

**Vivid memories**

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*Fifty-eight undergraduates each recorded their three clearest autobiographical memories and answered questions about them. The resulting 174 memories were almost all rated to be of high personal importance, but low national importance. In contrast to published results of flashbulb memories cued by events which were specific, nationally important, surprising, and consequential, the ratings collected here covered the scales of surprise and consequentiality in a fairly uniform manner. The subjects also answered questions about memories cued by 20 events. For each subject, some of these memories were of 'flashbulb' clarity and some were not. The clearer memories were more surprising, consequential, and emotional, indicating that these factors are associated with, though not necessary for, vivid memories.*

In recent years, there has been a marked increase in the study of autobiographical memory (e.g., Crovitz and Schiffman, 1974; Fitzgerald, 1980; Franklin and Holding, 1977; Linton, 1975; Robinson, 1976; Rubin, 1980, 1982). As part of this increase, one of the most striking and elusive phenomena in autobiographical memory has been brought into the laboratory for study. Brown and Kulik (1977) managed to study people's clearest, most vivid autobiographical memories by asking them for their recollections and reactions to surprising, consequential, historical events such as the assassination of President Kennedy. They concentrated their study on this small subset of public events in an attempt to obtain memories from the same set of events from many individuals. They required the event cues to be surprising and consequential, as they assumed these properties were central to the phenomenon they wished to study. Brown and Kulik coined the term 'flashbulb memories' to describe the vivid memories they observed because it suggests

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surprise, relatively indiscriminate though not necessarily complete illumination, and brevity.

While maintaining the emphasis on individual reactions to historical events, Neisser (1982) has criticized many implications of the concept of flashbulb memories, in particular "(a) that flashbulb memories are accurate; (b) that the process by which the memory is created occurs at the time of the event itself; (c) that surprise, emotionality, and similar reactions are closely correlated with the 'consequentiality' of an event, and that higher levels of surprise and emotionality lead to good memory; and (d) that the similarities among different flashbulb memories reflect the common characteristics of an underlying neural mechanism" (p. 43). Rather than continue this theoretical debate using a very limited set of examples, the present descriptive and exploratory study will attempt to broaden the data base on which the general phenomenon and the theoretical debate are based.

Brown and Kulik define flashbulb memories as "memories for the circumstances in which one first learned of a very surprising and consequential (or emotionally arousing) event" (p. 73). They imply that these memories are quite clear and lifelike. Operationally, Brown and Kulik consider a report as a flashbulb memory if the subject judges the report to be a flashbulb memory and if the report has information in at least one of the six canonical categories that Brown and Kulik found to be typical of flashbulb memories. While consequentiality and surprise were Brown and Kulik's prerequisites for a flashbulb memory, the property that makes flashbulb memories interesting is their clear, vivid, almost lifelike property. For instance, seemingly random, minute details that one normally would expect to have forgotten are reported.

Here we will use Brown and Kulik's definition for a flashbulb memory. In addition, we will define a *vivid memory* to be a report that a subject indicates is one of his or her clearest, most vivid, most lifelike, autobiographical memories. Operationally, we will use Brown and Kulik's first operational criterion for a flashbulb memory as our criterion for a vivid memory; that is, the subject must judge the report to be of 'flashbulb' clarity. Where descriptions are obtained from subjects, Brown and Kulik's second operational criterion of having information in at least one of six canonical categories will also be used. Thus, our vivid memories will meet the vividness, clarity, and detail requirements of flashbulb memories, but will not be required to be caused by surprising or consequential events.

From both the conceptual and the operational definitions, flashbulb memories are a subset of vivid memories. Two broad relations could emerge. First, all vivid memories collected could be flashbulb memories. That is, vivid memories may occur only in response to surprising and consequential (or emotionally arousing) events. This would indicate that Brown and Kulik's

initial prerequisites were not just part of a convenient definition, but in fact underlie a more general phenomenon. The second possibility is that flashbulb memories constitute only a relatively small subset of vivid memories. That is, vivid memories may result from non-surprising and/or non-consequential events. This would leave us without a comprehensive theory of vivid memories, and with the problem of deciding about the theoretical relation between flashbulb and vivid memories. Such speculation, however, is best constrained by data.

In order to obtain vivid memories with the minimum limitations to our subjects, no particular events were given as cues. More specifically, subjects were simply asked to provide the most clear, vivid, detailed, flashbulb-like memories from their lives. The no cue method used here provides surprisingly little loss of control when compared to Brown and Kulik's event cue method. Brown and Kulik asked their subjects what they were doing at the time of a nationally important, surprising, consequential event rather than about the public event itself. Thus, as in the no cue method used here, each subject recalled a different event. In addition, the personal idiosyncratic nature of the events Brown and Kulik's subjects recalled made verification just as difficult as it would be for the no cue method used here. Thus, for both the no cue and for the event cue methods, idiosyncratic, nonverifiable memories are usually recorded. The main difference between the methods, however, is that the no cue method provides a broader data base from which to make generalizations.

After obtaining detailed descriptions of remembered events, several questions were asked to probe Brown and Kulik's concept of flashbulb memories directly, as well as to explore other possibilities. These questions are now considered.

Consequentiality, one of Brown and Kulik's prerequisites, is a relatively objective measure of importance; it judges importance by what consequences an event has. Still, things can be important to people without being consequential. For example, a speech given in high school could have been very important at the time, though it had no real consequences. Moreover, Neisser (1982) criticizes consequentiality as a measure because it cannot always be known at the time of an event, which is when Brown and Kulik assume that flashbulb memories are formed. Rather, consequentiality judgments often require time to form and certainly become more accurate with time. For these reasons, a second type of measure of importance, judged importance at the time of the event, was included. Of course, this type of measure is less clearly defined than consequentiality and is more subject to distortion as time passes because subjects must recall or infer at the time of the experiment how they felt at the time of the event. In addition to consequentiality, three

measures of judged importance are included in this study: personal importance, national importance, and a measure of general importance equal to the larger of the first two. National importance and personal importance are separated to allow another hypothesis about vivid memories to be tested. Neisser (*op. cit.*) claims that one main purpose of the type of flashbulb memories Brown and Kulik collected using nationally important event cues is to tie people's personal histories to history. If this is a general purpose of vivid memories as defined here, a good percentage of flashbulb memories should involve nationally important events.

Brown and Kulik's second prerequisite for a flashbulb memory is surprise. All of their event cues were relatively surprising. Even their one personal event cue asked for an unexpected shock. To mimic the relatively objective, *post hoc* consequentiality measure of importance, a relatively objective, *post hoc* likelihood measure of surprise was formulated. While someone might now judge an event to be quite likely to have occurred in a given time span, the event could have been surprising when it originally happened (Fischhoff, 1975).

A vividness question was included in order to verify that the memories obtained were, in fact, clear and lifelike. Vividness, however, should not be confused with accuracy. In this regard, it is almost certain that most of the memories are inaccurate in some respects (Bartlett, 1932/1967; Greenwald, 1980; Loftus, 1979; Neisser, 1967, 1982), while probably bearing a general resemblance to actual events in most cases (Neisser, 1981; Rubin, 1982). In addition, measures of rehearsal, emotional and behavioral change, and the age of the memories were obtained because of their interest to flashbulb memories as well as more general cognitive issues.

## Method

### *Subjects*

Fifty-eight introductory psychology students completed the experiment during October of 1982. They ranged in age from 17 to 21, with a mean age of 18.7 years. None was previously exposed to the concept of a flashbulb or vivid memory.

### *Procedure*

Subjects were tested in groups of six to nine. The first page of their questionnaires gave a description of a flashbulb memory following Brown and Kulik (but avoiding all mention of surprise, consequentiality, or national impor-

tance) and three examples chosen to provide a wide range of possible vivid memories. While we distinguish between flashbulb and vivid memories here, our subjects were consistently given the words 'flashbulb memory' instead of vivid memory in order to make our results more comparable to Brown and Kulik's. Thus, the instructions included that "A flashbulb memory occurs when your brain 'takes a picture' of an event. You have particularly vivid memories of these events long after they occur. You tend to remember your exact surroundings in exceptional detail." While these instructions may not portray an accurate psychological theory, they do communicate the essence of what makes a flashbulb or a vivid memory interesting while also conveying a rather strict criterion to the subjects. The first example was a description of a memory of hearing about the attack on Pearl Harbor. The second was a memory of a girl who spilled a drink on herself while on a class trip. The third was a memory of a person witnessing his dog being run over. The examples were chosen to include personal and public events covering a range of surprise and consequentiality in an attempt to span the variety of vivid memories collected in our pilot work. In fact, the latter two memories used as examples were modified from actual reports obtained in our pilot work. Assassinations, which formed the basis for Brown and Kulik's (1977), Colegrove's (1899), Winograd and Killinger's (1983) and Yarmey and Bull's (1978) studies, were not used as examples in order to provide a more unbiased assessment of their relative frequency in the total pool of vivid memories.

After reading the descriptions of vivid memories and the three examples, the subjects were asked if they understood the concept of 'flashbulb' memories and subjects' questions were answered. The questionnaire then continued with "On each of the following 3 pages, I would like you to write down one flashbulb memory. These should be the 3 clearest memories from your past. Please report anything and everything you can ... but do not make anything up." The detailed descriptions were included to insure that vivid memories were being obtained and to allow some description of the events that typically lead to vivid memories in college students.

Upon completing the three descriptions, the subjects were allowed to turn to the next section of their booklets, which asked the following 10 questions about each of their three memories.

(1) How nationally important was this event? (1 means no importance to the nation at the time and 7 means tremendous importance to the nation at the time.)

(2) How personally important was this event? (1 means no importance to you at the time and 7 means tremendous importance to you at the time.)

(3) How surprised were you when this event occurred? (1 means not at all surprised and 7 means as surprised as you have ever been.)

(4) How consequential has this event been to the rest of your life? (1 means no great consequences and 7 means consequences as great as any single event in your life.)

(5) How vivid is your memory of this event? (1 means no image at all and 7 means as vivid as normal vision.)

(6) Was there a change in the ongoing activity? (1 means no, the activity stayed the same, and 7 means totally, as large a change as ever occurs from one event to another.)

(7) Did this event cause an emotional change in you? (1 means no, you felt exactly the same afterward, and 7 means as large an emotional change as ever occurs from one event to another.)

(8) How many times have you discussed this event since it occurred? (1 means no times, 2 means 1 time, 3 means 2–3 times, 4 means 4–7 times, 5 means 8–15 times, 6 means 16–30 times, 7 means more than 30 times.)

(9) From the objective point of view of an informed outsider, how likely was this event to occur? Please answer with a single percentage, that is your best estimate between 0 and 100. (For example, if the event were Pearl Harbor, you might say 5%.)

(10) Please tell me as accurately as you can how long ago each event occurred. For example, 5 hours (ago), 28 months (ago) or 15 years (ago).

After completing the ratings of the three vivid memories, the subjects started the next section, which prompted them with 20 brief descriptions of events that they were to use as cues for specific incidents from their lives. These events, which are listed in Table 1 in the results section, were chosen from pilot studies so that roughly half of the events would produce memories rated as flashbulb memories in any one subject. The purpose of this section was to determine if vivid memories were rated higher on given characteristics than non-vivid memories. The subjects were asked if they had written about the event in the first section, and positive responses were discarded to avoid double counting. Subjects were then asked whether or not the memory described was a flashbulb memory for them and finally to rate the events on consequentiality, surprise, emotional change, rehearsal and likelihood using the same scales they used in the previous section.

The entire questionnaire took approximately 55 minutes to complete. All the questionnaires were completed anonymously, and all subjects appeared, both in post session questioning and in their responses, to understand the concept of vivid memories as defined on the questionnaire.

## Results

In the first part of the experiment, 58 subjects each recorded and rated three vivid memories. To see whether the resulting 174 memories could be considered as a single group independent of whether they were the first, second, or third memory produced, an analysis of variance on each of the questions was performed with the order of production of the memories used as the independent variable. Using this non-conservative technique, 9 of the 10 questions had  $F$  values less than 1.2. The number-of-times-the-memory-was-rehearsed question, however, produced a significant difference [ $F(2,57) = 7.89, p < 0.001$ ], with mean rehearsal ratings for the first, second, and third memories corresponding to approximately 6.7, 4.1, and 3.7 rehearsals, respectively. As the rehearsal measure is not central to the arguments to be made and as this difference in rehearsal may be no more than a difference in availability (Rubin, 1983; Tversky and Kahneman, 1973), the three memories produced by each subject are reported together.

The 174 vivid memories were classified into the following categories: Thirty-one memories concerned an injury or accident involving either the subject or a friend. This category may be inflated as one of the three examples was of a car accident. The next most reported category consisted of 20 events related to sports. This was followed by 18 encounters with members of the opposite sex, 16 incidents involving an animal (another category that could be inflated by the examples given), 9 deaths, 9 memories from the subject's first week at college, 9 events which occurred during a vacation, 5 appearances in front of an audience and 5 incidents at school. The remaining 52 memories could not be categorized in groups with more than 3 memories. Only 4 out of the total of 174 fit the newsworthy event category used by Brown and Kulik and discussed by Neisser (1982).

In reading the 174 memories, it was clear that the subjects did understand the concept of vivid memories. As a more objective test, each memory was scored to see if it had the canonical categories Brown and Kulik noted in their protocols. The following categories, which Brown and Kulik used for their personal shock event, were scored: the nature of the event, the person involved, the place, the ongoing event, own affect, and aftermath. We did not score Brown and Kulik's informant category or their other affect category because in most of the events described there were typically no informants and no others in whom one would expect an affect change. On the average, memories had 4.50 (S.D. = 1.03) canonical categories filled out of a possible 6 (range 2 to 6). Overall, in their Tables 4 and 5, Brown and Kulik report 2.65 out of a possible 6 canonical categories for their nationally important events. In addition, 71% of our memories had extraneous details of the kind

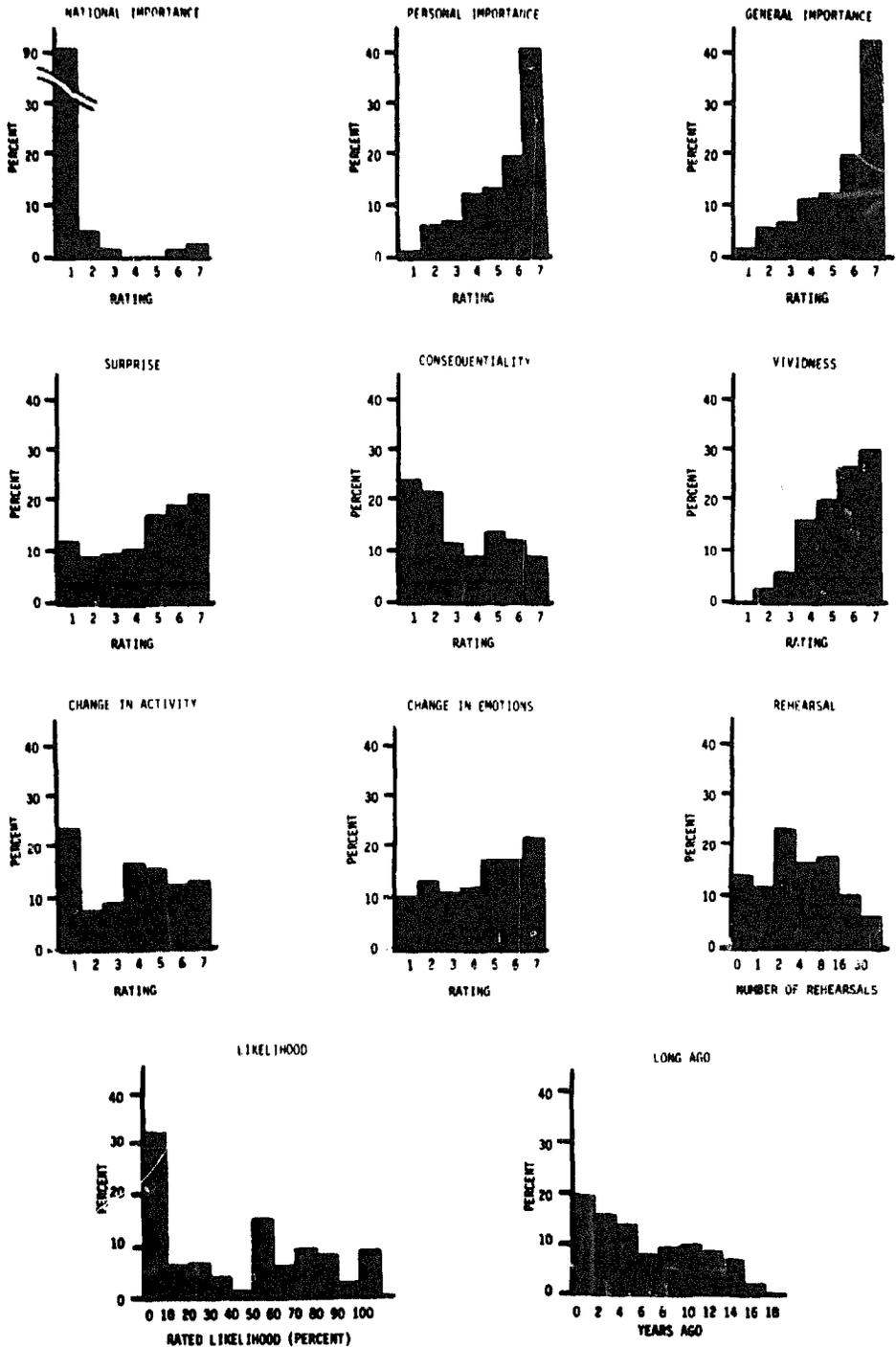
noted by Brown and Kulik that did not fit into any of the categories used. Therefore, our vivid memory protocols all exceed Brown and Kulik's operational definition of being judged to be flashbulb memories by the subjects themselves and of having information in at least one of the six canonical categories.

The responses to the ten questions are presented in Figure 1. Examining the histograms in order, we find that most events described were not of national importance but were of personal importance: 97% of the events were given ratings below the middle value of 4 on national importance, while only 14% of the events were rated below 4 on the personal importance scale. The personal and general importance scales are empirically similar because the national importance rating was greater than the personal importance rating in only five cases. The surprise, consequentiality, change in actions, change in emotional state, rehearsal, and likelihood scales all show a wide spread of responses. Therefore, the only scales based on possible necessary conditions for flashbulb memories that appear to be even close to necessary for the formation of vivid memories are the personal and general importance scales. While many events were rated as extremely surprising, consequential and unlikely, many were not. The difference between prior research and our research is probably due to the difference in the data base. For instance, Brown and Kulik concentrated on surprising, nationally important events, especially assassinations. Here, subjects were asked for their three clearest flashbulb memories, and 98% of these memories were not related to assassinations. Thus, our results may differ from other research only because our method led to different vivid memories being sampled. This difference is, however, important. Our less restrictive cueing provides a more general sample of vivid memories than do specific event cues chosen from one domain.

Several histograms deserve more careful attention. Rehearsal has been offered as a possible mechanism for preserving flashbulb memories. The observation that many of the memories were not reported as being rehearsed appears to bring the rehearsal explanation into question; however, it is equally likely that the rehearsals themselves could have been forgotten. As would be hoped for with memories that were asked to be the clearest of the subjects' lives, the vividness ratings were quite high, especially considering the normal, wide range of imagery ability. That is, on tests of visual imagery ability many subjects cannot imagine anything with much vividness (e.g., Galton, 1907). Only 7% of the responses were below the middle rating of 4, and 58% had a rating of 6 or 7 on a scale in which 7 was labeled "vivid as normal vision".

The likelihood scale was included as a second measure of surprise. The histograms of the likelihood and surprise scales are, however, somewhat dis-

Figure 1. *Histograms for the questions following the first three vivid memories. All histograms are based on 174 data points.*



crepant. On further examination, the two scales appear to be measuring different but related concepts. The correlations between the two scales over all 174 events is only  $-0.42$ . At each of the 7 rating scale values for surprise, there are events with likelihood estimates as low as 5% and as high as 100%. These results indicate that people can report being surprised when they judge that an objective observer would find an event likely and can report not being surprised when they judge that an objective observer would find an event unlikely. For example, being admitted to a particular college may be a surprising event to a high school senior, though he or she may later judge that the objective probability was in fact high.

Similar to the discrepancy between likelihood and surprise, the histograms of consequentiality and general importance appear to be different. While consequentiality has a relatively flat histogram, general importance does not. There is other evidence that the two scales seem to be measuring related but somewhat different concepts. The correlation between the two scales over all 174 events is 0.44. With the exception of the first two scale values (which together contain only 11 of the 174 observations), each of the seven rating scale values for general importance contains events with consequentiality ratings as low as 1 and as high as 6.

The last histogram, that of the age of memories, shows more memories of shorter than longer duration. This histogram, however, drops off with time at a much shallower rate than similar histograms which were formed when people were asked to list autobiographical memories of any kind they chose (e.g., Crovitz and Schiffman, 1974; Rubin, 1982). For instance, when people were asked to list 50 autobiographical memories without being given any cues or restrictions, the median age of those memories was two-thirds of a year (Rubin, 1982). In the present study the median age is 6.0 years, and only 9% of the memories are below the two-thirds of a year median obtained for the general memories for the same subject population. If it is assumed that people store normal autobiographical and vivid memories at constant rates throughout their lives, the histograms of the age of memories can be viewed as retention functions. The difference in the histograms would then imply that the vivid memories have a much shallower retention function, that is, that older vivid memories have a higher relative frequency of recall than older autobiographical memories in general. Such a finding would be expected if vivid memories were rehearsed more often, involved more vivid imagery, or were more important or consequential and therefore more central in a network of autobiographical memories. While the vivid memories tend to be older than autobiographical memories in general, they are not as old as most of the flashbulb memories obtained by cueing with nationally important events. This difference, which is an artifact of the particular event cues used,

Table 1. Responses to cues used in the last section of the questionnaire.

Cues	One of the first three	Rated as flashbulb <sup>1</sup>	
		Yes	No
President Reagan was shot in Washington	2	28	28
Your first class at Duke	0	12	46
The moment you opened your SAT scores	0	19	39
Your first date—the moment you met him/her	1	32	23
You heard that President Sadat of Egypt was shot	0	12	44
The first time your parents left you alone for some time	0	10	43
An early romantic experience	2	44	11
The night of your high school graduation	2	47	9
A car accident you were in or witnessed	7	32	7
When you got your admissions letter from Duke	2	36	20
Your seventeenth birthday	0	17	40
When you heard that the Pope had been shot	0	12	45
The first time you flew in an airplane	1	20	32
The last time you ate a holiday dinner at home	0	13	43
The night President Nixon resigned	1	22	33
The night of your Senior Prom (if you went or not)	1	44	13
The day of the first Space Shuttle flight	0	13	40
When you first met your roommate at Duke	4	43	10
A time you had to speak in front of an audience	4	37	16
Your thirteenth birthday	0	7	49

<sup>1</sup>These values do not include responses listed under the 'One of the first three' column and do not include 'Not applicable' responses made by subjects who had no memory for the cue. Including 'Not applicable' responses, each row sums to 58.

does not appear to be responsible for the differences in results obtained. Correlations among the age of the memories and the other variables measured here are small ( $-0.20 < r < 0.11$ ), except for vividness ( $r = -0.31$ ).

Table 1 lists the actual 20 phrases used to cue autobiographical memories in the order they were given in the last section of the questionnaire. The number of subjects reporting 'flashbulb' memories for each cue is also given. Examining Table 1 provides a good qualitative view of the type of events that lead to vivid memories in undergraduates. More than half of the subjects had vivid memories cued by events such as the night of their high school graduation, receiving their admission letter to college, and meeting their college roommate for the first time.

For each subject, for each of the five questions asked in this section, the average rating for both the events that cued vivid memories and the events

**Table 2.** *Mean ratings on five scales for recalls rated as flashback and rated as non-flashbulb memories.*

	Consequentiality	Surprise	Emotional change	Rehearsal	Likelihood
Rated as flashbulbs	3.54	3.69	4.07	3.76 <sup>1</sup>	67.89%
Rated as non-flashbulbs	2.34	2.63	2.65	2.58 <sup>1</sup>	70.67%
<i>t</i> -test	8.39 <sup>2</sup>	6.97 <sup>2</sup>	10.86 <sup>2</sup>	9.41 <sup>2</sup>	0.26

<sup>1</sup>These seven point rating scale values correspond to approximately 5.1 and 2.2 rehearsals, respectively.

<sup>2</sup>d.f. = 57,  $p < 0.001$ .

that did not were computed. The means of these values are presented in Table 2. The consequentiality, surprise, emotional change and rehearsal scales all had higher ratings for vivid memories. This is not due to the particular cues that tended to produce or not produce vivid memories. All of the 20 events listed in Table 2 had numerically higher mean consequentiality, surprise, emotional change, and number of rehearsal ratings for vivid memories. Thus, vivid memories do tend to be accompanied by higher levels of consequentiality, surprise, emotional change, and rehearsal than do non-vivid memories cued by the same brief event descriptions, a finding which is in agreement with previous claims about flashback memories. As in the first part of the questionnaire, surprise and likelihood produced different results. The subjects judged the events that cued vivid memories in them to be just as likely to occur as the events that did not. This is a reasonable finding as the nominal descriptions of the events were the same whether they produced a vivid memory or not.

## Discussion

With the exclusion of this paper, the study of vivid and flashback memories has been limited mainly to public events, usually assassinations (Brown and Kulik, 1977; Colegrove, 1899; Neisser, 1982; Winograd and Killinger, 1983; Yarmey and Bull, 1978). When our subjects were asked to list 'flashbulb' memories but were not cued by surprising, consequential, and nationally important events, they listed a much wider range of events than psychologists had previously studied. Very few of our subjects' vivid memories overlapped with the public events category studied previously by psychologists. The results from this broader data base provide a different, more representative view of vivid memories in general.

On a variety of variables such as rated surprise, likelihood, consequentiality, change in emotions, and rehearsals, vivid memories span the possible range of values in a fairly uniform manner. Such results indicate that existing theories, devised to account for the more limited data base of flashbulb memories, are not adequate for vivid autobiographical memories in general. The only predictor variables that have a relatively consistent high rating are reported personal and therefore general importance at the time of the event. Nonetheless, vivid memories appear to be more consequential, surprising, and rehearsed, and lead to greater emotional change than non-vivid memories; therefore, the variables previously held to be necessary do seem to be contributing factors. Similarly, the earlier published theories devised to account for flashbulb memories are of some value. The 'Now Print' hypothesis based on surprise and consequentiality cannot account for the vivid memories obtained here, but a modified version based only on importance at the time of the event could be of use. The benchmark theory in which people tie their histories to history (Neisser, 1982) is of limited value with the vivid memories collected here, but a personal and/or local history benchmark theory could work and even has some support (Lieury *et al.*, 1980).

We can now return to the question of the theoretical relation between flashbulb memories and vivid memories. Parsimony argues that unless there exist some properties of flashbulb memories that are different from vivid memories, the two categories should not be kept separate. The only different properties, according to Brown and Kulik's definition and the data collected here, are consequentiality and surprise. These two properties, however, may not be sufficient to warrant a separate category; they were included by definition and have yet to receive support outside the definition itself. Moreover, criticisms have been leveled at both of these properties by researchers working within Brown and Kulik's general conception of a flashbulb memory. Neisser (1982) and Winograd and Killinger (1983) claim that events like man's first landing on the moon or President Nixon's resignation caused flashbulb-like memories without being surprising. Similarly, Neisser criticizes consequentiality because it cannot always be determined at the time of an event, when flashbulb memories are supposed to be formed. While these criticisms can be defined away by claiming that flashbulb memories occur only to surprising and consequential events, these arguments against surprise and consequentiality help to weaken the claim for a separate theoretical category for flashbulb memories. The boundary between vivid memories and flashbulb memories could be made relatively clear and easy to defend on purely intuitive grounds if a vivid memory of giving a prepared speech in high school is being contrasted with a flashbulb memory of hearing about President

Kennedy's assassination. However, if vivid memories of man's first landing on the moon are included (removing the surprise property) or excluded (leaving intuitively similar event cues on both sides of the boundary), the distinction between vivid memory and flashbulb memory becomes harder to maintain. What is needed to maintain it, and the special type of report called a flashbulb memory, are some non-definitional distinctions.

At an even more general level, the data collected here and elsewhere offer little support to the claim that either vivid or flashbulb memories exist as a qualitatively separate form of autobiographical memory. The brief probing done in the last section of the questionnaire is the only comparison we know of between vivid and non-vivid or between flashbulb and non-flashbulb memories. Thus, the question of whether vivid or flashbulb memories are a separate category of autobiographical memory has hardly been considered empirically. The simplest plan would be to note that almost all autobiographical memories are of flashbulb clarity immediately after they occur and that some memories appear to fade in clarity and lose details to a lesser degree than others. If vivid and flashbulb memories were nothing more than the autobiographical memories that contain the most and clearest details then normal verbal learning mechanisms such as spaced practice (i.e., rehearsal), imagery (i.e., vivid pictorial representations), numerous links to other memories in a network or space (i.e., importance and consequentiality) and novelty or distinctiveness (i.e., surprise) might be enough to explain their existence. The only evidence that argues that vivid memories are not just the clearest, most detailed, most vivid autobiographical memories that people have is the consistently high importance ratings given to them. Importance, however, may be nothing more than a measure of the motivation that insured that the memory would be maintained by spaced practice in the first place.

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### Résumé

Les trois souvenirs autobiographiques les plus saillants de 58 étudiants ont été enregistrés et des questions ont été posées à leur sujet. On a constaté que ces 147 souvenirs présentaient tous une grande importance au point de vue personnel et peu d'importance au point de vue national. En opposition avec les données sur les souvenirs en photo-flash, liés aux événements d'importance nationale qui ont été inattendus et lourds de conséquences, les souvenirs personnels se répartissaient de façon relativement uniforme sur l'échelle de l'inattendu et des conséquences. Les sujets ont également répondu à des questions portant sur les souvenirs liés à 20 événements. Les souvenirs les plus clairs étaient la surprise le poids des conséquences et l'émotion montrant bien que ces facteurs sont associés à la vivacité des souvenirs quoique celle-ci n'est pas nécessairement fondée sur eux.