Flashbulb Memories, Culture and Collective Memories:

Psychosocial Processes Related to Rituals, Emotions and Memories.

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This chapter intends to examine parallels existing between flashbulb memories (FBM) and collective memories (CM) with a special accent on the impact on memory of social processes such as social rehearsal and social rituals. In this context, we will also discuss Whitehouse's (2000, 2004) model of emotionally-loaded rituals with regard to the current state of FBM studies and in relation to neo-durkheimian models of rituals (Collins, 2004).

FBM and collective memories: Similarities in content and processes.-

FBM are distinctly vivid, precise, concrete and long-lasting memories of the personal circumstances surrounding people's discovery of shocking public events, such as assassinations of famous figures. It means that people remember, with almost perceptual clarity, details of the personal context (e.g., where they were, what they were doing, with whom, etc.) in which they first heard about the news. Even though FBM memories are not as accurate or permanent as is suggested by the photographic flashbulb metaphor (Neisser & Harsh, 1990), their forgetting curve is far less affected by time than is the case for other types of memories investigated in basic memory research (e.g., Bohannon & Symons, 1992). Although the label "flashbulb memories" was first introduced in a seminal study by Brown & Kulik in 1977, the first investigation which documented this phenomenon was conducted as early as in 1889 by J. W. Colegrove and regarded the assassination of U. S. President Lincoln (see Bellelli, Curci & Leone, 2000; Neisser, 1982).

In general, FBM studies focused on one single major emotional event. In line with Brown and Kulik's (1977) inaugural research, subsequent studies dealt

predominantly with events involving public violence. As shown in Table 1, episodes of *collective violence* such as September Eleven 2001 terrorist attacks ranked first in frequency (N = 19) among types of events considered in FBM studies. Next, a nearly equal number of studies (N = 17) examined events of *political violence*, such as political leaders assassination (e. g. U. S. Presidents Abraham Lincoln, John F. Kennedy, Swedish Prime Minister Olof Palme), or attempted assassination (e. g., U. S. President Ronald Reagan). *Collective catastrophes* and *death of famous people* ranked respectively third and fourth. Thus, 15 studies dealt with episodes such as the Challenge disaster (1986), the Hillsborough disaster (1989), the San Francisco Earthquake (1989) and the Chernobyl disaster (1986) and 12 studies focused on the expected, non violent, death of important political figures (e.g., Spanish Dictator Francisco Franco, French President Francois Mitterrand, Belgium King Baudouin). A smaller number of studies regarded *political crises*, such as the resignation of the United Kingdom Prime Minister Thatcher or of the Italian Anti-Corruption Judge Di Pietro.

Each of the various events just reviewed elicited in some 40 to 100% of investigated persons a clear and vivid remembering of what happened (e.g., the scene of the shooting of President Kennedy, the moment and circumstances of Franco's death). In addition, however, these persons usually recalled also with high perceptual clarity, the personal circumstances in which they learned about it: Where they stood, what they were up to, with whom when they first heard about it.

It can be remarked that these events which were demonstrated as generating FBM shared most of the characteristics of events representing typical instances of CM. CM are shared memories of relevant public events that are related to social identity and play important psychosocial functions (Neal, 2005). First, as is the case for CM, FBM result from traumatic or markedly negative events which were most of the time

unexpected, painful and extraordinary. Feelings of novelty and surprise among exposed persons indeed count among the best predictive variables for FBM. Second, as is the case for CM, FBM evolve from events that affect collectively a large number of people, either as members of a national community, or as member of a political group. Thus, both centrality of the event to one's own self and event-related previous knowledge predict FBM formation. Third, as is the case for CM, FBM relate to important changes in the social fabric or to important threats to social cohesion and values, which is supported by the fact that appraisals of consequentiality and of importance of an event predict FBM formation. To illustrate, JFK's assassination represented the ending of a "political innocence" in America, as was also the case in Sweden with O. Palme's assassination. Along similar lines, Thatcher's resignation or Franco's death symbolized the end of a political era (Pennebaker& Basanick, 1997). American casualties in the Korean War compared to those suffered in Vietnam, but because American objectives had been achieved in the Korean War and because the military engagement in Korea was perceived as consensual, this war did not form a part of American collective memories (Neal, 2005). Fourth, as is the case for CM, FBM events are largely socially shared both through hearing, viewing and reading mass media and through interpersonal rehearsal. Overt rehearsal is indeed another predictor of FBM formation. A large majority of people learned future FBM events from mass media, mainly TV, and then kept following news about these events in subsequent hours and days. In addition, most of them socially shared the event, as was the case for some 55% of respondents in the study which focused on the Belgian King Baudouin unexpected death (Finkenauer, Luminet, Gisle, El-Ahmadi, Van der Linden & Philippot, 1998) and in the study centered around Judge Di Pietro's resignation in Italy (Bellelli, Curci & Leone, 2000). The case of JFK's assassination offered a paradigmatic example of such collective

sharing and rehearsal. According to Neal, indeed, “The nation was engrossed in television coverage of the funeral ceremony...and the subsequent funeral procession to Arlington” (Neal, 2005, p.108). Sixth, CM and FBM events such as attacks, disasters, political assassinations and crises all provoke shared emotions such as surprise and interest, as well as anger, sadness, fear and anxiety. Reported emotionality also counts among the predictors of FBM. Finally, CM and FBM events both involve participation in collective behaviors and rituals under the forms of political demonstrations, of worship, of funerary rituals and so forth (Paez, Rimé & Basabe, 2005). To illustrate, in the case of JFK assassination:

> “The funeral march was embellished by an honour guard (...). The dignity of the ceremony and the symbolism of the funeral march were accompanied by intense feelings of sadness (...). Following his death, the images and memories of Kennedy became selective and more vivid as they took on sacred qualities...it became taboo to say negative things about Kennedy (...). There were no references to the narrow margin by which he has been elected, nor to fiasco of Bay of Pigs invasion, nor to the concerns of many Americans with our growing involvement in Vietnam (...). Many people remembered Kennedy’s idealism (...). In popular literature and music, references were made to Abraham Lincoln in the sanctification of Kennedy as the ideal man and president” (Neal, 2005, pp. 109-111).

Collective events have the highest probability to lead to a long-lasting collective memory, or set of social representations concerning the past, when they (1) open upon social changes in the long run, (2) are emotionally loaded, (3) elicit abundant social sharing among individuals, (4) are socially rehearsed by mass media, and (5) are associated with collective behaviour and commemoratives rituals (Pennebaker &

Basanick, 1997). According to Jedlowski (2000), such social representations, or shared knowledge about the past, are elaborated, transmitted and conserved in a group essentially through interpersonal and institutional communication. Social representations of the past are helpful to people for a variety of reasons. First, they maintain a positive image of the group to which they belong. Second, they preserve a sense of continuity. Third, they feed up values and norms which prescribe behaviors and which contribute to define what characterizes or should characterize group members (Jedlowski, 2000).

Studies showed that events relevant for cultural values and social identity fuel both collective memories and FBM. To illustrate, FBM of Martin Luther King assassination (Brown & Kulik, 1977) were more common among Afro-Americans than among European Americans, and FBM of Thatcher's resignation (Gaskell & Wright, 1997) were stronger among upper class Britons than among lower class ones. Presumably such differences resulted from the particular relevance these events had respectively for Afro-Americans in general and for British upper class people among whom supporters of the conservative party are a majority (Gaskell & Wright, 1997). Though the inaugural and seminal study by Brown & Kulik (1977) first stimulated FBM studies focused on individual aspects, more recent investigations evidenced the role played by cultural factors in the development of FBM. For instance, Curci, Luminet, Finkenauer, & Gisle (2001) compared French versus Belgian memories of the death of French President François Mitterrand. Similarly, Luminet, Curci, Marhs, Wessel, Constantin, Gencoz, & Yogo (2004) conducted a cross-national comparison of FBM for September 11th attacks. In studies of this type, social identity was found to be strongly related to the recall of national past events and to CM (Rosa, Bellelli & Bakhurst, 2000). National and ethnic identification were related to elevated levels of free recall of

positive and of dramatic political events. For instance, when asked to mention important historical events of the twentieth century, highly identified Basque respondents recalled more frequently events such as the political struggle against the fascist repression, the transition from Franco's dictatorship to democracy, or the instauration of the Basque country Autonomy (Paez, Valencia, Herranz & Gonzalez, 2000).

This brief review thus reveals that the characteristics of CMs and FBMs are very similar in content and that they result from very similar conditions (see table 2 for a comparison). The proper feature of FBM is the fact that they mix personal and very idiosyncratic elements of private experience with the socially shared information pertaining to a collective event. Though FBM studies accented the role of individual factors in the memory for public events, CM are frequently intertwined with FBM. Thus, in a study on memories of public events of the last 50 years, Schuman and Scott (1989) reported that compared with young people, older Americans who were direct witnesses of WWII mentioned very frequently personal episodes of the War as motive for their choice of a given public event. Despite this important overlapping of FBM and CM, studies which investigated these two manifestations differed in their respective focus. FBM studies were centered upon the personal reception context of the event, whereas CM studies were more directly concerned with the target event itself. In addition, FBM dealt essentially with negative, or traumatic events, though no theoretical reasons led to exclude the consideration of intense positive events (Scott & Ponsoda, 1996). By contrast, CM studies dealt with both negative and positive events., Positive events do indeed strongly enhance collective identity and allow a more positive reconstruction of personal and national history, as was the case for instance for resistance in Italy during WWII. That FBM studies were for a long time kept apart from CM studies was very likely a consequence of the similarities perceived by the

proponents of the original model of FBM (Brown and Kulik, 1977) between the negative public events they investigated and personal traumatic memories as considered in the field of clinical psychology. Although there are indeed striking similarities between personal traumatic memories and FBM of negative public events (Conway, 1995), in the present context we will refer only to the latter in the present context.

That CM and FBM are alike is supported by a lot of studies on the antecedents and processes related to their construction and maintenance. Factors such as high novelty, surprise, emotional arousal, high importance, personal as well as social consequentiality of the event, social sharing or interpersonal rehearsal, and mass media and institutional rehearsal are demonstrated predictors or mediators of FBM as well as of CM. Several studies confirmed these relationships.

A first example of such studies was conducted about an unexpected collective loss occurred in Belgium in the nineties (Finkenauer, Luminet, Gisle, El-Ahmadi, Van der Linden & Philippot, 1998). The Belgian king Baudouin died from a heart attack at the age of 62 in his vacation residence in Spain in July 1993. As the king was in good health in the preceding period, the news was unexpected and had an enormous impact on the Belgian population. Baudouin had been king for 42 years and was considered by many as a father of the nation. He had a strong unifying influence on a nation divided by linguistic and cultural disagreements. Television and radio channels replaced their programs with broadcasts on the royal family and newspapers covered the event on about 60% of their pages. Some months later, Finkenauer et al. (1998) conducted a study on reactions to the king's death in a large group of French-speaking Belgians. Participants reported FBM (i.e. the circumstances in which they first heard the news) and answered questions on importance, consequentiality, novelty and surprise of the event, how they heard it, where they were when they heard it, and what their ongoing

activity was at that moment. They also had to remember specific details about the event itself. The latter measure can be conceived off as an index of CM, or knowledge about a national political event. In addition, respondents rated their emotional response to the event and their overt rehearsal of it (i.e., frequency of sharing and of following the media).

A structural equation approach revealed that participants' emotional responses to this collective event as they were assessed by appraisals of consequentiality and importance did not directly determine their memory for the facts and circumstances surrounding the event (i.e., CM). These variables had however a particularly strong indirect influence on these memories. The greater the level of emotionality, the more one talked about the king's death and the more one followed the media about this event. This was perfectly consistent with findings from studies on the social sharing of emotions (e.g., Rimé, Finkenauer, Luminet, Zech, & Philippot, 1998), which demonstrated that the more an event is emotionally arousing, the more people will share it with others and the more they follow the media. In line with the central role of social rehearsal for memory, this social rehearsal was the source of a better recall of the circumstances of the king's death (i.e., CM) which in turn consolidated people's memory of context of reception (i.e., FBM). The structural equation approach indeed revealed that social rehearsal led directly to a better recalling of the main event (i.e., CM) which itself led to a better recalling of the personal context (i.e., FBM).

Similar findings occurred in the study of FBM of Judge DiPietro's resignation in Italy (Bellelli, Curci & Leone, 2000). A multiple regression analysis of the FBM index on emotional reaction, surprise and consequentiality manifested no significant influence of these variables. FBM and detailed recall of the main event were positively correlated, and the latter was predicted mainly by social rehearsal ("paid attention to the news").

Structural equation or path analysis also confirmed in this case that “social availability” or overt social rehearsal reinforced memory of the main event which was in turn related to the FBM index (Bellelli et al, 2000). It should be stressed that only the target event—and not FBM materials--was socially rehearsed. Thus, the social rehearsal does not reinforce directly the FBM, but only the memory for the target event as well as cues from the latter to FBM materials retrieval.

In a third study conducted on FBM and CM of the death of the French President Mitterrand (Curci, Luminet, Finkenauer & Gisle, 2001), it was found that compared to a sample of respondents from the neighbouring Belgium, respondents in a French sample were more emotionally involved in hearing the news and rated the event as more important. French participants also reported higher levels of social sharing of the event, but not higher rehearsal by mass media or higher mental rumination. Confirming the importance of social identity, of emotional activation and of rehearsal, compared to Belgians, FBM were stronger among participants in the French sample and they also exhibited a better memory of the original event. Finally, in a longitudinal study on the recall of the terrorists attacks which occurred in Madrid on March 11, 2004, the degree of exposure to mass media and extent of social sharing in the course of the subsequent week significantly predicted correct recall and recognition of details of the traumatic event as assessed two months later (Paez, Ubillos & Gonzalez., 2007).

In conclusion, social rehearsal was directly or indirectly positively related to both the recall of the reception context or the context in which people learned about the event (e.g., FBM of King Baudouin’s death), and to the semantic memory about the collective event itself (e.g., knowledge about the King Baudouin’s death). Taken together, these data suggested that the same three features of emotional activation, of appraisal "consequentiality"(importance and influence on social life), and of social

rehearsal determine both memories for the events and memories for the reception context, or FBM. Emotional responses and consequentiality are linked to social rehearsal and thus reinforce indirectly memory whereas social rehearsal reinforces directly CM which in turn supports FBM.

The contribution of collective rituals to the formation of CM and FBM

Effects of social rehearsal on memory are not limited to mass media exposure and to interpersonal exchanges of information. Collective behaviours and rituals also constitute tools of shared social recall (Frijda, 1997) and are thus expected to play a role in the construction and maintenance of CM. Results from the longitudinal study of psychosocial responses to the terrorists attacks occurred in Madrid (Paez et al., 2007) confirmed this view. Not only social sharing (i.e. talking about March 11 bombing in Madrid) but also participation in collective behaviour and secular rituals such as demonstrations against terrorism predicted semantic knowledge about the traumatic event (Paez et al., 2007; Rimé, 2007). As the previous discussion led to conclude that social sharing predicted both memories for the event (semantic) and memories for the context of reception (episodic), it may well be that participation in rituals could also predict FBM. The latter view is in lack of empirical testing. However, there are both observational and theoretical arguments in support of it. Current observation indeed reveals that paradigmatic events such as rites of passage or traumatic autobiographical events elicit among participants very vivid, emotionally loaded, and clear episodic recollection (Wright & Gaskell, 1992). Theoretical arguments in a similar direction were recently proposed in the field of anthropology (Whitehouse, 2002, 2004).

Whitehouse (2000; 2004) addressed the relationships between religious rituals and memory in "simple" societies. He opposed two modes of religious rituals to be found in any culture though these is most often some prevalence of one of them.

According to the author, low frequency, highly emotional, painful, and dramatic rituals such as the initiations rites practiced in many tribal cultures, would be predominantly codified in participants' episodic memory, or as idiosyncratic events in their life. The "imagistic" mode proper to such religious rituals would indeed favor the elicitation of flashbulb-style memories, which are characterized by their vividness, their emotionality and their inclusion of the context of reception of the religious knowledge proposed in the initiation ritual. In contrast, high frequency and low arousal religious rituals, or rituals of a more "doctrinal" type, would be predominantly codified in participants' semantic memory, or as general knowledge about the world. The model clustered in these two modes of religious practices various psychological and social features which were considered in classic theories on religious forms (e.g., Max Weber's (1922, quoted in Turner, 2000) "charismatic" or "effervescent" versus "routinized" religious form). Some key features of "imagistic", emotion-loaded, rituals and of "doctrinal", routinized, rituals are summarized in table 3 (see Whitehouse, 2004). The model further proposes that the memory system prevailing in a culture influences the form of social organization which develops in this culture. Thus, cultures in which episodic memory systems are favored by low frequency and high intensity religious rituals would generally manifest a high social cohesion together with a reduced centralization and hierarchy. Conversely, cultures in which semantic memory systems prevail due to high frequency and low intensity religious rituals would typically present centralized and hierarchical forms of social organization characterized by low social cohesion.

We can explain the relationship between types of rituals and social organization not only by the preponderance of a psychological system of memory, as Whitehouse propose. Productive structure and density of population could explain these associations, because the dominant productive system and population size has

institutional consequences and induces a specific syndrome of cultural values (Hofstede, 2001). In the first case, high intensity and low frequency rituals, societies are usually gather huntering societies, not affording writing systems, and this factors probably induces the dominance of face to face and oral mnemonic systems, like emotional rituals. Because of the low density and preponderance of individual work style (e.g. huntering) in these societies individualistic values prevail and usually hierarchy are not important. In the second case, societies with high frequency and low intensity rituals, these are usually agricultural societies, disposing of mnemonic tools, large population size and density. Cooperative agricultural works and coordination of large groups reinforces collectivist values. In these “simple” societies institutions are more complex, they are more hierarchical and authoritarian values are dominant (Hofstede, 2001; Basabe & Ros, 2005).

Whitehouse's (2002; 2004) model is supposed to be valid for so-called “simple societies”. In the case of more developed, urban, and centralized political states or "complex societies", the predominance of semantic-based memory systems is expected to be hegemonic. However, as was abundantly documented by Hofstede (2001), complex societies vary in the degree to which hierarchic structures or egalitarianism prevails in their organization and they also differ in their predominant form of sociability. As Whitehouse's model rests upon such variables, it should be possible to extend aspects of this model to complex societies. It should be reminded that “simple” societies emphasizing egalitarian and individualist subjective cultures not only reinforce emotionally-loaded rituals that helps to create episodic memory of the ritual event, but also help to anchor religious semantic knowledge in the autobiographic experience. The model can indeed be interpreted as suggesting that egalitarian, or horizontal, cultures emphasize emotional arousal in their transmission of representations and thus favor the

formation of flashbulb-style memories, but also of more emotionally-loaded and strong collective memories. By this token, such cultures would strengthen their social cohesion and group loyalty. By contrast, simple societies emphasizing collectivist and hierarchical values reinforce low emotional rituals based on “quiet” repetitive rites, and likely to anchor religious knowledge in more passive forms. This model implies that more hierarchical and collectivist cultures would deemphasize emotional arousal, would not favor intense social rehearsal, and would stress dependent or vertical cohesion through adhesion to ideological beliefs. In other terms, because of low emotional arousal and low social rehearsal, in these societies FB and CM should be less intense.

These predictions could be tested using two of the five dimensions which were proposed by Hofstede (2001). In his scheme indeed, Power Distance (PDI) refers to the extent to which less powerful group members accept inequalities, and Individualism-Collectivism (IDV) refers to the relative priority granted to the person or to the group or collectivity (i.e., the extended family in many instances). A partial test of the predictions was provided by Basabe & Ross (2005). In this study, compared to people living in low PDI and Individualist cultures, those living in high PDI and Collectivist cultures reported lower levels of emotions, of mental ruminations, and of social sharing of emotion. In high PDI and Collectivist cultures, experiencing and expressing intense negative emotions is indeed not socially desirable. Among members of such cultures, focusing on one's internal states is not valued so that people's attention is less self-centered than in is the case in other cultures. Emotional intensity and communication is higher in individualistic and egalitarian societies, and this could influences how people form episodic and semantic autobiographical and collective knowledge.

A cross-cultural study conducted about FBM and psychological responses to September Eleven terrorist attacks (Luminet et al., 2004) offered a further opportunity

to test the model derived from Whitehouse (2002, 2004). This study assessed among respondents of nine different nations (1) emotional arousal provoked by September Eleven events, (2) frequency of social sharing and of exposure to related news in mass media, (3) level of internal rehearsal or rumination, (4) memory for the event itself, or CM and (5) recall of the context of reception of the event, or FBM (see Table 4). In order to test Whitehouse's model, we reanalyzed Luminet et al's (2004) data using this time nation as a unit of analysis.

As was predicted, egalitarian and individualistic cultures evidenced higher levels of FBM and CM than hierarchic and collectivist ones. FBM level was indeed negatively correlated to nations' scores on Hofstede PDI dimension, r (9) = -.65, and positively to Hofstede Individualism (IDV), r (9) = .67. In the same line, PDI nations scores were negatively but non significantly related to the CM index for September Eleven events, r (9) = -.35 whereas IDV scores correlated positively to this index, r (9) = .57. In addition, indices of social rehearsal were associated to both FBM and CM indices in these analyses using nations as a unit. Thus, significant and positive correlation occurred between intensity of FBM and level of rumination, r (9) = .73, level of social sharing, r (9) = .61, and level of exposure to September Eleven news in the mass media, r (9) = .68 (all p’s <.05). Social sharing, but not rumination, was also associated to a higher recall of this collective event (CM), r (9) = .47. Emotional feeling was positively, but not significantly, related to FBM and CM. The latter results thus confirmed previous findings showing that emotional response and rumination are only partially and indirectly related to memories. Finally, compared to more hierarchic and collectivist countries, more egalitarian and individualistic ones evidenced higher levels on variables determining intensity of FBM and of CM. Indeed, PDI nations' scores were negatively correlated with extent of exposure to mass media, r (9) = -.88 whereas IDV was

positively correlated to this variable, r (9) = .72. In addition, IDV correlated positively with extent of social sharing, r (9) = .80. Thus, that egalitarian and individualistic nations manifested higher levels of collective memories of the events can be accounted for by higher levels of personal and social rehearsal among people in these nations.

To conclude, our analysis confirmed partially the predicted association between High Power Distance and Collectivist national contexts on the one hand, and low level of processes related to FBM-related processes such as social sharing or rehearsal on the other hand. These results thus brought a partial support to Whitehouse's (2002, 2004) views. They suggest that a cultural context, in which egalitarian autonomous values are dominant, reinforces emotional arousal, rumination and social rehearsal. Emotional activation and rumination reinforces FB and CM indirectly, via open rehearsal. However, the findings are open to alternative explanations in terms of cultural proximity with the U. S. and current political conjuncture (see Luminet et al, 2004). In addition, unequal sample sizes and the restricted number of nations involved in these analyses weakened them. Finally, the fact that the samples were all composed of university students restricted representativeness, but was useful in matching nations for social variables.

FB memories, rituals and emotions.-

Whitehouse (2002, 2004) proposed that emotional, high arousal, rituals give rise to enduring episodic memories (i.e. FB-style memories) which are necessary for the successful acquisition of religious knowledge transmitted in the course of rarely performed rituals. Inducing negative emotions such as terror, fear, or anxiety in a ritual can cause the simultaneous mnemonic encoding of the ritual episode (i.e. context of reception) and of the transmitted knowledge (i.e. semantic knowledge) as an emotional and special episode. Vivid, enduring, episodic memories of rituals favors long-term

mental rumination about what the ritual activities meant. This generates religious knowledge based on personal rumination. Thus, high emotional activation would lead to "spontaneous exegetic reflection" or a self-generated and active thinking proper to consolidate learned religious or religious or ideological knowledge. In sum, this model offers a cognitivist approach of collective rituals and their effects.

Experimental studies involving simulation of rites of initiation partially confirmed the set of hypotheses just sketched. Thus, Richert, Whitehouse & Stewart (2005) had volunteer students who earned £ 20 for their participation were asked to take part in a ritual derived from initiation rituals in Amazonia. Participants were presented the study as intended to test the efficacy of certain ritual procedures and they were instructed to maintain an attitude of respect towards the proposed ritual procedures to ensure validity. They were submitted either to a low or to a high arousal ritual. Participant in the high arousal ritual condition reported a higher intensity of emotional responses. In addition, those who reported stronger emotional responses also reported a higher level and deeper reflection on the meaning of the ritual two months later (study 1) and a higher increase in the level and depth of reflection over a one month period (study 2).

The finding that high arousal rituals affected emotional arousal and rumination is congruent with data from our studies on the relationship between participation in political rituals, emotional arousal, rumination and semantic memory about collective traumatic events (Paez et al., 2006). For instance, level of emotional arousal and level of rumination about March Eleven terrorist attacks in Madrid correlated positively with participation into rituals of political demonstrations one week after the collective traumatic event. Participation in these rituals in the first week also predicted higher attacks-related emotional arousal and rumination three weeks later. Emotional arousal

and rumination were positively intercorrelated as could be expected. Finally, participation in demonstrations and emotional arousal, but not rumination, predicted a better recall of factual knowledge of the collective event. This pattern of results suggests that emotional activation plays a direct role in the acquisition of knowledge related to collective events whereas rumination only plays an indirect role in this respect. Thus, interpersonal rehearsal seems to be more important than intrapersonal rumination with regard to memory formation, a result revealing empirical limitations to cognitivist views of rituals.

Whitehouse's views warrant to be criticized both from the perspective of psychology and form the standpoint of anthropoly. As regards psychology, his model assimilated autobiographical memory with episodic memory, and personal emotional memories with flashbulb memories. However, autobiographical memory also involves semantic information, and personal emotional memories represent a much broader domain than mere FBM which according to definitions, are limited to the context of reception of a public event. Also, while Whitehouse argued that emotional events provoke vivid and long-lasting memories, available empirical reviews suggested that intense and negatively valenced emotions consolidate some aspects of memory in a much complex manner (Baddeley, 1997). Thus, a low short term recall is generally recorded for negatively valenced emotionally-loaded information. A high long term recall characterizes high intensity information and events. Yet, recall is found to encompass severe limitations for conditions involving a high level of stress. Unique events such as initiations rites and highly rehearsed event are better remembered than current events. However, in general people recall positive auto-biographical events to a higher extent than negative ones (Baddeley, 1997). All in all, the available evidences thus preclude any simple conclusion linking emotional level and the quality of memory.

From the standpoint of anthropology, it was observed in some cases that both the frequency and intensity of rituals increased as time passed (McCauley & Lawson, 2002). This contradicts Whitehouse's view linking low frequency and intensity in rituals. Admittedly, however, high intensity rituals evidence a low frequency and participation to rituals decreases with time (Collins, 2004). Further, it was stressed that Whitehouse's model suffers from tautology. Religious initiation rites and other "rites of passage" are performed infrequently by definition as once you are initiated, it is logically self-evident that it is not necessary to go through this particular ritual again (Knight, 2003). Finally, once a strictly psychological, cognitive, framework is adopted in order to account for social rituals, the reductionism of individualist perspectives follows. No place is left for the role of social processes which might well be central explanatory factors (Knight, 2003). To illustrate, it can be speculated that factors such as economic development and demographic processes (e.g., growth of population and urbanization) generated hierarchical and centralized states, and that such processes brought on the preponderance of low intensity, high frequency and semantic-based religious rituals.

In conclusion, the important role played by micro social processes (i.e., social sharing, social rehearsal) with regard to memory formation and by macro social processes with regard to the ritual form prevailing in a culture militate in favor of more socioculturally-oriented models in this domain. As an alternative explanatory framework, we propose hereafter a general model of rituals inspired by Durkheim's (1912) work.

The relationship between emotions and rituals, and types of rituals.-

Whitehouse (2002, 2004) stressed that rituals induce negative emotions. Thus fear, anxiety, uncertainty and terror constitute in his view essential aspects of a number

of religious initiation rituals. Emotions and rituals would be central in the acquisition of social beliefs. Durkheim (1912/1982) also stressed that hegemonic social beliefs resulted from participation in rituals, that rituals generally enhanced negative emotions, and that emotional arousal is critical for anchoring social beliefs in participants. Yet, whereas Whitehouse's model is limited to religious rituals, Durkheim's model was not. The political conflict known as the Dreyfus case which confronted anti-Semite conservatives and liberal democrats in France at the turn of the nineteen century was one of the paradigmatic cases which inspired Durkheim's work. In the midst of this conflict, when street demonstrations and emotional effervescence reached their climax, Durkheim observed that shared values (e.g., civic republicanism, moral individualism) were professed, reasserted and extended in a way which exactly paralleled the renewal of common faith in religious rituals Durkheim's classic book on religious rituals titled “The Elementary forms of religious life” (1912/1982) also frequently referred to the French Revolution. At that time, ceremonials, demonstrations and collective rituals abounded and in this context, Durkheim noticed, things which were purely secular were transformed by public opinion into sacred objects. Thus, people consensually assimilated the moral superiority of notions such as "la Patrie" (Fatherland), "la Raison" (Reason) "la Démocracie" (Democracy), "l'Egalité" (Equality) and "la Fraternité" (Fraternity). These secular notions acquired the status of sacred things that none could meddle with. In Durkheim's view, traditional and modern societies differed in the content of their sacred rituals, but not in their forms. In traditional societies, rituals were centered on religious totems whereas nowadays their focus is on individual's rights and on values related to individualism. However, as was the case in past, today's rituals still keep building up shared normative beliefs and a moral community among attendants (Cladis, 2001).

Rituals, emotional activation, rehearsal and memory of traumatic events.-

Durkheim (1912/1982) argued that collective traumatic events induce search for social support and spontaneous bonding and sharing because people experience comfort in the company of others. The French sociologist suggested that bonding with others helps to overcome stress. Contemporary studies confirmed that the presence of others is instrumental to reduce the impact of stress (e.g., Stroebe & Stroebe, 1995). Social support is negatively related to social loneliness and social activities reinforce positive affect (Argyle, 1987). Intensification of social sharing and social interaction is a major consequence of collective traumas or important events (e.g., Rimé, Finkenauer, Luminet, Zech, & Philippot, 1998). Support mobilization, higher levels of communal coping and altruistic behaviour are very common consequences of collective traumas. Victims of disasters received and provided high levels of social support (Paez, Rimé & Basabe, 2005). Durkheim (1912/2001) argued that the pursuit of instrumental activities and individualistic or solitary task weakens social bonds and depletes energy. In line with this view, people were found to report higher vitality in social activities that alone (Berscheid & Reiss, 1998). There probably lie reasons why as they gather individuals together, rituals offer a major system for the strengthening of values and for the restoration of social relationships among individuals. Rituals are instrumental in producing and maintaining solidarity beyond the spontaneous bonding and social sharing elicited by a collective trauma (Rimé, 2005). Studies confirmed that collective traumatic events provoked more emotional reactions, more social sharing and bonding, and more performance of rituals than individual events of comparable importance (Martín-Beristáin, Páez & González, 2000).

Rituals are forms of communication trough actions. They generally constitute strongly patterned and recurring forms of collective behaviour. Their manifest purpose is

to proclaim values in order to influence public opinion, authorities and social movements. Secular demonstrations define collective gathering in a public space aimed to transmit a symbolic message to an audience, with both expressive (protest against terrorists, critics to Government involved in an unpopular war) and instrumental goals (claims of political changes), but they also represent internal forms of communication, supporting a we–them differentiation and thus reinforcing group or collective identity (McPhail & Wohlstein, 1983). Of course, such demonstrations do in no manner imply total value consensus or absence of conflicts among participating parties. Usually protest rituals constitute forms of "sociodrams" staging the struggle for power which step up value conflicts (McLeod, 1999). In the case of Mach Eleven terrorist attacks in Madrid, demonstrations expressed and reinforced the long preexisting political conflict opposing left and right wing ideologies in Spain.

Rituals have a set of typical features and effects which can be listed as follows (Collins, 2004; McPhail & Wohlstein, 1983; Milgram & Toch, 1969):

- *group assembly*: a large number of persons are gathered together which has the effect of intensifying social interactions;
- *common focus*: participants center their attention on the same events and feelings; and they are reminded constantly by the co presence of others, by verbal and non verbal communication and by symbols (flags, slogans, pictures), that people around are also sharing this same focus of attention;
- *emotional contagion*: emotional displays of grief, sadness, anger and fear are common; non verbal expressive behaviors and emotional social sharing helps to generate a common collective mood; emotions are elicited by focusing on loss, dead, innocents, heroics, martyrs and heroes;

- *reinforcement of collective representations and of respect for symbols*: emotional behavior and gathering increases the significance of symbols, values and beliefs for participants; in this manner, the significance of symbols, values and beliefs are stressed, and shared knowledge is reinforced;
- *induction of similarity*: even if people do not actually share beliefs and feelings, they perceive consensus, feeling of unity, common fate and solidarity;
- *reinforcement of interpersonal attraction and social support*: similarity increases attraction and social identification with the group;
- *creation of a positive emotional atmosphere and enhancement of social cohesion*: transformation of feelings of grief, sadness, anger and fear into feelings of hope, solidarity and trust.

The latter item is particularly central in the understanding of the role played by rituals with regard to the life of individuals. To illustrate, the loss of a group member entails funerary rites involving a coming together and closeness. Mourning rituals have effects which strictly compare to those resulting from positively connotated rites and celebrations. Both involve an emotional effervescence generated by the sharing of a common feeling. Both induce a sense of unity with others which, even when facing death, bring on a renewed interest in life. In sum, rituals reinforce emotions and strengthen social cohesion (Durkheim 1912/2001; Collins, 2004). Finally, Durkheim (1912/2001) argued that rituals and similar social activities of shared recall and reconstruction of emotional events contribute to reinforce collective memories or shared knowledge about important events (see Pennebaker, Páez & Rimé, 1997). In the same vein, Halbwachs (1950/1968) proposed that commemorations and rituals are a form of collective remembering which helps to consolidate memories of important events. In this

sense, such social events thus constitute normative processes which provide people with the opportunity to learn and transmit a moral lesson and to hold a social identity.

Most of these various ideas were supported in a recent study conducted about psychosocial responses to the terrorist attacks which occurred in Madrid in 2004. A common response to collective traumatic events such as September 11 in New York or March 11 (M-11) in Madrid involved participation into secular and religious rituals such as memorials, demonstrations and worship ceremonies (Collins, 2004). On the morning of March 11th 2004, Al-Qaeda adepts perpetrated a series of bomb attacks on various commuter trains in Madrid, Spain. Trains and railway stations suffered severe bomb damage, and as a result 192 people were killed and more than 2000 were injured. Although Spain has been subject to terrorist attacks for decades, these events were unprecedented in recent history and they triggered scenes of protest and socio-political turmoil. During the subsequent days some 25% of population participated in successive and massive demonstrations against terrorism. Psychosocial effects of participation in these demonstrations by people not personally affected by the M-11 events were investigated in a longitudinal study (Paez, Rimé & Basabe, 2005). Data were collected a week after M-11 events, in the emergency stage of collective response to trauma, then again after 3 weeks in the transition between emergency and plateau stage, and finally when 8 weeks had elapsed, in the transition to adaptation stage.

As can be seen in Table 5, it was found that compared to nondemonstrators, people who took part in secular rituals or demonstration manifested higher levels of (a) shared emotional responses, as was evidenced by a higher reported emotional arousal, (b) social bonding, as manifested by higher levels of social rehearsal (i.e. following news by mass media or exposure to mass media), of personal rehearsal (i.e. rumination), and of pro-social coping modes,(c) social identification and collective self-esteem. Participation in

rituals also predicted three weeks later (a) a higher perceived similarity with others, (b) a higher social integration (i.e. lower social loneliness), and (c) stronger positive shared social beliefs and (d) a higher agreement with personal, interpersonal and community positive reactions or post-traumatic growth. Finally, participation in demonstrations predicted two months later a more positive perception of social climate, which offered an index of macro social cohesion. Multivariate analysis controlling for initial emotional activation, coping and baseline dependent variables, showed that participation in rituals reinforced positive beliefs about the post-traumatic individual and collective behavior in the aftermath of a collective trauma, and this cognitive process is the specific mediator of the positive influence of participation of rituals on social cohesion two months later (see Table 5 for a brief description of variables).

As was expected, participation in rituals also predicted memory for the collective trauma as assessed two months later. Free recall of features of M-11 events was measured by six open question such as “How many persons were killed?” or “Which railway stations were bombed?" Recognition memory for details of the events was assessed by 26 closed statements to be rated as true or false. Results of these two memory tests correlated $r\ (560) = .39$, $p < .001$. Correlation between participation in rituals and correct recognition of factual information was positive and significant. Both total true recall and recognition score were significantly higher in participants than in non participants.

The findings from this study thus suggested that rituals reinforces emotional arousal and are related to social rehearsal, two processes which play a central role in the formation of FBM. In addition, participation in rituals predicted a better recall of semantic knowledge about the event. Moreover, in congruence with both Durkheim's and Whitehouse’s models, emotional arousal and mental rumination were strongly

correlated, r (904) =.33. Emotional arousal and rumination were very likely reinforced by rituals, as participation in rituals correlated with emotional arousal r (904) =.27, and r =.18 with rumination one week after the traumatic event. Moreover, emotional arousal and rumination also correlated with post-traumatic growth three weeks after the event, r (728) = .32 and r = .33 respectively. Participation in rituals also predicted post-traumatic growth, r (728) = .24 three weeks after. In other terms, it is suggested that social rituals led to an internalization of social beliefs by capitalizing on emotional arousal and by inducing rumination. However, multiple regression of recall score on emotional activation, rumination, social sharing, exposure to mass media and rituals revealed that higher social rehearsal via mass media exposure (TV, newspapers and radio) was the specific predictor of better collective memory or factual knowledge about March Eleven bombing. In developed societies mediated participation in rituals via mass media exposure seems to be the most important way to creation of collective memory.

Conclusions

FB and CM are both elicited by novel, unique and surprising events when these events (1) are relevant for social identity (i.e., are related to a central attitude and to previous knowledge of the person), (2) involves changes in central aspects of social life ("consequentiality"), (3) are socially shared and provoke shared emotions, (4) are associated with intrapersonal and interpersonal rehearsal, and (5) are commemorated in collective behaviors and rituals. Rituals have positive effects on FBM and CM chiefly because they constitute a form of social rehearsal. Cultural contexts stressing egalitarian and horizontal values and individuals sharing powerfully such values manifest higher levels for determinants of FBM and CM such as social rehearsal. By this token, people responding to these characteristics evidence superior memory for collective traumatic events as well as for the context in which they hear about such events. Finally,

rumination and emotional arousal are less relevant for memory than social rehearsal and rituals. This suggests that interpersonal processes such as institutional and mass media rehearsal are the main causal mechanism in the maintenance and construction of CM and probably also of FBM, in consistency with a neo-durkheimian conception of rituals and memory.

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Table 1

Frequency distribution of types of events considered in FBM studies

	Events		Studies	
Types of events	Number	Percent of total	Number	Percent of total
Collective violence	3	7,9	19	25,3
Political violence	11	28,9	17	22,7
Collective catastrophes	8	21,1	15	20,0
Death of famous people	8	21,1	12	16,0
Political crises	3	7,9	5	6,7
Other	5	13,2	7	9,3
	38	100,0	75	100,0

Table 2 A comparison of FBM and CM features

Dimension	Flashbulb memories	Collective memories
Level of analysis	Individual	Collective
Experience	Reported	Generally reported
Focus	Reception context of a public event	Public event
Type of event	Real, very specific	Real, sometimes extended (a period), or symbolic
Source	Other people, news	Many
Target event features	Unexpectedness, personal consequentiality, Emotionally loaded (negative, traumatic)	Social consequentiality (major changes or threats), collective emotions and meanings (positive and negative)
Memory quality	Concrete, vivid (live quality)	More abstract
Memory accuracy	High and specific	Variable
Memory confidence	Generally very high	High/ consensual
Social appartenances	Important	Very important
Identity level	Group, generational	Social, national
Media	Personal narratives (social sharing), mass-media	Mass-media, cultural products (books, movies, art), rituals, institutions, group and personal narratives
Duration	Generally long	Very long : years or more

Table 3

Some key features of "imagistic" or emotionally-loaded rituals

and of "doctrinal" or routinized rituals according to Whitehouse (2004)

Psychological and social variables	Imagistic mode of religiosity	Doctrinal mode of religiosity
Dominant memory system	Episodic memory, or FBM-type	Semantic memory
Frequency	Low	High
Level of arousal	High sensory pageantry	Low
Ritual meaning	Internally generated	Learned
Assimilation mode	High active reappraisal	Passive rumination
Social cohesion	Intense	Diffuse
Leadership	Absent	Important and dynamic
Structure	Non centralized	Centralized

Table 4. - Nation ranked by Power Distance and Individualism by determinant of FBM and CM,

and level of memory of the reception context and for event related facts

Nation	PDI /IDV	Emotional feeling	Rumination	Social sharing	Following news in mass media	Memory for the reception context (FBM)	Memory for the event (CM)
Romania	90/ 30	.17	2.60	-.36	-.285	-.12	-.63
Turkey	66/ 37	-.65	3.58	-.56	-.250	.09	-.075
Switzerland	70/ 64	.11	2.60	.47	-.041	.07	.592
France	68/ 71	.23	3.04	.21	-.061	.14	.502
Belgium	67/ 72	.10	2.95	.21	-.143	-.16	-.336

Japan	54 / 46	-.69	2.76	-.25	.066	-.04	-.385
Italy	50/ 76	.50	3.40	.48	.225	.002	-.088
USA	40/ 91	.37	2.98	.11	.115	.08	.498
Netherlands	38 / 80	-.31	3.58	.37	.276	.11	.365

PDI= Hofstede's Power distance score, IDV= Hofstede's Individualism score. Emotional feeling = emotional reactions (upset, shaken, affected by the event) related to September Eleven news, Rumination = Repeated thoughts, memories or images related to the event September Eleven ranging from 1 (never) to 5(more than 15 times), Social sharing= Frequency of talking about September Eleven, Following mass media = how often subjects followed the news by TV, radio, newspapers and Internet, Memory reception context= eight questions assessing the recall of circumstances in which subjects first learned about September Eleven terrorist attack, Memory event= nine questions concerning event-related facts. Optimal factor scores, higher positive means indicate higher scores on that variable. Rumination scores are raw data. PDI and IDV scores are for French speaking Switzerland and Belgium. Disaggregated data for French speaking nation was provided by Curci

Table 5. Means and F test for the scores obtained on the scales of national identification, collective esteem, social (exposure to mass media) and internal rehearsal (rumination), negative emotional activation measured by Izard's DES scale, absolute difference between self and others emotions, coping, loneliness, post-traumatic growth and perceived positive emotional climate taking into account the time point at which the scale was applied and level of participation in demonstrations.

	Demonstrations			
	Nonparticipants	**Participants**		
Variable	**Mean (SD)**	**Mean (SD)**	**F**	**p**
Social identification				
National Identification [1]	3.69 (1.30)	4.08 (1.04)	25.35	.005
Public Collective Esteem [1]	6.92 (2.60)	7.71 (1.90)	29.81	.005
Social and personal rehearsal				
Exposure to Mass Media [1]	4.27 (1.42)	4.71 (1.38)	21.66	.005
Rumination [1]	4.47 (1.45)	4.92 (1.49)	16.17	.005
Emotional activation				

Emotion Scales (DES) for Self [1]	5.40 (1.53)	5.96(1.36)	37.5	.005
Emotion Scales (DES) for Others [1]	6.10 (1.12)	6.36(1.06)	14.2	.005
Absolute Self-others DES difference[1]	1.80 (4.14)	.73 (1.95)	30.1	.005
Pro-social coping				
Coping via social support [1]	2.15 (0.74)	2.46 (0.68)	45.05	.005
Altruistic mode of coping [1]	1.05 (0.20)	1.16 (0.37)	5.65	.03
Lower Social integration				
Avoidant coping [1]	2.02 (0.63)	1.82 (0.56)	28.60	.005
Loneliness [2]	1.85 (.70)	1.68(.62)	4.98	.05.
Positive social representations				
Posttraumatic growth [2]	3.98 (1.6)	4.56(1.2)	25.7	.005
Social cohesion				
Positive Climate [1]	3.08 (.57)	3.16 (.49)	5.3	.05
Positive Climate [3]	3.15 (.75)	3.26 (.77)	4.7	.03

[1]=Time 1, one week after March Eleven (M-11), around March 18th; [2]=Time 2, three weeks after, around end of March, early April; [3]=Time 3, two months after, around May 11th, 2004. *National identification* = Identification with Spaniards, range 1-5. *Public collective esteem* = Perceived valuation of Spaniards in public opinion, range 0-10. *Rumination 1*= Average of involuntary images, repeated thoughts, range 1-7. Emotion Scales (DES) intensity = Average negative emotional intensity, range 1-7, Self perceived and other perceived in society. *Absolute difference between self and other perceived emotions DES*, lower score means higher similarity. *Coping via social support* = coping by seeking social support, emotional expression and positive reappraisal. *Coping altruistic behavior* = Coping by blood donation, money donation, voluntary work. *Avoidant coping* = Coping by distancing, acceptance, range 1-4. *Loneliness*: UCLA's Loneliness scale range 1-4. *Posttraumatic growth* = Positive individual (i.e. personal growth), interpersonal (i.e. values social support) and community (i.e. increases community cohesion) life changes or benefits of reaction to trauma, range 1-7. *Positive Climate* = Average of positive emotions (contentment and hope) and of solidarity, institutional and interpersonal confidence perceived in social climate, range 1-5. Paired F contrast compares participation in demonstrations versus non participation