theoretical position was used in work by Rouquette (1994, as cited in Guimelli, 1998), who investigated the contextual movement of the normative and functional dimensions of the core in a representation. Central elements were first identified as such by their continual high valency, and then through the polarization of the representation the elicitation of the normative and functional dimensions of the core was observed. Valency here refers to the relations that elements within a representation field maintain with other elements in the representational field (Guimelli, 1998). Thus, high valency relates to the finding that central elements are more frequently related to other elements in the representational field, and have a larger number of semantic relationships, than do peripheral elements. Rouquette found that the normative elements retained their high valency throughout the manipulation, while the functional elements were either activated or de-activated in the contextual situations that polarized the representation (Guimelli, 1998).

Together, the methodological positions taken by Wagner *et al.* (1996) and Guimelli (1998) appear to contradict each other, in that the identification of the core, through the stability of the central elements as a structural unit, would not accommodate the differential movement of the normative and functional dimensions of the core elements.

However, in relation to this present study, it is posited that the analyses provided by the INDSCAL model in ALSCAL (in particular, the differential subject weighting of the dimensions) provides a unique method that would allow the observations of both: the differential movement of the core elements (as posited by Guimelli, 1998) within the structural stability of the core (proposed by Wagner *et al.*, 1996).

The effect of context on the associations

The effect of context on the associations made to both stimulus words can be observed by determining the overall effect of the contextual manipulation against the non-context conditions,[11] by comparing the context,[12] and non-context conditions through separate INDSCAL solutions, and through an analysis of all eight conditions together. We present here the solutions derived through a comparison of the non-context conditions against the context conditions, as well as the solution derived from all eight conditions.[13]

Comparison between non-context and context conditions

The rationale for this analysis drew from Rouquette (1994, as cited in Guimelli, 1998), who found that elements that constitute the functional dimension of the core may be de-activated or activated in accord with the polarization of the representation. On this basis, we postulated some functional core elements will be activated/de-activated by the elicitation of the representation through the stimulus word (as the preceding analysis demonstrated that the representation was not significantly polarized by the mechanistic or gift contexts).[14]

Consistent high frequency of co-occurrence or high valency

Words that exhibit a consistently high frequency of co-occurrence, and cluster with those words that have a high frequency of co-occurrence, are expected to be positioned close to the centroid of the configuration. This position would indicate their relatively high frequency of co-occurrence with all other words in the configuration by the consistently smaller distances (greater similarity in co-occurrence) exhibited between that word and all other words in the configuration. Consistent high frequency of co-occurrence, or high valency, is then a measure of hand-in handedness (Flament, 1994, cited in Guimelli, 1998) between associations made in response to the stimulus word.

It is posited here that words that exhibit a high valency with other words are likely to be core elements. The manipulation of stimulus words should therefore delineate their core/peripheral status, while allowing for the possibility that core elements exist that are (a) common to both the donation and transplant conditions, or (b) pertain

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[11] *The fixed configuration option in the INDSCAL model in ALSCAL was used to solve for subject weights for the context conditions against the non-context configuration (see Kruskal & Wish, 1978). This analysis was not pursued due to the very high S-Stress and poor fit (RSQ) of the context conditions, in comparison to the non-context conditions, against the configuration.*

[12] *No significant difference was found between the Mechanistic (MT & MD) and Gift (GT & GD) conditions in the salience attributed to each dimension (Dimension 1, $F(1, 2) = .20$, ns; Dimension 2, $F(1, 2) = 7.12$, ns; Dimension 3, $F(1, 2) = 1.83$, ns), evidencing that the particular context in which the words were elicited did not polarize the representation. Thus, this analysis is not presented here.*

[13] *It should also be noted that analyses were performed collapsing for order; these analyses did not clarify the results further rather these analyses homogenized the group stimulus space and blurred the distinctiveness of the subject weights.*

[14] *See footnote 12.*

specifically to either the donation or transplant conditions, and (c) as such, may be elicited variably according to the manipulations.

Comparisons were made between (1) the non-context and context donation conditions, and (2) the non-context and the context transplant conditions. It was expected that in relation to each stimulus word, those associations that exhibited a high valency with other associations in the non-context conditions would be considered core normative elements, if (a) they retained their high valency in the context conditions, and (b) they qualitatively represented the values, and norms of the group. It was also expected that those associations that exhibited high valency in the context conditions, but a) not in the non-context conditions, and (b) were qualitatively found to relate the practices to the social group would be considered functional core elements.

Analysis of the non-context and context donation conditions

The dendrograms for the donation conditions reveal that life, death, family, and help cluster at the centroid of the configurations for both the non-context and context donation conditions. Good and save only cluster at the centroid in the context conditions, suggesting these associations are context dependent and, as such, are not central to the representation. From this, we suggest that life and help are normative core elements; they convey a characteristic that is essential to the recognition of the representation (Flament, 1994),[15] and 'allow evaluative judgments to be made about the social object, they are marked by ideological and historical factors and [which] may situate the symbolic meaning' (Guimelli, 1998, p. 222). We suggest that the word death is a functional core element; although it can be argued that due to minimal movement in valency, it may have normative status. We suggest that it is a functional core element because it clearly concerns 'the instrumental relations that subjects have with the social object and is directly related to the social practices that subjects have in relation to the object' (Guimelli, 1998; p. 222). We also suggest the association family is a descriptive element, but one that is not essential to the definition of the representation (Flament, 1994), and so more likely to be a peripheral element in the representation (Fig. 2).

INDSCAL analysis of the non-context and context transplant conditions

The dendrograms for the transplant conditions show that life, death, doctor, and donor cluster at the centroid of the configuration for the non-context transplant solution, while life, help, death, donor, and spare parts cluster at the centroid for the context conditions.

We argue on this basis, and in conjunction with a qualitative analysis based on Flament's (1994) principle of refutation, that life, death, and doctor are core elements within the representation. Life and death are, as already discussed, normative and functional elements, respectively, while doctor is a functional core element that is activated/de-activated dependent on the context in which the representation is elicited. Here doctor was activated in the non-context conditions, but not in the context conditions, and is clearly an instrumental association that relates the social practice to the subjects. The word donor, although situated at the centroid in both the context and non-context conditions, is, we suggest, a descriptive element, important in relating this social practice to the subject, but as such is not essential to the definition of the

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[15] *The principle of refutation designates that 'it is only in the case when the object of the representation has a characteristic contrary to a central cognition that it is not recognized as such' (Guimelli, 1998, p. 222).*
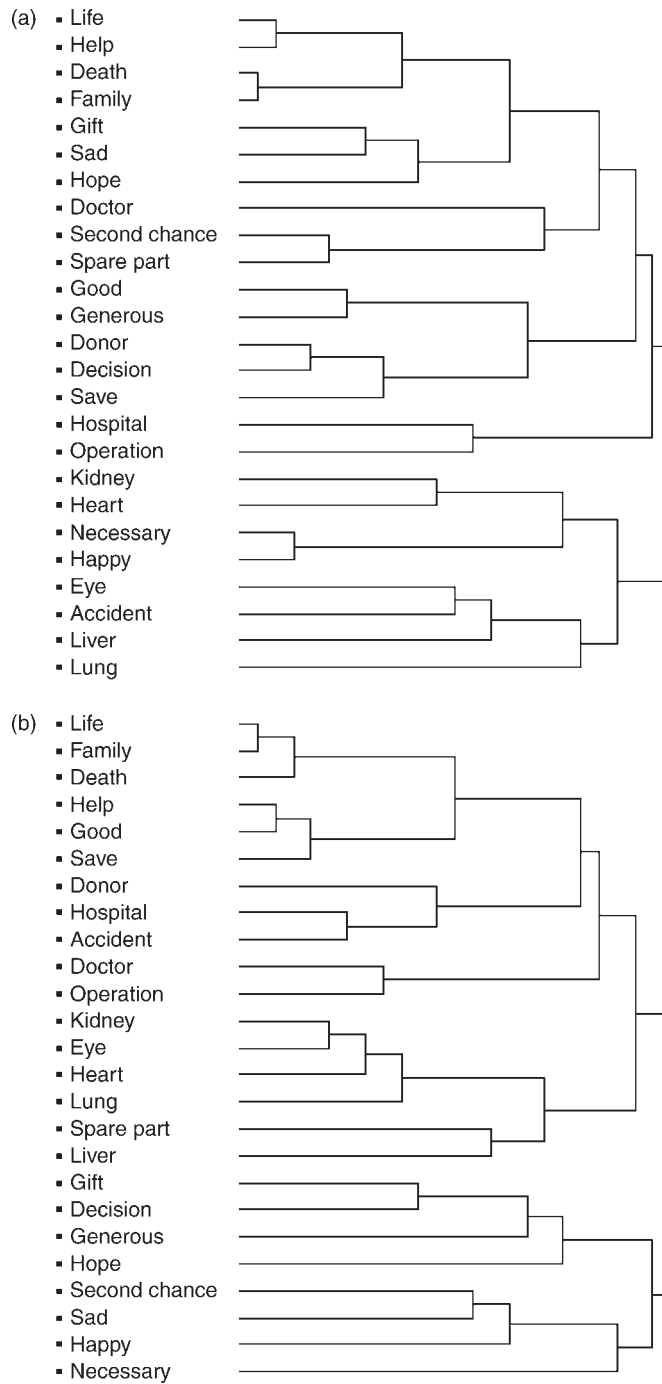
Figure 2. Dendrogram of the HCA, using Ward's method and Euclidean distances, of the three-dimensional coordinates of the INDSCAL solution for (a) the non-context donation conditions; S-Stress .125 (2-dim .191, 4-dim .104) RSQ .897 (2-dim .828, 4-dim .906) and (b) the context donation conditions S-Stress .124 (2-dim .162, 4-dim *n/a*) RSQ .898 (2-dim .89, 4-dim *n/a*).
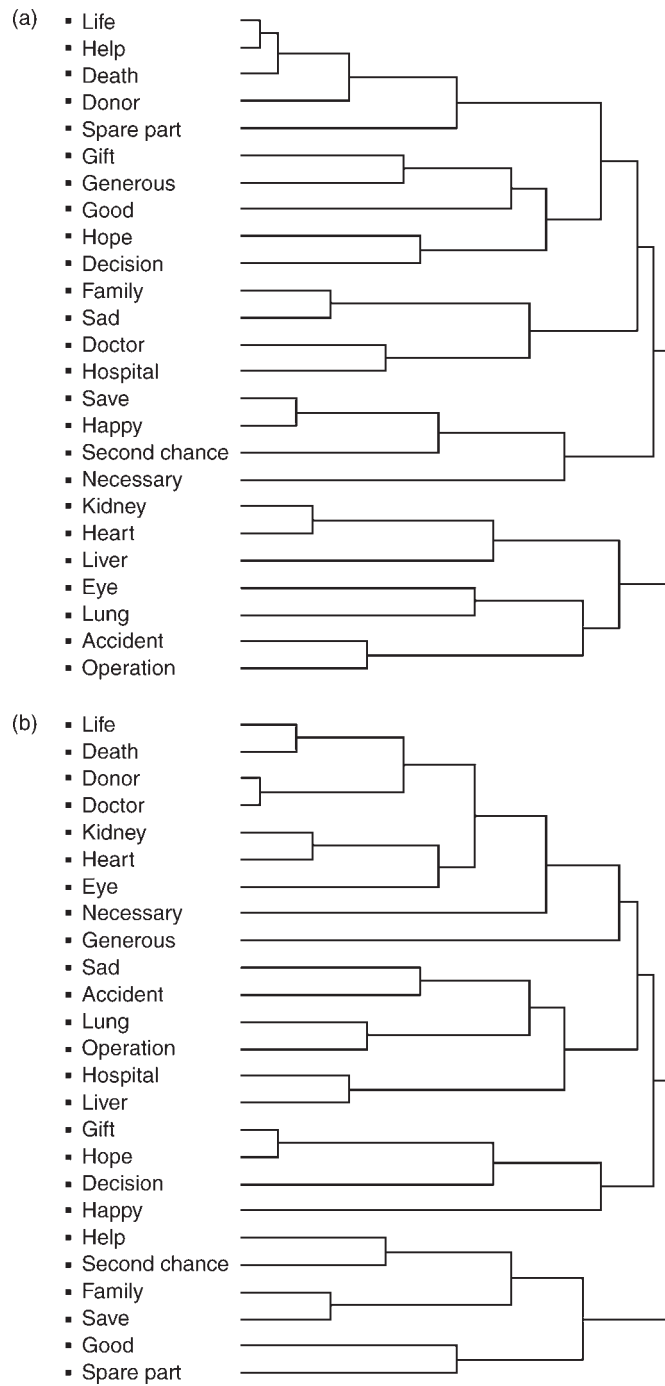
Figure 3. Dendrogram of the HCA, using Ward's method and Euclidean distances, of the three-dimensional coordinates of the INDSCAL solution for (a) the non-context transplant conditions, S-Stress .138 (2-dim .201, 4-dim *ns*) RSQ .859 (2-dim .821, 4-dim *ns*) and (b) two context transplant conditions S-Stress .147 (2-dim .194, 4-dim *n/a*) RSQ .853 (2-dim .819, 4-dim *n/a*).

representation. It is a relational descriptive word that is indicative of whether organ donation and transplantation is understood in terms of people, or solely of organs. Spare parts clusters at the centroid of the configuration in the context, but not the non-context conditions, as does the association heart. We suggest that spare parts is a manifestation of the stimulus word in certain contexts; and as such is an iconization or image engendered by the idea of organ transplantation when the stimulus word has contextual meaning (an issue as opposed to a word). The association heart also manifests as a function of the context, and as such is not essential to how organ transplants are understood.

Consensual reality: An INDSCAL analysis of all eight conditions

The analysis of the eight conditions demonstrates the dynamism that results when associations are elicited dependent on the context/non-context of the representation. It is this dynamism that is implied by the notion of consensual reality.

The solution derived from the eight conditions revealed (a) the centrality of life and death across all conditions, (b) a significant differential weighting of Dimension 1 such that the context conditions attributed more salience to the arrangement of items on Dimension 1 than all other dimensions, (c) no significant differences between stimulus words in the salience attributed to any of the dimensions,[16] and (d) no interaction effects between context and stimulus word.

Interpretation of the dimensional weighting

Dimension 1 presents a clear normative and functional split in the arrangement of associations that relate directly to organ donation or organ transplantation. The functional associations, such as body organs, hospital, accident, donor and doctor are positioned to the left of the centre of the axes, suggestive of organ transplantation, while on the right associations such as hope, good, gift, second chance, save (plus family) suggest the normative dimension, and as such relate to organ donation. In contrast, Dimension 2 offers a more complex arrangement of associations defined by operation, hospital and doctor against necessity of the decision. This presents an ambivalent and contrasting picture that corresponds to neither organ donation nor organ transplantation (Fig. 4).

Scenario Rating Scales

Mean rating scale responses were analysed across conditions (mechanistic/gift) using INDSCAL and analyses of variance. There was a strong pro-donation stance, regarded as normative, with a significant differential weighting of the dimensions by condition, such that the gift and mechanistic conditions attributed significantly more salience in making their judgments to Dimension 1 and Dimension 2, respectively, than they did the other dimensions. Furthermore, there was a significant difference between the gift and mechanistic conditions for 11 of the items (see Table 2).

Figure 5 shows the dimensional make-up of the scenario rating scale items. The most noticeable feature is the similarity in item arrangement across dimensions, reiterated by the significant correlations between all three dimensions, and suggestive of a

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[16] *Dimension 1, $F_{(1,4)} = .743$, ns; Dimension 2, $F_{(1,4)} = 1.468$, ns; Dimension 3, $F_{(1,4)} = 3.561$, ns; Dimension 4, $F_{(1,4)} = 3.434$, ns.*
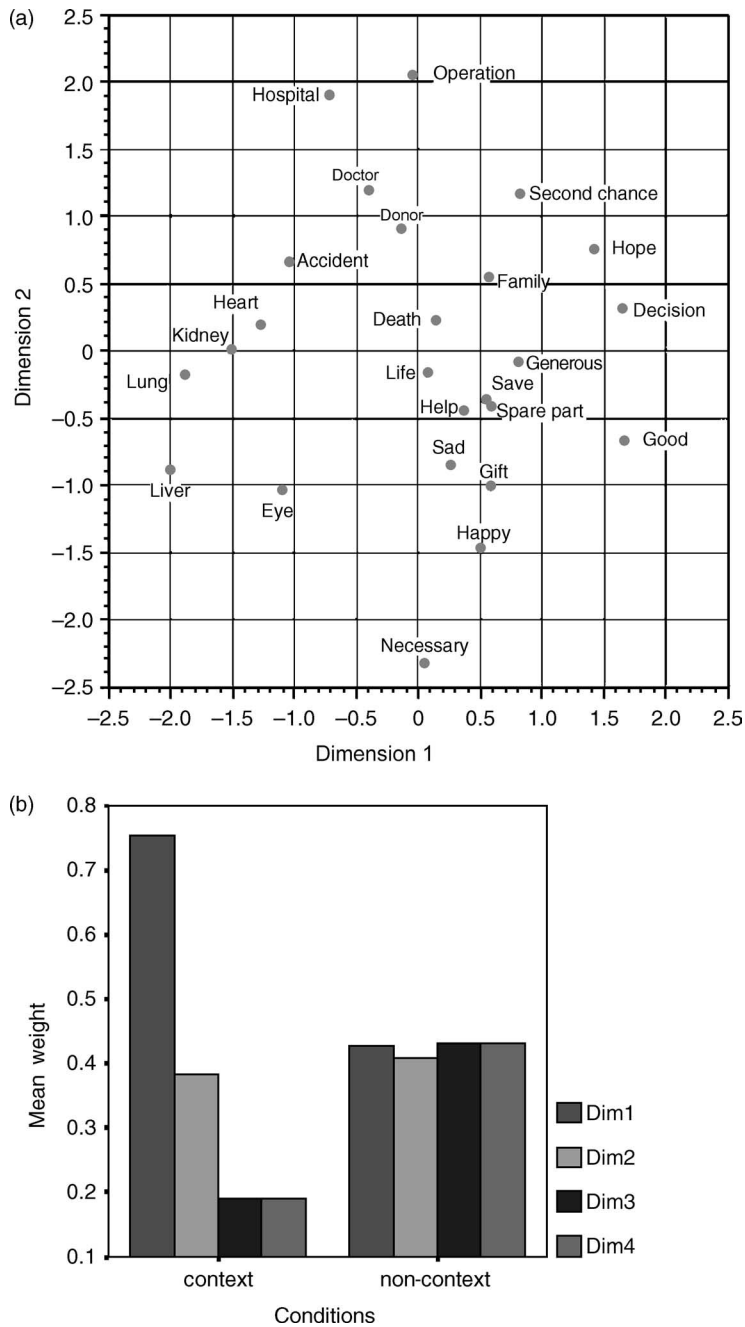
Figure 4. Cross-section of four-dimensional INDSCAL solution for all context and non-context conditions: S-Stress = .14 (2-dim .243, 3-dim .187), RSQ = .80 (2-dim .796, 3-dim .736; (a) Dimension 1 by Dimension 2; (b) Mean group linear weights for the four dimensions for all eight conditions: Dimension 1, $F(1, 4) = 31.40$, $p < .05$; Dimension 2, $F(1, 4) = .114$, *ns*; Dimension 3, $F(1, 4) = 8.164$, $p < .05$; Dimension 4, $F(1, 4) = 9.858$; $p < .05$). The subject weights are shown here as a histogram, as opposed to a vector plot of subject weights, to aid interpretation. Similar results were found when weight ratios were used.

Table 2. Means and standard deviations of scale item ratings collapsed for scenario

Scale items	Mechanistic scenario	Gift of life scenario
	M (SD)	M (SD)
Dehumanizing #	2.17 (1.30)	2.02 (1.19)
Giving life	4.31 (1.04)	4.37 (0.93)
Mutilated #	2.35 (1.37)	2.27 (1.24)
Altruistic	3.64 (1.22)	3.61 (1.33)
Spare parts ** #	2.87 (1.58)	2.53 (1.37)
Help	4.07 (1.14)	4.14 (1.04)
Piece missing #	2.18 (1.40)	2.19 (1.29)
Reuse** #	3.25 (1.50)	2.76 (1.45)
Gift to society	3.58 (1.40)	3.62 (1.42)
Selling organs #	1.72 (1.26)	1.76 (1.12)
Second chance**	3.95 (1.22)	4.41 (0.92)
Taking bits & pieces* #	2.52 (1.41)	2.26 (1.25)
Give quality of life*	4.28 (1.06)	4.42 (0.93)
They want the parts** #	3.39 (1.44)	2.87 (1.50)
Dignity, respect^**	3.45 (1.43)	4.19 (1.23)
Cut#	2.22 (1.30)	2.05 (1.25)
Doctors want to use us* #	2.32 (1.38)	2.08 (1.27)
Live on**	3.29 (1.47)	4.09 (1.09)
Parts! #	2.68 (1.43)	2.46 (1.33)
Satisfaction	3.39 (1.38)	3.26 (1.34)
Harvested** #	2.29 (1.38)	1.91 (1.27)
Meaning out of death	3.31 (1.56)	3.43 (1.49)
Consolation	2.84 (1.46)	3.03 (1.35)
Donor not dead** #	2.33 (1.52)	1.95 (1.35)
Individual decision	3.88 (1.29)	3.81 (1.29)

Note: *$p < .05$, **$p < .00$, !$p < .06$, # denotes Mechanistic items.
^ denotes Dignity respect and sensitivity towards the person who has died.

one-dimensional solution (Shepherd, 1974). This subtle, but significant, movement of a few items suggests it is more meaningful to focus on the first two dimensions extracted from a three-dimensional solution than either a one- or two-dimensional solution. Here, Dimension 1 is polarized by a cluster of items: give someone quality of life, gift of life, second chance, dignity, respect, and sensitivity for the person who has died, live on, and help. Similarly, Dimension 2 is also polarized by a similar cluster of items minus two items (dignity, respect, and sensitivity for the person who has died, and live on). A similar pattern emerges with the items at the opposing end of the dimensions. Dimension 1 is polarized by selling organs, the donor was not really dead, and harvesting; while Dimension 2 is polarized by selling organs minus harvesting, and the donor was not really dead, which fall further up the axes. There is also differential movement in the positioning of two other items in relation to the dimensions. On Dimension 1, they want the parts, clusters close to reuse, spare parts, and parts; while on Dimension 2, they want the parts, clusters with gift to society, altruistic, and it makes some meaning and sense out of death.

The manipulation demonstrated that perspectives taken on organ donation and transplantation shift depending on how the process of donation and transplantation is portrayed; in particular how the donor is perceived in the process. Specifically,
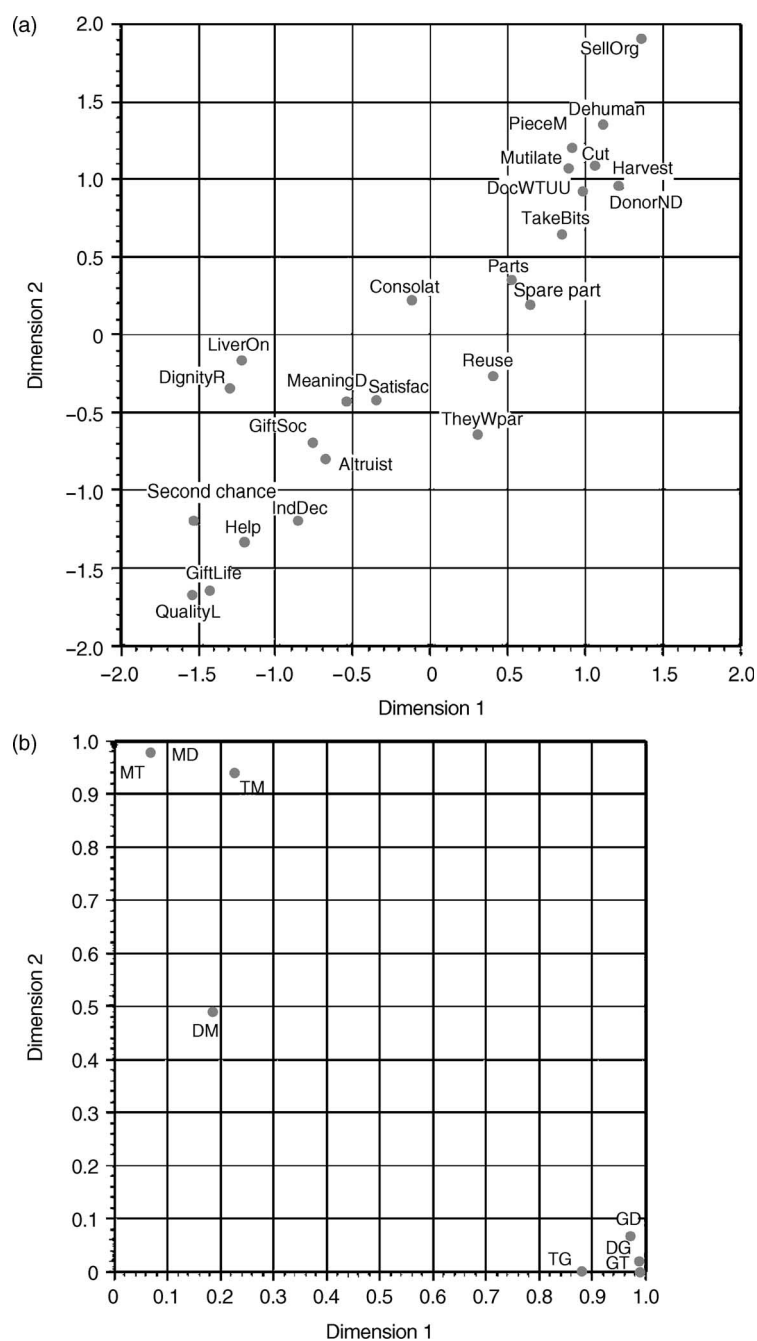
Figure 5. (a) Dimension 1 by Dimension 2 of the three-dimensional INDSCAL configuration derived from the eight conditions: S-Stress = .102. (2-dim .129) RSQ = .965 (2-dim.944); Dim1/Dim2, $r = .906, p = .01$; Dim1/Dim3 $r = -.88, p < .01$ (b) Vector plot of subject weights for Dimension 1 by Dimension 2. When subject weights were treated as linear: Dimension 1, $F(1, 6) = 203.18, p = .00$), Dimension 2, $F(1, 6) = 47.507, p = .00$; Dimension 3, $F(1, 6) = .259$, *ns*). Similar results were found when weights were treated as weight ratios.

respondents who read the gift scenario attributed more importance to Dimension 1 (where the item arrangement was empathic to the position of the donor in the donation and transplantation process), than they did Dimension 2 (where the arrangement of items was more dehumanizing and less empathic to the donor), while respondents who read the mechanistic scenario attributed more importance to the arrangement of items on Dimension 2, than they did Dimension 1.

Conclusion

Two different methods were used to investigate the social representation of organ donation and transplantation. The word association tasks asked the respondents to write down the first seven words that came to mind when they thought of organ donation or organ transplant. This required spontaneous responses free from deliberation and the structures of discourse, and was a methodology most likely to elicit non-reflexive thought. The hypothetical scenarios and rating scales asked the respondents to read the scenario and indicate the extent to which the words came to mind when they imagined the scenario they had just read. This method required consideration and, most likely, reflexive thought. Our aim in using these two methodologies was to construct a picture of the collectively concerted understandings of organ donation and transplantation, in particular to ascertain whether there were one or two social representations of organ donation and transplantation, and how the nature of these was accommodated within the representational field.

The word association tasks clearly showed there was one representational field that pertained to both organ donation and transplantation. Central to this representation were life and death. These two words appear to generate the meaning and organization of not only the core, but also the entire representational field.[17]

These two words can also be described in relation to themata. Themata are conceptualized here as mutually interdependent taxonomies, dialogically reconstructed through societal debates that spur the genesis of a social representation (Markova, 2000). Life and death are fundamental concepts in our social knowledge. When the first heart transplant was performed in South Africa on 3 December 1967, it generated enormous public debate and extensive media coverage around the world. It both fascinated and frightened. Life with, what was thought to be, its natural definitive end, could now be changed by the transplantation of an organ from another human. In order to achieve a successful transplantation, the organ had to be removed while still viable, also redefining the traditional notions of death. Organ transplantation merged the scientific with the social and appropriated medical understandings into the lay world, as societies grappled with the implications of this new medical technique.

Life and death are an oppositional taxonomy, an antinomy, a contradiction. Following Markova's (2000) argument, the ability to transplant body organs problematized the taxonomy of life and death. Thus, it was through the tension, public debate and argumentation that emanated from the reconstruction of this taxonomy in relation to organ donation and transplantation, that the genesis of the social representation took form.

Contradiction in social representations has tended to imply the existence of two or more representations, possibly because the core of a representation has been regarded as cohesive and coherent due to its generative and meaning-bearing properties

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[17] *Doise et al. (1993) refers to these as connotative principles.*

(Abric, 1993, 1996; Guimelli, 1998). However, the findings from this study suggest there is one representational field that pertains to organ donation and transplantation, and that the contradictory nature of this field is maintained through the elicitation of the normative and functional dimensions of the core. The normative dimension is evaluative, defining organ donation and transplantation in terms of its societal outcomes, and is highly saturated in norms and values. The core words *life* and *help*, constitute this dimension of the core, and are generative of the other normative peripheral elements, such as second chance and hope. In contrast, the functional dimension is the practise of organ donation and transplantation as it relates to the individual. Here organ donation and transplantation are located within the medical world, and the emotive outcomes of this to the donor and the donor's family. Death and doctor generate the functional peripheral elements such as operation and accident.

It is argued here that the coexistence of contradictory elements is through the differential functioning of these two dimensions within the representation. Life can coexist with death because they are fulfilling different functions within the representation. Life and death are not a contradiction, as both function differently within the representation. Life is an evaluative outcome in a broad societal sense. Why else would organ donation and transplantation exist, if it were not evaluated as having this positive normative outcome? Similarly, death does not contradict life *per se*, because it relates the practice of donation and transplantation to the individual. It is not an evaluative judgment of the process, but an inevitable outcome for the donor, at least in the case of cadaver donation. Similarly, second chance and accident are not equivalent elements within the representation, but are generated from the normative and functional dimensions, respectively, as are hope and necessary. The representational field is only a conflicting field if all elements are considered to function at the one level.

An interesting, and informative point that can be derived from the analyses, in particular the word association analysis in Fig. 4, is the effect of context on the representational field. In the context conditions, the normative and functional dimensions of the representation mirror organ donation and organ transplantation. In contrast, in the non-context conditions the elicitation of associations was neither normative nor functional, and suggestive of the ambiguity and contradiction in how this issue is socially understood. Thus, it appears that it is only when we consider both the context and non-context situations that a more comprehensive picture emerges of the social representation of organ donation and transplantation.

The scenario and rating scales also demonstrate the elicitation of the representation. Here there was a subtle, but informative, movement of items in accord with the context/non-context manipulations. Again, this analysis revealed a strong normative view of organ donation and transplantation pertaining to a gift of life, giving someone quality of life, helping, and a second chance. All of these show the manifestation of the normative core elements life and help through the elicitation of the representation by means of reflexive thought.

Two other items, however, dignity, respect, and sensitivity for the person who has died, and live on, are clearly manifestations of the functional dimension of the core, death and doctor, and relate the practice of organ donation and transplantation to the individual. They reflect an elaboration of the functional dimension through reflexive thought (in particular the item dignity, respect and sensitivity for the person who has died), and are activated/de-activated in accordance with the context. When the respondents read the gift scenario, dignity, respect and sensitivity for the person who has died, and live on, were activated in accord with items such as gift of life, and helping.

But, when the respondents read the mechanistic scenario, dignity, respect and sensitivity for the person who has died, and live on were not activated to the same extent they were when respondents read the gift scenario.

This paper argues that a consideration of the role and maintenance of contradiction within social representations directs us to a more holistic view of social thought. Such a consideration would direct us away from the pervasive notion that social thinking is linear and rational, to encompass the possibility that non-linear and complex social thought defines much of our social knowledge. It is within this conceptualization of social knowledge that we address the notion of social positioning (see Doise *et al.*, 1993).

It is tempting indeed to argue that the results from the scenario manipulations were due to social positioning; the mechanistic scenario induced the social positioning of the donor, and the gift of life scenario the social position of the recipient. And, while clearly social positioning is implicated in the scenario manipulation, the assumption that the social position of 'donor' would then elicit the mechanistic conceptualization (and likewise the position of the recipient the gift of life conceptualization) assumes a predictability and causality that we argue strongly against. Duveen (1994) states that if we take a social representation to be a 'system of values, ideas and practices (Moscovici, 1973, p. xiii) there is simply no way that belief and behaviour cannot but be considered as equal expression of the same representation.

Thus, if we assume that social positioning elicits a set pattern of responses, be that beliefs or behaviours, we subscribe to the notion of linearity, predictability, and, in this instance, the existence of two representations; one for the social position held by the donor, the other for the social position of the recipient. It is this point exactly that we are arguing against. We argue that it is the contradictory nature of the representation that allows for the elicitation of aspects of the representation in accord with the context, whether that be social positioning or social context. And, that elicitations of the representation are not inextricably tied to a social position, rather it is the social position of donor or recipient that is part of the social representation of organ donation and transplantation.

To conclude, it is only when both levels of thought are investigated that the social representation of organ donation and transplantation begins to emerge. The word association tasks were informative in identifying the elements central to the definition of the representation, how the contradictory nature of the representation is accommodated by the normative and functional dimensions of the core, and the generation of periphery elements. However, indicative of the nature of non-reflexive thought, these words lack the conceptualization of discourse. Thus, the findings from the scenario rating scales, constructed from previous focus group discourse, both complemented and contrasted the word association tasks. These analyses illustrated the manifestation of core elements within discourse and, in particular, the activation/de-activation of the functional dimension, in accordance with the context in which the representation was elicited.

Thus, the analyses from both the word association and the scenario and rating scale tasks demonstrate how both levels of thought need to be considered in understanding what constitutes a representation. An analysis that focuses purely on the core and peripheral elements, or non-reflexive or reflexive thought, has the propensity to offer, at best, only a one-dimensional view of the representation. Furthermore, this research suggests that the role and maintenance of contradiction in the representational field leads to a consideration of a more holistic view of social thought. Such a consideration directs us away from the pervasive notion that social thinking is linear and rational

to encompass the possibility that non-linear, and complex social thought defines much of our social knowledge

References

Arabie, P., Carroll, J. D., & DeSarbo, W. (1987). *Three-way scaling and clustering*. California: Sage.

Abric, J. C. (1993). Central system, peripheral system: Their functions and roles in the dynamics of social representations. *Papers on Social Representations*, *2*(2), 75–128.

Abric, J. C. (1996). Specific processes of social representations. *Papers on Social Representations*, *5*(1), 77–80.

Bauer, M., & Gaskell, G. (1999). Towards a paradigm for research on social representations. *Journal for the Theory of Social Behaviour*, *29*, 163–186.

Billig, M. (1987). *Arguing and thinking: A rhetorical approach to social psychology*. Cambridge: Cambridge University Press.

Billig, M. (1988). Social representation, anchoring and objectification: A rhetorical analysis. *Social Behaviour*, *3*, 1–16.

Billig, M. (1991a). *Ideology and opinions: Studies in rhetorical psychology*. London: Sage.

Billig, M. (1991b). *Ideology, rhetoric and opinions*. London: Sage.

Billig, M. (1993). Studying the thinking society: Social representations, rhetoric, and attitudes. In G. M. Breakwell & D. V. Canter (Eds.), *Empirical approaches to social representations* (pp. 39–62). Oxford: Clarendon Press.

Carroll, J. D., & Chang, J. J. (1970). Analysis of individual differences in multidimensional scaling via an *n-way* generalization of Eckart-Young decomposition. *Psychometrika*, *35*, 238–319.

Coxon, A. P. M. (1982). *The user's guide to multidimensional scaling with special reference to the MDS(X) library of computer programs*. London: Heinemann.

Deese, J. (1965). *The structure of associations in language and thought*. Baltimore: John Hopkins Press.

de Rosa, A. S. (1987). The social representations of mental illness in children and adults. In W. Doise & S. Moscovici (Eds.), *Current Issues in European social psychology*. (Vol. 2, pp. 47–138). Cambridge: Cambridge University Press.

Di Giacomo, J. P. (1980). Intergroup alliances and rejections within a protest movement (Analysis of the social representations). *European Journal of Social Psychology*, *10*, 329–344.

Doise, W., Clemence, A., & Lorenzi-Cioldi, F. (1993). *The quantitative analysis of social representations*. Hertfordshire: Harvester Wheatsheaf.

Duveen, G. (1994). Unanalysed residues: Representations and behaviours – a comment on W. Wagner. *Papers on Social Representations*, *3*, 95–232.

Gervais, M. C., & Jovchelovitch, S. (1998). Health and identity: The case of the Chinese community in England. *Social Science Information*, *37*, 709–729.

Guimelli, C. (1993). Concerning the structure of social representations. *Papers on Social Representations*, *2*, 85–92.

Guimelli, C. (1998). Differentiation between the central core elements of social representations: Normative and functional elements. *Swiss Journal of Psychology*, *57*(4), 209–224.

Flament, C. (1994). Consensus, salience and necessity in social representations. *Papers on Social Representations*, *3*, 97–105.

Jovchelovitch, S., & Gervais, M. C. (1999). Social representations of health and illness: The case of the Chinese community in England. *Journal of Community and Applied Social Psychology*, *9*, 247–260.

Kruskal, J., & Wish, M. (1978). *Multidimensional scaling*. Beverly Hills, CA: Sage.

Lorenzi-Cioldi, F., & Clemence, A. (2001). Group processes and the construction of social representations. In M. A. Hogg & S. Tindale (Eds.), *Group processes. Blackwell handbook of social psychology*. Oxford: Blackwell.

Markova, I. (1996). Towards an epistemology of social representations. *Journal for the Theory of Social behaviour*, *26*, 177–196.

Markova, I. (2000). Amedee or how to get rid of it: Social representations from a dialogical perspective. *Culture and Psychology, 6*, 419–460.

Markova, I., Moodie, E., Farr, R., Drozda-Senkowska, E., Eros, F., Plichtova, J., Gervais, M. C., Hoffmannova, J., & Mullerova, O. (1998). Social representations of the individual: A post-communist perspective. *European Journal of Social Psychology, 28*, 797–829.

Moliner, P. (1995). A two-dimensional model of social representations. *European Journal of Social Psychology, 25*, 27–40.

Moloney, G. (2002). *Dynamic contradictions: Social representations, symbolism, and organ donation and transplantation*. Unpublished Doctoral Thesis. Murdoch University. Western Australia.

Moloney, G., & Walker, I. (2000). Messiahs, pariahs, and donors: The development of social representations of organ transplants. *Journal for the Theory of Social Behaviour, 30*, 203–227.

Moloney, G., & Walker, I. (2002). Talking about transplants: Social representations and the dialectical, dilemmatic nature of organ donation and transplantation. *British Journal of Social Psychology, 41*, 299–320.

Moscovici, S. (1973). Foreword. In C. Herzlich (Ed.). *Health and illness: A social psychological analysis*. London: Academic Press.

Moscovici, S. (1984). The phenomenon of social representations. In R. M. Farr & S. Moscovici (Eds.), *Social representations* (pp. 3–69). Cambridge/Paris: Cambridge University Press/Masion des Sciences de l'Homme.

Moscovici, S. (1993). Introductory address. *Papers on Social Representations, 2*, 160–170.

Moscovici, S., & Vignaux, G. (1994). Le concept de themata. In C. Guimelli (Ed.), *Structures et transformations des representations sociales* (pp. 25–72). Neuchatel: Delachaux et Niestle University Press.

Rose, D., Efraim, D., Joffe, H., Jovchelovitch, S., & Morant, N. (1995). Questioning consensus in social representations theory. *Papers on Social Representations, 4*, 150–155.

Rosenburg, S., & Jones, R. (1972). A method for investigating and representing a person's implicit theory of personality. *Journal of Personality and Social Psychology, 22*, 372–386.

Schiffman, S., Reynolds, M., & Young, F. (1981). *Introduction to multidimensional scaling. Theory, methods and applications*. Orlando: Academic Press.

Szalay, L., & Deese, J. (1978). *Subjective meaning and culture: An assessment through word associations*. Hillsdale, NJ: Erlbaum.

Takane, Y., Young, F. W., & Lewyckyi, R. (1977). Nonmetric individual differences multi-dimensional scaling: An alternating least squares method with optimal scaling features. *Psychometrika, 42*, 7–67.

Wagner, W. (1993). Can representations explain social behaviour? A discussion of social representations as rational systems. *Papers on Social Representations, 2*, 236–249.

Wagner, W. (1994). The fallacy of misplaced intentionality in social representation research. *Journal for the Theory of Social Behaviour, 24*, 243–265.

Wagner, W. (1997). Word associations in questionnaires. A practical guide to design and analysis. *Papers in Social Research methods. Qualitative series*. London: London School of Economics Methodological Institute.

Wagner, W., Duveen, G., Themel, M., & Verma, J. (1999). The modernization of tradition: Thinking about madness in Patna, India. *Culture and Psychology, 5*, 413–445.

Wagner, W., Duveen, G., Verma, J., & Thelmel, M. (2000). I have some faith and at the same time I don't believe – Cognitive polyphasia and cultural change in India. *Journal of Community and Applied Social Psychology, 10*, 301–314.

Wagner, W., Valencia, J., & Elejabarrieta, F. (1996). Relevance, discourse and the hot stable core of social representations – A structural analysis of word associations. *British Journal of Social Psychology, 35*, 331–351.

Appendix

Mechanistic and gift of life scenarios

Mechanistic scenario

Imagine that you are driving on the Kwinana Freeway in peak hour traffic. There is a horrific screech of tyres as an articulated truck lurches hopelessly out of control towards your car. Within minutes you are rushed by ambulance to a Perth Hospital where you are immediately placed on life support. A short time later, and after a series of tests, doctors declare you brain dead. After brain death has been determined, your bodily functions are maintained by the life support system; your heart continues to beat and blood circulates through your body. Your next-of-kin are contacted and asked whether organs can be donated. Should they agree, organs will be removed and ice-packed, some retained for use in Perth while others will be flown for use interstate (127 words).

Gift of life scenario

Imagine that you have been diagnosed with a rare degenerative heart disease that has left you on the brink of death. You have, at the most, only a few months to live. The only way your death can be averted is by an organ transplant. However you have been told donors are scarce and the waiting list is long. You and your family's thoughts are constantly on the beeper you carry with you that may one day signal a donor heart has become available. A few months later, and without any warning, you hear the news that you never thought you'd hear, a donor heart has been found for you. The heart is from a woman involved in a collision on the Kwinana Freeway early this morning (127 words).