

The Role of Importance/Consequentiality Appraisal in Flashbulb Memory Formation: The Case of the Death of Pope John Paul II

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SUMMARY

This study investigates how flashbulb memories (FBMs) relative to the death of Pope John Paul II vary according to the persons' evaluation of the event's importance and consequences. In particular, FBMs were investigated in persons who were expected to attribute different degrees of importance/consequentiality to the event as a function of two factors: (1) religious involvement, (2) nationality (Polish, Italian, Swiss). The comparison was made with respect to the following hypothesized determinants of FBMs: surprise, emotional reaction, rehearsal, event memory and especially the attitudes towards the Pope and the appraisal of the importance and the consequences of his death. Structural equation modelling indicates that importance/consequentiality is a fundamental determinant of FBM and is influenced by antecedent personal and social characteristics reflected in the person's attitudes. Moreover, memory consistency seems to be both directly influenced by emotional intensity and indirectly through rehearsal, whereas surprise seems not a critical determinant of FBM. Copyright © 2008 John Wiley & Sons, Ltd.

Flashbulb memories (FBMs) are becoming a core issue for researchers studying autobiographical memory. The construct of FBM refers to detailed, long-lasting and vivid memories of the personal circumstances in which people first heard about a striking, public event: that is, the time, the informant, where they were, who they were with and what they were doing. Importantly, all these details concern the reception context of the news of the event rather than the original event itself. Accordingly, the concept of FBM must be distinguished from that one of event memory which refers to non autobiographical recall of the factual details of the event itself, such as, where and when it happened, who were the persons involved, which was the temporal unfolding of the event (Coluccia, Bianco, & Brandimonte, 2006; Tekcan, Ece, Gülgöz, & Er, 2003). Although not indelible (Neisser & Harsch, 1992; Talarico & Rubin, 2003), FBMs seem to be less vulnerable to distortion and oblivion than event memory (Bohannon & Symons, 1992; Conway, 1995; Curci & Luminet, 2006), sustaining the hypothesis that FBMs and event memory rely on two

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different mnemonic systems (Finkenauer, Luminet, Gisle, El-Ahmadi, Van Der Linden, & Philippot, 1998; Pezdek, 2003; Smith, Bibi, & Sheard, 2003).

The construct of FBMs has been proposed in 1977 by Brown and Kulik. According to these authors, FBMs are formed when an event elicits a high degree of surprise, is evaluated as important and consequential for the individual and, therefore, elicits a high degree of emotional arousal. Additionally, they sustain that high importance and consequentiality and intense emotional arousal favour more frequent rehearsal. As represented in the graphical model proposed by Finkenauer et al. (1998), besides this sequential process of FBM formation, Brown and Kulik hypothesize that surprise, importance/consequentiality, emotional feeling state and rehearsal can also directly enhance FBM.

Since the original work by Brown and Kulik (1977), many studies on FBM have been inspired by the occurrence of unexpected and emotion arousing events (Bohannon, 1988; Christianson, 1989; Curci & Luminet, 2006; Kvavilashvili, Mirani, Schlagman, & Kornbrot, 2003; Lee & Brown, 2003; McCloskey, Wible, & Cohen, 1988; Neisser & Harsch, 1992; Pezdek, 2003; Smith et al., 2003; Talarico & Rubin, 2003; Tekcan et al., 2003). In general, these studies confirmed Brown and Kulik's original idea of FBMs as vivid and detailed memories and identified surprise and importance/consequentiality as their two main determinants: if an event triggers a great level of surprise and is evaluated as important/consequential, it is supposed to be remembered for a long time. In order to better understand the role of surprise and importance/consequentiality in FBM formation, some authors (e.g. Finkenauer et al., 1998; Levine & Pizarro, 2004) have recently suggested relying on the appraisal theories of emotion (Lazarus & Smith, 1988; Scherer, 1984; Smith & Ellsworth, 1987). According to these theories, the appraisal of novelty leads to an orientation reaction and is involved in the emotion of surprise (e.g. Frijda, Kuipers, & ter Schure, 1989; Roseman, 1984; Smith & Ellsworth, 1987). The appraisal of importance/consequentiality consists in determining the event's implications for the person's wellbeing and his/her goals and concerns (Frijda, 1993; Scherer, 1984). This appraisal is hypothesized to be a fundamental antecedent for the elicitation of intense emotional reactions and there is general agreement regarding its central role in the FBM formation (e.g. Er, 2003; Finkenauer et al., 1998). Nevertheless, reviewing the studies on FBM, it emerges that importance/consequentiality was operationalized in very different ways since it is related either to the personal involvement or the social group membership.

Regarding personal involvement, in some studies it seems to be determined by the direct experience of the event (Er, 2003; Neisser, Winograd, Bergman, Schreiber, Palmer, & Weldon, 1996), in others by the psychological distance (Tekcan et al., 2003), or the emotional arousal (Smith et al., 2003). Studies on FBMs for earthquakes (Er, 2003; Neisser et al., 1996), for example, demonstrated that participants who were in the areas affected by the disaster remembered their experiences more accurately than participants who merely heard about the disaster in the news. Regarding social group membership, some authors compared groups of participants belonging to the nation where the target event happened with others living in more or less distant nations, where it is reasonable to assume that the event had a minor, or at least diverse, psychological and social impact. In a study on the resignation of British Prime Minister Margaret Thatcher, for example, Conway et al. (1994) showed that 11 months after Thatcher's resignation, UK participants were more likely to have consistent FBMs than non-UK participants. Similarly, Kvavilashvili et al. (2003) investigated the FBMs of Princess Diana's death in samples of British and Italian participants and found that recollections of the British were more detailed, specific and vivid than those of the Italians. Also, Curci, Luminet, Finkenauer, and Gisle (2001),

investigating memory of the death of President Mitterand, showed that French participants were more accurate in recalling the original event and reported a higher number of FBM attributes than did the Belgians.

It should be pointed out that some of the above-mentioned studies investigated only the vividness and specificity of FBM (e.g. Brown & Kulik, 1977; Finkenauer et al., 1998), while others also assessed their consistency by entailing a test–retest methodology (e.g. Curci et al., 2001; Lee & Brown, 2003; Smith et al., 2003). Besides these methodological differences, the evidence collected thus far shows that the appraisal of importance/consequentiality plays a fundamental role in the formation and maintenance of FBM, but also that there are different ways of operationalizing it, some being more strictly related to personal involvement and others to social group membership. In both cases, however, the more or less explicit idea of researchers is that the appraisal of importance/consequentiality is influenced by antecedent individual characteristics such as personal goals and needs (Scherer, 1984), situational and conceptual knowledge, prior experiences and expectations (Fiske & Taylor, 1991), attitudes and self-concept (Lazarus & Smith, 1988; Smith & Lazarus, 1993). Indeed, some authors took into account these personal characteristics and their possible impact on the evaluation of the event's importance/consequentiality. In the study of Margaret Thatcher's resignation, for example, Conway et al. (1994) identified as personal characteristics the 'prior knowledge' participants had about Thatcher's government and 'interest in politics'. Results showed that the more people knew about Thatcher's government and were generally interested in politics, the more important they evaluated her resignation. Similarly, in a study on Belgian citizens' recollections about the death of their king Baudouin, Finkenauer et al. (1998) assessed the participants' 'affective attitude' by measuring the sympathy/antipathy they had towards the royal family. Again, results confirmed the influence of this antecedent personal characteristic on the importance/consequentiality appraisal and, as a result, on FBM.

On the whole, although importance/consequentiality has been operationalized in very different manners and although different kinds of personal characteristics were hypothesized to influence this factor, all studies on FBM formation confirm its fundamental role. The same cannot be said of surprise. In fact, some rather recent studies (Bellelli, 1999; Curci, 2006; Curci et al., 2001) challenge the necessity that an event has to be appraised as novel and/or unexpected and, therefore, elicit surprise to permit the formation of FBMs. The findings of these studies suggest that some events, although expected and predictable, can give rise to vivid and long-lasting FBMs in highly involved people.

Aims and hypotheses

The objective of the present work was fourfold: (1) determine the role of importance/consequentiality in FBM formation and maintenance, (2) more closely investigate the possible determinants of the appraisal of importance/consequentiality, (3) identify the causal links between the importance/consequentiality appraisal and the other hypothesized determinants of FBM: emotional reaction, rehearsal, event memory, (4) verify if surprise is a critical determinant for the formation of FBM. To reach these aims, we decided to choose the approach of structural equation modelling. Our hypothesis was that importance/consequentiality has a core role in FBM formation and maintenance and is influenced by social group membership, personal involvement and antecedent personal characteristics, such as attitudes. More precisely, we predicted that personal involvement and social group membership determine attitudes, which in turn influence the attributed importance/

consequentiality to the event. Based on the findings of the previous studies (e.g. Brown & Kulik, 1977; Conway et al., 1994; Finkenauer et al., 1998), we further expected that the higher the attributed importance/consequentiality, the more intense the emotional reaction. Additionally, in accordance with the emotional-integrative model of Finkenauer et al. (1998), we predicted that intense emotional reaction would determine more frequent rehearsal and, consequently, a more complete and detailed encoding and recall of the original event (details about the event itself such as the date it happened) and that this, in turn, would enhance FBM consistency (recollection of the personal circumstances in which the event was learned). We also predicted a direct causal relation between emotion and event memory. The rationale for this link is based on a more detailed analysis of the Finkenauer et al. (1998) model. In fact, it emerges that contrary to the expectations of these authors, emotional reaction does not have a direct impact on FBM. Moreover, as said above, they found a direct link between event memory and FBM. Therefore we hypothesized that emotions could influence FBM by having a direct impact on event memory. Finally, we predicted that surprise is not indispensable for the formation of FBM.

The original event considered was the death of Pope John Paul II. The Pope had been seriously ill for several weeks before dying in Rome on Saturday, 2 April 2005, at 9.37 p.m. The cause of his death was listed as septic shock and cardio-circulatory collapse. The news of the Pope's death provoked an immediate and powerful resonance in the mass media and captured the attention of people worldwide. The media amplification of this event gave us a unique opportunity to assess its psychological impact soon after it occurred and the possible persistence of effects some months later.

The interest in this event was motivated by several factors. First, since the Pope's death was expected, we predicted that the appraised novelty and felt surprise would be very low. This gave us the opportunity to investigate the role of surprise in FBM formation.

More importantly, this event seemed particularly interesting since the evaluation of its importance/consequentiality can vary both as a function of factors closely linked to the person and his/her values, and as a function of the social group and, in particular, national membership. At a personal level, this event can be considered as particularly significant for most people attending regularly the Catholic Church, for whom the Pope should represent an important reference point. This is likely to be especially true for Pope John Paul II who, during his 26 years of Papacy, accompanied the growth of an entire generation of young people who knew no other Pope except him. Based on these premises, we predicted that there would be differences in evaluating the event's importance/consequentiality depending upon the participants' religious involvement. More precisely, we predicted that the degree of religious involvement would influence the attitudes towards the Pope and that this, in turn, would influence the importance/consequentiality appraisal and, consequently, FBM.

At a social level, there are many reasons to assume that the work of Pope John Paul II had a relevant international impact. Since the beginning of his papacy, he visited about 100 countries, searching the dialogue with the authorities from the main religious confessions and engaging in an important diplomatic action in the context of the social changes related to the collapse of the communism in Eastern Europe. He was also involved in other international problems, such as in 2000, when he publicly signed the campaign for the cancellation of the African debt together with the Irish rock stars Bob Geldof and Bono. But it was probably in Poland, a nation still under Soviet control at the beginning of his Papacy, that his engagement had the most concrete consequences. Indeed, the Pope paid great attention to his native land by visiting it several times and by offering support to the non-violent *Solidarnosc* resistance movement of Lech Walesa (Accattoli, 2006; Zizola, 2003).

On the basis of these considerations it is plausible to assume that the attitudes towards the life's work of Pope John Paul II could be different in different nations. Moreover, even though his death provoked reactions around the world, in some countries this event should have been considered as more important and as having more relevant consequences. Hence we decided to investigate FBM in Catholics belonging to three countries in which attitudes towards the Pope and his work were probably different and for which the death of the Pope probably had different degrees of importance/consequentiality: Poland, Italy and Switzerland. As mentioned above, for the Poles, Pope John Paul II was a very important public person because of his continuous engagement with his homeland. The Italians, for their part, were very close to the Pope physically as well as psychologically because the Vatican state, the seat of the Catholic Church, is situated in the centre of Rome. On the contrary, Swiss people did not have any particular links with the Pope other than belonging to the Catholic Church. Moreover, in Switzerland public opinion regarding the Pope and the Catholic Church in general is rather critical regarding themes like the Church's position on birth control, the role of women in the Catholic Church, priestly celibacy, etc. (Küng, 2007).

Based on these premises, we expected that the Poles would have more positive attitudes and attribute more importance/consequentiality to the event than the Italians, who would have more positive attitudes and attribute more importance/consequentiality to the event than the Swiss. Consequently, we expected the Poles to show more consistent FBM than the Italians, who should show more consistent FBM than the Swiss.

To summarize, the purpose of this work was to investigate the role of importance/consequentiality in the formation and maintenance of FBM regarding the death of Pope John Paul II in persons with different degrees of personal and social involvement and with different attitudes. To achieve this aim, personal involvement was operationalized in terms of religious involvement, whereas social involvement was operationalized by considering different countries that were more or less influenced by the Pope's work.

METHOD

Design

The research entailed a test–retest methodology. More precisely, data were collected by questionnaires the first time between 3 and 8 April 2005, that is the time span between the Pope's death and the day of his funeral, and the second time 7–8 months later (November–December 2005). The very short time span set for the test phase was motivated by two requirements: the need to collect the immediate evaluation of the event and the emotional reactions to it, and the need to check FBM consistency by collecting the most accurate information possible about the context of learning of the event soon after it happened (Conway et al., 1994; Neisser & Harsch, 1992; Talarico & Rubin, 2003; Tekcan et al., 2003). The time limit was set as the 8 April because the mass media diffused information about the funeral of Pope John Paul II worldwide, which is another relevant event susceptible to introduce biases in the memory of the original one.

Participants

The questionnaires were compiled by 205 Italians, 49 Poles and 60 Swiss ($N = 314$). In each group there were about 40% men and 60% women (Italy: 40% men, Poland: 40.8%

men, Switzerland: 35% men). The mean age was similar in the three groups: 42.31 years for the Italians ($SD = 15.21$, range: 20–85), 44.82 years for the Swiss ($SD = 13.69$, range: 18–77) and 38.76 for the Poles ($SD = 14.63$, range: 18–80).

Measures

The questionnaire entailed the following sets of items:

- (1) *Memory for the original event*. Four open-ended questions assessed the participants' ability to recall the following factual information about the Pope's death: (a) the date, (b) the day of the week, (c) the time of day and (d) the cause of death. For each question the participants could also choose the alternatives: 'I do not remember' or 'I do not know'. With respect to all items, missing or wrong answers and the alternatives 'I do not remember' and 'I do not know' were assigned a score of 0. Item (a) was scored 2 if the date was completely correct, 1 if it was partially correct (e.g. the month and the year were correctly reported). Item (b) was scored 1 if the correct day was reported. Item (c) was scored 2 if the time of death was completely correct (i.e. 21.37), 1 if the first three digits were correct (e.g. 21.30) and 0.5 if the first two digits were correct (e.g. 21.00). Item (d) was scored 2 if the exact cause of death was reported, 1 if the response was partially correct (e.g. old-age diseases) and 0.5 if the response was correct, but very general (e.g. illness).
- (2) *FBMs*. Seven open-ended questions asked participants to report the circumstances in which they first learned about the Pope's death. Questions concerned the following details: (a) the date, (b) the day of the week, (c) the hour, (d) the informant, (e) the place they were, (f) the people they were with and (g) their ongoing activity. Participants could also choose the alternative 'I do not remember'. For each item the responses of the first data collection and the second one were compared. A score of 1 was assigned if there was substantial agreement between the first and second data collection (e.g. 'I went back towards my car to return at home' 'I walked to get the car to go home') and a score of 0 if responses were different, missing or the alternative 'I do not remember' had been chosen.
- (3) *Vividness of FBMs*. Participants were asked to think about the situation they were in when hearing the news and to indicate on an 11-point scale (0 = *not at all*, 10 = *very much*) if they had a vivid image (like a photo) of this situation.
- (4) *Emotional reactions*. Participants were asked to think of when they first learned about the Pope's death and to rate how intensely they felt each of the eight emotions (anger, sadness, anxiety/fear, joy, embarrassment, guilt, interest and boredom) on 11-point scales (0 = *not at all*, 10 = *extremely*).
- (5) *Novelty*. Participants rated on two 11-point scales (0 = *not at all*, 10 = *very much*) to what extent they were surprised upon learning of the Pope's death and to what extent they expected this event.
- (6) *Appraisal of importance and consequentiality*. Participants rated on the three 11-point scales (0 = *not at all*, 10 = *very much*) to what extent: (a) the event was important for themselves, (b) would have consequences for their life, (c) would have consequences for society.
- (7) *Attitudes towards John Paul II*. Participants indicated on two 11-point scales their attitude (0 = *not at all favourable*, 10 = *very favourable*) towards the Pope's work for the Catholic Church and for the relations between nations. Furthermore, they rated on

an 11-point scale (0 = *not at all*, 10 = *very much*) how much they liked the Pope generally as a person.

- (8) *Religious involvement*. Religious involvement was assessed by two items which asked respondents to rate on 11-point scales (0 = *not at all*, 10 = *very much*) to what extent they perceived themselves as: (a) faithful and (b) church-goers.
- (9) *Rehearsal of the event*. Participants rated on an 11-point scale (0 = *never*, 10 = *very often*) the frequency with which they followed the news about the Pope's death in the mass media. Moreover, they rated on two 11-point scales (0 = *never*, 10 = *very often*) how often they spoke about the Pope's death with other persons, and thought about this event.

The questionnaire was similar at both the phases of data collection. For the purposes of the present study, some measures were taken from the test questionnaire (sets 1–8) and others from the retest questionnaire (sets 1–3 and set 9).

Procedure

The questionnaire was composed in Italian and then translated into Polish and German. The Polish version was translated by a bilingual Italian living in Poland and reviewed by a native Pole. The German version for the Swiss participants was translated by a bilingual Swiss living in Italy and reviewed by a German translator. Paper-and-pencil questionnaires were administered by trained research staff to the members of Catholic churches, university students and other adults living in major cities in Italy (e.g. Turin, Rome, Bari), Poland (Varsavia, Pruszków) and Switzerland (Basel, Berne, San Gall). In an effort to reach as much participants as possible during the second data collection, we also developed an on-line version of the questionnaire. Importantly, all participants were informed that the questionnaire was anonymous and that their answers would be used for research purposes only. None of the subjects was paid, and all took part in the study voluntarily. On average, filling in the questionnaire took 20 minutes.

RESULTS

The statistical analysis comprised two steps: (1) Descriptive statistics and MANOVAs in order to investigate the impact of religious involvement and country on the different variables; (2) structural equation modelling applied to test the supposed causal relationships between the different hypothesized determinants of FBM.

Descriptive analyses and MANOVA

Religious involvement

Overall the participants are rather faithful ($M = 7.01$, $SD = 2.62$) and moderate church-goers ($M = 4.71$, $SD = 3.42$) and MANOVA shows that there is no significant difference between the three countries for 'faithful', $F(2, 311) = 1.81$, $p = .17$, or for 'church-goer', $F(2, 311) = 0.92$, $p = .40$. Thus, the participants' religious involvement can be considered as independent from their belonging to a specific country. Since we hypothesized that religious involvement could, at an individual level, influence FBM and its possible determinants, this variable will be entered as covariate in the further analyses.

For parsimony of data presentation and given the high positive correlation between 'faithful' and 'church-goer' ($r = .67, p < .001$), a composite score constituted by the mean of these two variables will be considered.

Analysis of the possible determinants of FBM

The possible determinants of FBM were analysed by MANOVA considering country as between-subject factor and religious involvement as covariate. This analysis shows a significant effect of country, $F(38, 586) = 6.26, p < .001$, and religious involvement, $F(19, 292) = 8.62, p < .001$. Regarding religious involvement, the estimated parameters (see Table 1) indicate that the more participants were religiously involved, the more favourable were their attitudes towards the Pope, the more importance/consequentiality they attributed to his death and the more intense were their reported sadness, interest, anxiety/fear and happiness, whereas their boredom was less intense. Moreover, religious involvement was positively related to rehearsal.

Given this general effect of religious involvement, in order to more precisely determine the differences between the three countries we proceeded in two steps: (1) the non-standardized residuals of the items measuring the possible determinants of FBM were calculated by taking into account only the covariate religious involvement; (2) a further MANOVA with country as between-subject factor was computed on these residuals and differences between countries assessed by Bonferroni *post hoc* tests. Results show that once the effect of religious involvement is controlled for, the main effect of country remains significant, $F(38, 588) = 6.27, p < .001$. Descriptive statistics and significant

Table 1. Effect of religious involvement on possible determinants of FBM: estimated parameters, *t*-values and probabilities

Measures	<i>B</i>	<i>t</i> (310)	<i>p</i> -values
Attitudes			
Church	.26	7.45	<.001
International	.19	5.78	<.001
Pope/person	.27	6.85	<.001
Importance/Consequentiality			
Personal importance	.40	8.63	<.001
Personal cons.	.33	5.97	<.001
Social cons.	.13	2.72	<.01
Emotional reactions			
Sadness	.32	5.64	<.001
Interest	.15	2.07	<.05
Fear	.13	2.70	<.01
Happiness	.14	3.62	<.001
Boredom	-.13	-3.36	<.01
Anger	.02	.58	n.s.
Embarrassment	-.04	-1.08	n.s.
Guilt	.02	.52	n.s.
Rehearsal			
Mass media exposure	.21	4.46	<.001
Social sharing	.30	6.03	<.001
Covert rehearsal	.38	7.61	<.001
Novelty			
Surprise	-.06	-1.27	n.s.
Expectedness	.04	.98	n.s.

differences between countries are reported in Table 2. Results indicate that although overall the attitudes towards the Pope were very positive (see last column of Table 2), for the three items measuring them, the Poles rated higher than the Italians did, whose mean scores were higher than those of the Swiss. As regards importance/consequentiality, all participants appraised the Pope's death as a very important event, and estimated its consequences for society as very relevant, whereas personal consequences were evaluated as only moderate. Furthermore, the Poles appraised the event as more important and having more consequences for their personal life than Italians did, the latter showing higher scores on these variables than the Swiss. Regarding appraised consequences of the event for society, the Swiss scored lower than the Italians and the Poles. From the analysis of the emotional reactions, it emerged that when hearing about the Pope's death, participants mostly felt sadness and interest and, to a lesser extent, anxiety/fear. Again, the Poles reported more intense sadness than the Italians, who scored higher on this emotion than the Swiss. Furthermore, they reported more intense anxiety/fear than the participants from the other two countries. The Poles also followed the news about the event in the mass media more closely. Additionally, they spoke about the event more frequently than participants from the other two countries, and thought about the event more frequently than the Italians, who scored higher on covert rehearsal than the Swiss. Finally, regarding surprise and

Table 2. Possible determinants of FBM by country: means, standard deviations, comparison between countries

Measures	Poland (<i>n</i> = 49)		Italy (<i>n</i> = 205)		Switzerland (<i>n</i> = 60)		Overall (<i>N</i> = 314)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Attitudes								
Church	9.97 ^a	0.90	8.31 ^b	1.94	6.10 ^c	2.52	8.10	2.23
International Pope/person	9.84 ^a	0.47	8.97 ^b	1.58	7.52 ^c	2.51	8.82	1.83
	9.82 ^a	0.70	8.44 ^b	2.08	6.50 ^c	2.52	8.29	2.26
Importance/Consequentiality								
Personal importance	9.12 ^a	1.51	7.38 ^b	2.47	5.30 ^c	3.22	7.25	2.75
Personal cons.	6.69 ^a	2.92	3.21 ^b	2.89	1.57 ^c	2.59	3.44	3.22
Social cons.	7.72 ^a	2.03	7.06 ^a	2.37	4.55 ^b	2.70	6.69	2.61
Emotional reactions								
Sadness	8.61 ^a	2.52	7.25 ^b	2.82	4.25 ^c	3.41	6.89	3.20
Interest	5.45	4.10	6.27	3.38	5.50	3.58	5.99	3.55
Fear	2.67 ^a	2.58	1.59 ^b	2.41	0.85 ^b	1.65	1.62	2.37
Happiness	0.59	2.02	0.61 ^a	1.81	1.33 ^b	2.36	0.75	1.92
Boredom	0.00 ^a	0.00	0.71	2.10	1.25 ^b	2.14	0.70	1.97
Anger	0.53	1.34	0.72	1.93	0.48	1.66	0.64	1.80
Embarrassment	1.49 ^a	2.83	0.56 ^b	1.66	0.25 ^b	0.86	0.64	1.82
Guilt	0.96 ^a	2.03	0.49	1.56	0.07 ^b	0.31	0.48	1.52
Rehearsal								
Mass media exposure	6.05 ^a	2.04	5.00 ^b	2.30	4.66 ^b	2.54	5.10	2.34
Social sharing	4.71 ^a	2.53	3.64	2.64	2.77 ^b	2.46	3.64	2.65
Covert rehearsal	5.43 ^a	2.61	4.06 ^b	2.74	2.52 ^c	2.38	3.98	2.78
Novelty								
Surprise	2.45 ^a	3.39	1.18 ^b	2.03	0.67 ^b	1.31	1.28	2.25
Expectedness	7.71	2.26	8.21	2.02	8.20	2.36	8.13	2.13

Note: Means within rows with different superscripts were significantly different at $p < .05$ in Bonferroni *post hoc* tests.

expectedness, results show that overall the Pope's death was not surprising and rather expected. However, the Poles reported more surprise than the participants from the other two countries. One possible explanation for this result might be that the Poles continued to hope that the Pope would recover despite the evidence of his severe illness.

Memory for the original event

As shown in Figure 1, at the first data collection almost all participants, regardless of the country, correctly reported the date and the day of the event, whereas the percentages of completely correct answers were lower regarding the time and the cause of the Pope's death. These high percentages of correct answers decrease strongly at the retest.

To test the effects of country, time and religious involvement on event memory, the sum of scores of recalled factual details (ranging from 0 to 7) was computed. At a descriptive level, the overall means show that most participants were able to correctly report the factual details of the event at the test ($M = 5.60$, $SD = 1.25$, range 1–7), whereas they forgot a rather important amount of these details when interviewed at the retest ($M = 2.68$, $SD = 1.99$, range 0–7). Still at a descriptive level, comparing the three groups, it emerges that in both data collections, the Poles recalled more factual details of the original event (test: $M = 6.17$, $SD = 0.99$; retest: $M = 4.23$, $SD = 1.97$) than the Italians (test: $M = 5.57$, $SD = 1.20$; retest: $M = 2.58$, $SD = 1.89$), who had more accurate event memory than the Swiss (test: $M = 5.20$, $SD = 1.42$; retest: $M = 1.74$, $SD = 1.59$). These differences are confirmed by the results of MANOVA which shows a main effect of religious involvement, $F(1, 310) = 74.52$, $p < .001$, country, $F(2, 310) = 24.01$, $p < .001$, time, $F(1, 310) = 232.22$, $p < .001$, as well as an interaction time by religious involvement, $F(1, 310) = 15.67$, $p < .001$, and time by country, $F(2, 310) = 9.51$, $p < .001$. Estimated parameters indicate that the higher the religious involvement of the participants, the higher their global score of event memory at the test ($B = .14$, $t(310) = 5.83$, $p < .001$) and at the retest, ($B = .28$, $t(310) = 7.99$, $p < .001$). To more precisely analyse the differences between countries, the same strategy as described above was used: non-standardized residuals of the global score of event memory were calculated by taking into account only the covariate religious involvement. Second, a further MANOVA (country \times time) was computed on

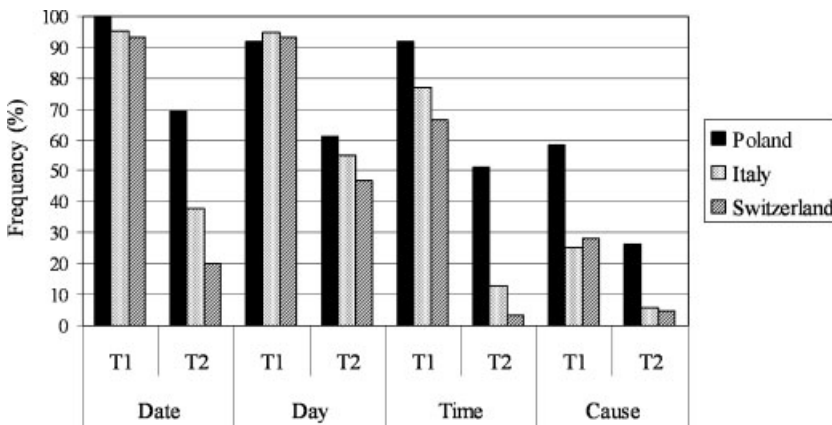


Figure 1. Percentages of correct answers regarding memory for the original event at the test (T1) and retest (T2)

these residuals and the differences between countries were assessed by Bonferroni *post hoc* tests. This further analysis confirms the main effect of country, $F(2, 311) = 23.83, p < .001$, as well as the interaction time by country, $F(2, 311) = 9.45, p < .001$, whereas the main effect of time is no longer significant. The Poles recalled significantly more factual details of the event than the Italians ($p < .001$), who recalled more details than the Swiss ($p < .001$). Moreover, the Italians and the Swiss showed an important decrease over the time of event memory, whereas the Poles forgot substantially less.

Flashbulb memories

At the first data collection, nearly all participants were able to report the personal circumstances in which they learned the event, with missing or 'I do not remember' answers ranging from 0 to 1.9% for the seven items assessing FBM. Moreover, these circumstances were very similar in the three countries. Most participants claimed to have learned the news of the Pope's death on Saturday 2 April (87.7%), within 1 hour after the event occurred (73.0%), from TV (64.6%) or other people (22.7%). Generally, they were at their home (69.1%) and their main activities were watching TV or having dinner. At the retest, the percentages of missing and 'I do not remember' responses increase especially for the date (54.1%), day (36.6%) and time (28.3%) the news was learned, whereas a rather high percentage of participants were still able to report the other circumstances (missing or 'I do not remember' responses ranging from 5.1 to 17.8% for the other four items assessing FBM).

In order to analyse the consistency of FBM, the responses of the first and second data collection were compared. As shown on Table 3 (last row), overall the percentages of consistent recollections were rather high (reaching around 70%) for informant, place and activity. Regarding day, time and other persons present, approximately 50% of participants had consistent recollections, whereas only 36.9% reported the same date of learning the news at the first and at the second data collection. In this case too we computed a global score of consistently recalled circumstances (ranging from 0 to 7). At a descriptive level, the overall mean ($M = 3.82, SD = 1.76, \text{range } 0-7$) of this global score indicates that the participants had rather consistent memories of the circumstances, although there are important inter-individual differences. More in detail, the means of the three groups of participants show that the Poles had more consistent FBM ($M = 4.33, SD = 1.41$) than the Italians ($M = 3.91, SD = 1.77$), who were more consistent than the Swiss ($M = 3.07, SD = 1.81$). These differences are confirmed by MANOVA, which shows a main effect of country, $F(2, 310) = 20.80, p < .001$, and religious involvement, $F(1, 310) = 14.02, p < .001$: the higher the religious involvement, the more consistent FBM were present, $B = .13, t(310) = 3.75, p < .001$. Once the effect of religious involvement is controlled for, the differences between countries remain significant, $F(2, 311) = 7.27, p < .01$: The Swiss had less consistent FBMs than the Poles and Italians ($p < .01$) and the latter two did not differ significantly.

Table 3. Percentages of consistent answers for FBM

	Date	Day	Time	Informant	Place	Activity	Others
Poland	65.3	55.1	79.6	59.2	83.7	73.5	51.0
Italy	36.1	52.7	56.1	70.7	69.3	72.7	56.6
Switzerland	16.7	36.7	35.0	66.7	53.3	66.7	46.7
Overall	36.9	50.2	55.8	68.2	68.5	71.7	53.8

Vividness

Overall participants had a very vivid image of the circumstances in which they first heard about the news of the Pope's death at the first data collection ($M = 7.60$, $SD = 2.95$) and although this vividness decreased over time, it was still rather high at the retest ($M = 6.78$, $SD = 3.01$). Moreover, the Poles had the most vivid image both at the test ($M = 8.63$, $SD = 2.23$) and at the retest ($M = 7.47$, $SD = 2.43$), followed by the Italians (test: $M = 7.78$, $SD = 2.71$; retest: $M = 6.94$, $SD = 3.01$) and the Swiss (test: $M = 6.17$, $SD = 3.75$; retest: $M = 5.65$, $SD = 3.18$). MANOVA shows a main effect of country, $F(2, 310) = 10.12$, $p < .001$, and religious involvement, $F(1, 310) = 32.31$, $p < .001$: the more participants were religiously involved, the higher vividness they reported at the test ($B = .27$, $t(310) = 4.72$, $p < .001$) and retest ($B = .29$, $t(310) = 4.97$, $p < .001$). Once the effect of religious involvement is controlled for, the main effect of country, $F(2, 311) = 10.01$, $p < .001$, remains significant. The Swiss had less vivid memories than the Poles and Italians ($p < .001$) and the latter two did not differ significantly.

Structural equation model

Considering all the countries together, the causal relationships between the hypothesized determinants of FBM were tested through the application of structural equation modelling (Bollen, 1989). In the structural diagram presented in Figure 2, the hypothesized factors underlying the observed variables are represented by circles, while the observed variables are represented by squares. The direct causal relationships between latent factors and between factors and their indicators are specified by straight arrows from the causes, with an arrowhead pointing to the effects. More precisely, in the model we tested, national group membership (represented by PROXY¹) and religious involvement have a direct impact on attitude. Attitude determines the importance/consequentiality attributed to the event, which, in turn, is considered as the causal factor of the intensity of emotional reaction.² From emotional reaction two paths are hypothesized. On the one hand, emotional reaction determines rehearsal, which influences the memory of the original event. On the other hand, emotional reaction is expected to directly influence event memory. Finally, event memory has a direct impact on FBM.

The model was tested by LISREL 8.7 (Jöreskog & Sörbom, 2005). The correlation matrix of the variables considered to compute the structural model is shown on Table 4. Since variables were not multinormal (Mardia's test with Prelis, $\chi^2(2, N = 314) = 432.64$, $p < .001$), we used MLR (Robust Maximum Likelihood method) for estimation. Goodness-of-fit of the model was evaluated by several indexes: two global fit measures (χ^2 and SRMR) indicating the degree of discrepancy between the sample covariance matrix and the covariance matrix implied by the model; a comparative fit measure (CFI) which compares the fit of the hypothesized model with that of the null model, and finally RMSEA, which evaluates the approximation of the model-implied matrix to those of the population. Following the rules of thumb summarized by Schermelleh-Engel, Moosbrugger, and Müller (2003), we used the following criteria for evaluating a model as acceptable: $\chi^2/df < 3$; SRMR $< .10$; CFI $> .95$; RMSEA $< .08$. By considering these

¹National group membership is represented by PROXY which reflects the psychological distance between each country and the Pope. This variable has been expressed by attributing a value of 1 (most close) to Poland, 0 (rather close) to Italy and -1 (less close) to Switzerland.

²As indicators for the latent variable emotion, we only considered sadness, interest and anxiety/fear, that is, the three most intense and most frequently reported emotions.

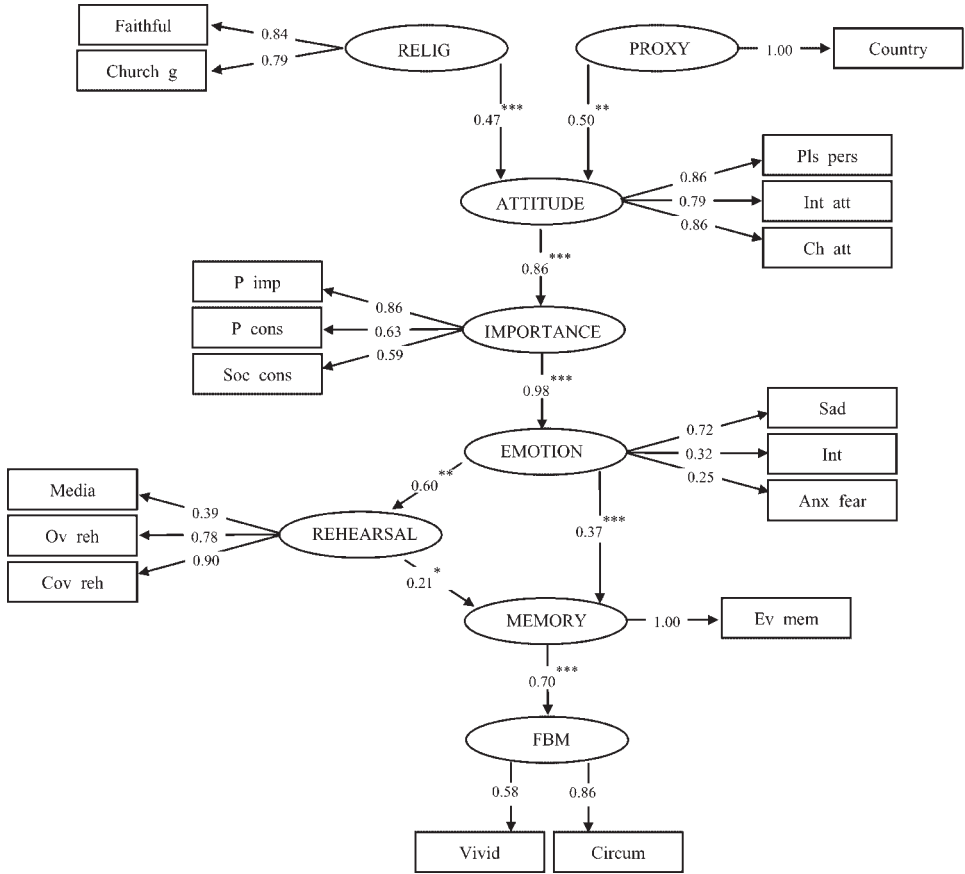


Figure 2. Standardized structural equation model. * $p < .05$; *** $p < .001$

conventional cut-offs, the model provides a good statistical fit to the data, $\chi^2 = 369.18$ ($df = 129, N = 314$), $\chi^2/df = 2.86, p < .001$; SRMR = .090; CFI = .96; RMSEA = .077.

DISCUSSION

This study aimed to investigate how FBM of an important public event varies according to the people’s evaluation of the event’s importance/consequentiality and what are the possible determinants of this appraisal. Furthermore, we wanted to test the causal relations between the possible determinants of FBM and to verify if surprise is an indispensable antecedent for FBM formation. To achieve these aims, we examined the FBMs regarding the death of Pope John Paul II, that is a highly predictable event, in persons who were expected to have different attitudes towards the Pope and his life’s work and to attribute different degrees of importance/consequentiality to his death as a function of their nationality (Polish, Italian, Swiss) and their religious involvement. In doing so, we used a very short delay between the original event and the first data collection to reduce the distortion effects on memory generated by post-event phenomena (e.g. social sharing,

Table 4. Correlation matrix of the observed variables used in the structural equation model

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
1. PROXY	1																		
2. FAITH	.106	1																	
3. CH_GOER	.066	.667	1																
4. PLS_PERS	.436	.338	.325	1															
5. CH_ATT	.481	.386	.334	.741	1														
6. INT_ATT	.379	.343	.251	.727	.692	1													
7. SOC_CONS	.375	.198	.131	.430	.451	.425	1												
8. P_IMP	.408	.381	.410	.621	.655	.558	.511	1											
9. P_CONS	.458	.260	.328	.432	.409	.374	.448	.564	1										
10. SAD	.419	.332	.252	.593	.564	.519	.370	.609	.392	1									
11. INT	.005	.104	.113	.165	.180	.199	.165	.321	.109	.293	1								
12. ANX_FEAR	.187	.109	.070	.111	.111	.085	.211	.174	.266	.244	.230	1							
13. OV_REH	.215	.245	.354	.318	.318	.289	.246	.361	.333	.282	.094	.055	1						
14. CO_REH	.310	.299	.422	.382	.382	.338	.298	.467	.409	.383	.074	.107	.717	1					
15. MEDIA	.170	.208	.257	.273	.273	.380	.242	.432	.278	.297	.273	.115	.289	.310	1				
16. EV_MEM	.362	.368	.393	.352	.352	.297	.243	.435	.335	.325	.232	.136	.295	.392	.386	1			
17. CIRCUM	.215	.214	.191	.215	.215	.155	.244	.228	.202	.257	.216	.155	.185	.213	.189	.609	1		
18. VIVID	.187	.266	.240	.341	.341	.291	.216	.344	.290	.280	.218	.050	.279	.338	.164	.413	.505	1	

Note: PROXY, psychological proximity; FAITH, faithful (T1); CH_GOER, church-goer (T1); PLS_PERS, how much people liked the Pope (T1); CH_ATT, attitude towards the Pope's work for the Catholic Church (T1); INT_ATT, attitude towards the Pope's work for nations (T1); SOC_CONS, consequences of the Pope's death for society (T1); P_IMP, personal importance (T1); P_CONS, personal consequences (T1); SAD, sadness (T1); INT, interest (T1); ANX/FEAR, anxiety/fear (T1); OV_REH, overt rehearsal (T2); CO_REH, covert rehearsal (T2); MEDIA, mass media exposure (T1); MEM, memory for the original event (T2); CIRCUM, circumstances in which event was learned (T1-T2); VIVID, vividness (T2).

media exposure to other important related events such as the Pope's funeral). This is in line with the indications emerging from the current FBM literature and may be considered the strength of the study.

Results confirmed that the higher the participants' religious involvement, the more favourable were their attitudes towards the Pope, the more importance/consequentiality they attributed to his death and the more intense were their reported emotions. Moreover, religious involvement was positively related to rehearsal and event memory. Finally, the higher the participants' religious involvement, the more consistent were their FBMs.

Regarding the national membership, the results showed that the Poles had more favourable attitudes towards the Pope and his life's work than the Italians, whose attitudes were more positive than those of the Swiss. Furthermore, the Poles attributed more importance and consequences to the Pope's death than the Italians, followed by the Swiss. In addition, they reported more intense sadness than the Italians, who came before the Swiss, and rehearsed the event more frequently than the participants from the other two countries. Finally, event memory and FBM were highest for the Poles, followed by the Italians and then the Swiss, who recalled substantially less.

Regarding the causal relationships between the hypothesized determinants of FBM formation and maintenance, the tested structural equation model includes most of the factors taken into account in previous models (e.g. Er, 2003; Finkenauer et al., 1998) and shows several similarities. In particular, as hypothesized by the emotional-integrative model of Finkenauer et al. (1998), we found that importance/consequentiality can be considered the determinant of the emotional reaction which then favours rehearsal and, consequently, event memory. Finally, event memory determines FBM. Besides these similarities, our model shows that FBMs can be formed without the contribution of surprise and also confirms a direct link between emotion and event memory. Moreover, it emphasizes the role of attitude as a latent factor likely to determine importance/consequentiality.

Given the role endorsed by attitudes in the present model, we want to point out that this factor was measured not only by asking people how much they liked the Pope as a person, but also by asking them how favourable they were regarding what he did for the Catholic Church and for international relations. This type of attitude involves the person's opinion about the Pope's life's work and implies prior knowledge. However it also, and above all, involves an evaluation of the past that leads to the imagination of a future scenario in which the event's consequences could be more or less important, serious, desirable or undesirable at an individual and social level. This kind of evaluation, in turn, can be influenced by the context in which the person lives and by his/her own life experiences. In the present study, results indeed indicate that the more or less favourable attitudes towards the Pope and his work were influenced both by the nation of belonging and by the degree of religious involvement.

The concept of 'concern' can help to explain the results we found and, in particular, the relationship between attitude, appraisal of importance/consequentiality and emotion. According to Ben Ze'ev (2000) 'Emotions occur when a change is appraised as relevant to our personal concerns. Concerns are our short- or long-term dispositions to prefer particular states of the world or of the self'. In other words, the impact of a public event would depend upon the degree to which it implies a change affecting the people's concerns (Curci et al., 2001) and this degree could depend upon the characteristics of the single person or of the group of belonging. This implies that the same event can be evaluated differently by different persons or groups because it can influence their concerns differently.

With respect to the present study, Polish citizens were probably more concerned about the death of John Paul II because of the direct impact his engagement had on their life, and especially on the political reality of their country. This could also explain why the Polish participants showed a significantly higher level of anxiety/fear than the participants of the other two countries. Moreover, it is possible that deeply religious persons were more concerned about the Pope's death because for many of them the Pope can be considered as an important reference point for their spiritual as well as everyday life. Therefore, at least for the persons who follow the indications of the Catholic Church, his death is likely to provoke relevant changes and to be evaluated as very important in terms of consequences for the future.

In synthesis, the present study confirms that even in the case of an expected event, the evaluation of high importance and consequentiality leads to the formation of vivid and long-lasting memories of the context in which the event was learned. Nevertheless, the findings also suggest that only event memory has a direct causal influence on FBM. This result, even if it is in accordance with the model of Finkenauer et al. (1998), has not been found in other studies. Indeed, in some studies event memory was not investigated (e.g. Brown & Kulik, 1977), while in others the circumstances in which the event was learned overlapped with the event itself. In the study of Er (2003) for example, one group of participants who had to report their memories about the Marmara earthquake directly experienced the event itself. Also in the present study, some variables measuring the recall of the event and others regarding FBM could coincide. In particular, almost 90% of the participants learned the news of the Pope's death Saturday 2 April and around 70% among them within the 1 hour of the event occurred. Knowing when the event happened could therefore favoured the recall of the moment in which the event was learned.

On the basis of these considerations, a topic of future research should be to better clarify which elements differentiate these two types of memory. To reach this aim it would be very important to identify an event in which these two types of memory are clearly distinguishable. Finding such an event could also help to clarify the question if, as suggested by the model of Finkenauer et al. (1998) and by the present model, FBMs are necessarily mediated by event memory, or if other determinants considered as fundamental for their formation, such as importance/consequentiality, emotional feeling and rehearsal, could have a direct causal influence on them.

CONCLUSION

Overall, the findings of the present study clearly account for the core role of the appraisal of importance/consequentiality in the formation of FBM and show that this appraisal is determined by antecedent personal characteristics such as attitudes. Nevertheless, it should be noted that by considering the death of Pope John Paul II as the event to be studied, we could only assess the impact of more or less positive attitudes. In fact, although the attitudes of the Swiss participants were less positive than those of the Italians and the Poles, contrary to our expectations their scores on the items measuring this factor were positive. In other words, in this particular case, only the effect of different degrees of positive attitudes was investigated. Besides the above mentioned question about what distinguishes clearly event memory from FBM and which are their respective determinants, in future research it might be interesting to compare groups with attitudes of opposite valence. One hypothesis is that extreme attitudes towards a public event, regardless of their valence, would probably

lead to a higher attribution of importance/consequentiality, to more intense emotional reactions and consequently to better recall than moderate attitudes.

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