

AN INITIAL INVESTIGATION OF THE PSYCHEDELIC DRUG FLASHBACK PHENOMENA¹

ROBERT E. MATEFY² AND ROGER G. KRALL

University of Bridgeport

Many users of psychedelic drugs, especially LSD, report recurrences of the drug effects long after taking the drug. This study provides an initial investigation of some of the characteristics of those persons experiencing such "flashbacks," and provides systematic descriptions of the flashback phenomena. Among the major findings were that the drug user experiencing flashbacks when compared with the drug user not experiencing flashbacks showed no significant differences in psychopathological characteristics as measured by the Minnesota Multiphasic Personality Inventory nor significant differences in attentional processes as measured by the Embedded Figures Test. There were few biographical differences between the two subject groups. Subjective reports by the flashback subjects offered some revealing details of the flashback experience itself.

The flashback has emerged as one important aftereffect to the use of psychedelic drugs, especially LSD. It is defined as the recurrence of cognitive, affective, motor, and somatic sensations that were previously experienced during the drug trip. These flashbacks can be either pleasant or anxiety producing, and can reappear weeks, months, or over a year after the last ingestion of the drug (Smart & Bateman, 1967). As prolonged psychedelic drug usage, and hence recurrences of drug experiences, become more common, increasing attention is being focused on the flashback phenomenon in the psychological and medical literature. Smart and Bateman (1967) for example, reviewed case reports up to June 1967. More recently, Horowitz (1969) presented several case reports, and Matefy (1973) described the experience of a person who was successfully treated by a broad-spectrum behavior therapeutic approach.

Assessing the frequency of the flashback phenomenon is difficult because of its subjective nature and because it is such a complex phenomena. Reports indicate that psychedelic drug recurrences are relatively common. Mental health professionals have reported that the incidence of adverse LSD reactions, in-

cluding flashbacks, throughout the country has mushroomed since 1965 (Ungerleider, Fisher, Goldsmith, Fuller, & Forgy, 1968). Statistics indicate that between 1 in 4 (Robbins, Frosch, & Stein, 1967) and 1 in 20 (Horowitz, 1969) LSD users experience flashbacks at one time or another.

Clinical descriptions of the flashback experience typically cite frightening delusions and hallucinations, depersonalization, and perceptual distortions reappearing long after the last ingestion of the drug, and often after an interval of relative "normalcy" (Smart & Bateman, 1967). Those individuals who experience flashbacks as adverse reactions mention such precipitating conditions as physical fatigue, stress, and anxiety, or ingestion of another drug such as marijuana or a barbiturate. Unfortunately, most such descriptions of the phenomena are obtained from psychiatric populations and thus are negatively tainted. However, not all flashback experiences are unpleasant (Smart & Bateman, 1967; Ungerleider et al., 1968). Many psychedelic drug users experience flashbacks that are enjoyable, emotionally neutral, or at least not unpleasant enough to warrant seeking professional help.

To the present time, little systematic information has been gathered with regard to the flashback phenomenon and those psychedelic drug users experiencing flashbacks. This study has two aims: first, to investigate some

¹ This is an expanded version of a paper presented at the meeting of the Eastern Psychological Association, Washington, D.C., May 1973.

² Requests for reprints should be sent to Robert E. Matefy, Department of Psychology, University of Bridgeport, Bridgeport, Connecticut 06602.

theoretically and practically relevant psychopathological and psychological characteristics of persons experiencing flashbacks in comparison to drug users not experiencing flashbacks; and second, to systematically gather phenomenological descriptions of the flashback experience by presenting to flashbackers a series of questions asking for details of their flashbacks.

Several theoretical formulations have been proposed to account for the flashback phenomena. The empirical validity of two are tested here. Latent psychotic theory, suggested by Robbins et al. (1967), implies that persons experiencing flashback effects were predisposed to psychopathology in the first place, and that heavy drug usage simply precipitated decompensation. Flashbacks represent a partial activation of latent psychosis. If this is true, then those drug users experiencing flashbacks should evidence more symptoms indicative of psychopathology on the Minnesota Multiphasic Personality Inventory (MMPI) than drug users not experiencing flashbacks.

The attentional deficit theory (Keeler, Reifer, & Liptzen, 1968) postulates that during the drug experience a person becomes consciously aware of visual or kinesthetic experiences. Heightened awareness may occur because the drug disorganizes those systems responsible for processing sensory input, or because the mechanisms responsible for modulation of attention are impaired. Once a sensation has been noted, it is not quite so easy to ignore lesser degrees of the same event. If this assumption is true, then flashbackers have experienced some impairment of attentional mechanisms, and would have greater difficulty than nonflashbackers inhibiting interfering perceptual images or in discriminating objects from interfering perceptual stimuli. The Embedded Figures Test (EFT) (Witkin, Oltman, Roskin, & Karp, 1971) was used to ascertain whether attentional differences distinguish between flashbackers and nonflashbackers. A related theoretical construction of performance on the EFT focuses on perceptual styles. Because of their increased sensitivity to internal and external cues, flashbackers should show a greater tend-

ency to use a "field-dependent" perceptual style than nonflashback drug users.

Psychodynamic theory proposes that flashbacks resemble other clinical phenomena such as preceptive ideation, obsessive rumination, and repetitive pseudohallucinations (as in hysterical psychosis). Like related phenomena, the experience is felt as a loss of volitional control over the contents of awareness, and this sensation of loss of control contributes greatly to the attendant anxiety or loss of reality sense. As in other symptoms, the contents seem to be returns of traumatic perceptions, breakthroughs of repressed ideas or affects, or symbolic forms of concealed emotional conflicts (Horowitz, 1969).

Physiological theory proposes that flashbacks may be related to toxic effects of psychedelics on many levels of the visual, auditory, tactile, and olfactory systems, causing transient electrophysiological changes that produce recurrences of hallucinosis. With continued and repeated use of the drug, some of these effects may have become permanent or semipermanent and long outlast the effects of the individual dose (Rosenthal, 1964).

Biochemical release theory, similar to physiological theory, presupposes a persistent biochemical effect of the drug. The psychedelic drug itself or some of its effects may persist or build up over repeated administration sufficiently to cause a periodic release of these effects, especially under stress, as suggested by the relationship between frequent ingestion of LSD and recurrent experiences (Smart & Bateman, 1967).

According to a role-learning theoretical viewpoint formulated by Matefy (1973), a person becomes familiar with the somatic and psychological effects of psychedelic drugs through his previous experience with them. He learns how to simulate a "drug high" and consciously or unconsciously enacts the role of a drugged person. In a similar fashion, some people are able to simulate previously learned or imagined hypnotic behavior and produce the effects without being in a hypnotic trance (Barber, 1970). There are many reasons for simulating a drug high, including avoiding unpleasant situations by becoming "sick," enjoying the attention-getting prop-

erties of the flashback, or simply because the "highs" are at times pleasant experiences. Also, behaviors congruent with the drug high (i.e., recurrences of psychedelic drug effects) may be conditioned to stimuli associated with the original drug experiences.

Mystical theory proposes that the mind has imprinted upon it memories of all ages past, and possibly projections of the future. The psychedelic experience releases these prehistoric and archetypic perceptions into awareness. Once the images have learned the route to awareness, they press for remembrance (Horowitz, 1969). This viewpoint would seem to be an adaptation of Jungian theory.

The diversity of theoretical speculation suggests that the periodic reappearance of psychedelic drug reactions is a complex phenomenon involving an interplay of physiological, personality, psychological (attitude, set, cognitive processes), and social factors. This study is an initial effort directed toward an empirical understanding of this phenomenon.

In summary, the following hypotheses were tested.

1. The latent psychotic theory (Robbins et al., 1967): If flashbacks represent symptoms of psychotic decompensation, then the flashback group should show greater predisposition to psychopathology than nonflashback drug users.

2. The attentional deficit theory (Keeler et al., 1968): If flashbacks are reflections of attentional impairment, then those subjects experiencing flashbacks should show poorer attentional skills than nonflashback drug users.

METHOD

Subjects

Paid participants were solicited through ads in the campus newspaper. Two groups of 22 college students took part: those psychedelic drug users experiencing recurrences and those drug users not experiencing the flashbacks.

Procedure

Each subject was involved in three sessions totaling about five hours of participation: (a) the structured personal interview, (b) individual MMPI administration, and (c) the EFT. All three sessions were conducted by Krall, who was a well-known

and trusted graduate student at the University of Bridgeport campus.

Instruments

Structured personal interview. This is a series of questions that was individually administered. The subjects were able to elaborate, qualify, or digress to clarify their responses. All subjects were cooperative, and most seemed to enjoy sharing their experiences.

Subjects were asked major demographic questions such as religious background, parental occupation and education, college major, hobbies, and interests. Another set of questions tapped duration and intensity of past drug involvement, typical psychedelic experiences, motives for initial drug use, and possible mental health treatment. Those having flashbacks were asked to describe in their own words the flashback experience, frequency of the events, and whether or not the recurrences were pleasant. They were also asked to discuss the conditions under which flashbacks typically occur—if they were aware of the flashback's "unreal" nature and if they had voluntary control over the experience. Finally, each flashbacker was asked his own personal theory about his flashbacks—the reasons why he personally thinks he experienced them.

MMPI (Form F). This is the first 399 items of Form R of the MMPI. This short form contains the pertinent clinical and validity items and provides for all 10 clinical scales. Items 400–566 contain statements pertaining to research for new scale development and repetition of items in the short form. Using the short form, prorated raw scores are obtained that are converted to *T* scores (Hathaway & McKinley, 1951). Each test was individually self-administered with the experimenter in the next room to offer assistance.

EFT. This task assesses ability to inhibit interfering perceptual images or ability to discriminate objects from interfering perceptual stimuli. The subject must trace the figure that is embedded in a network of structures. The longer it takes to perform the test, presumably the less ability the subject had to achieve the appropriate discriminations. It is further assumed that poorer performance scores reflect a "field-dependent" perceptual style.

RESULTS

The latent psychotic theory hypothesizes that flashbacks are symptomatic of severe psychopathological tendencies that are triggered by prolonged drug use. *t*-test statistical comparisons of MMPI scores are summarized in Table 1. The results indicate that the flashback subjects, in comparison to the non-flashback psychedelic drug users, did not have more clinical scale *T* scores above 70 ($t = 1.03$, $df = 42$, *ns*) or above 60 ($t = 1.36$, $df = 42$, *ns*). In addition, their total *T* scores

TABLE 1
DIFFERENTIAL PERFORMANCE ON THE MMPI

Variable	Flashback sample		Nonflashback sample		<i>t</i> ratio
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Clinical <i>T</i> scores above 60	5.9	3.0	4.8	2.4	1.36
Clinical <i>T</i> scores above 70	2.4	2.1	1.8	1.9	1.03
Sum of clinical <i>T</i> scores	603.7	65.0	593.0	72.3	.51
Scale					
<i>L</i>	47.2	5.3	48.6	7.1	.64
<i>F</i>	62.3	9.7	58.4	8.8	1.20
<i>K</i>	50.5	7.8	52.7	8.0	.74
<i>His</i>	53.8	8.1	53.2	10.5	.20
<i>D</i>	60.5	10.0	58.8	10.4	.54
<i>Hy</i>	63.1	12.1	58.5	8.7	1.44
<i>Pd</i>	66.4	15.5	63.2	10.7	.63
<i>Mf</i>	52.1	16.4	53.1	14.4	.18
<i>Pa</i>	60.7	8.5	56.2	9.0	1.72*
<i>Pt</i>	61.0	10.9	60.1	10.3	.25
<i>Sc</i>	64.2	11.9	63.3	10.3	.23
<i>Ma</i>	67.7	9.3	64.8	9.9	.97
<i>Si</i>	53.8	9.6	55.8	6.9	.61

Note. *n* = 22 in both samples.
* *p* < .05, one-tailed.

were not significantly greater ($t = .51$, $df = 42$, *ns*). These results suggest that the flashbackers did not report more behaviors and attitudes indicative of general psychopathology than did drug users not experiencing flashbacks. An inspection of individual clinical scale scores indicates that flashbackers showed a tendency toward a higher *T* score on only one scale, the Paranoid (*Pa*) scale ($t = 1.72$, $df = 42$, $p < .05$, one-tailed), suggesting that they may be suspicious, feel persecuted, and tend to be overly sensitive to a greater extent than nonflashbackers. There were no significant differences on any validity scale.

The *attentional deficit theory* hypothesizes that repeated drug usage causes neurophysiological changes that are reflected in heightened sensitivity to visual and kinesthetic sensations, greater attendance to these sensations, and thus, flashbacks. The data are summarized in Table 2. If in fact there are attentional deficits, it was not reflected in differential performance on the EFT ($t = .69$, *ns*). Those psychedelic drug users who experience flashbacks did not show a greater

deficit in perceptual discriminations or greater inability in inhibiting irrelevant imagery than did those drug users without flashback experiences. These results also suggest no differences in perceptual style on the field-dependent versus field-independent dimension.

Interview data were gathered by the structured personal interview for exploratory purposes. We were curious to see if flashbackers, when compared with nonflashbackers, showed differences along several biographical dimensions. Father's occupation proved significantly different ($\chi^2 = 10.78$, $df = 4$, $p < .05$), with more flashback subjects' fathers in professional ranks and nonflashback subjects' fathers in managerial and labor ranks. The second statistical difference was the last time the subject took drugs ($\chi^2 = 4.94$, $df = 1$, $p < .05$); more nonflashbackers than flashbackers took LSD or related drugs less than six months ago. Finally, more drug users exhibiting flashbacks felt that their drug experiences had increased their "awareness" and "expanded their consciousness" ($\chi^2 = 5.53$, $df = 1$, $p < .02$). There were no significant differences in age, religious practices, hobbies and interests, college major, education, drug-taking history, motives for initial involvement, extent of involvement, typical psychedelic experience, or history of professional help for mental health problems.

Those subjects who said they had been experiencing flashbacks were asked a series of additional questions about their unique experiences. The responses were presented as percentages in Table 3. Among the more interesting findings, 62% experienced the flashback on the average of less than once a week and 24% 2-3 times weekly; 78% of

TABLE 2
DIFFERENTIAL PERFORMANCE ON THE EMBEDDED FIGURES TEST

Variable	Flashback sample		Nonflashback sample	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Reaction time (in seconds)	487.6	2.52	490.4	3.19

Note. *T* = .03, *ns*. *n* = 22 in both samples.

TABLE 3
SOME CHARACTERISTICS OF RECURRENCES OF
PSYCHEDELIC DRUG EFFECTS

Question	%
1. How often do you experience flashbacks?	
Daily	14
Few times weekly	24
Weekly	0
Less than once monthly	62
2. Primary drug producing flashback effect?	
LSD	78
Mescaline	10
Hashish	5
Nondrug	5
Combination	5
3. How long after stopping drug intake did you experience a flashback?	
Within 2-3 days	45
Week	18
Month	10
Beyond month	10
Six months or more	10
Don't know	10
4. Specific flashback effect?	
Hallucinations	29
Depersonalization	10
Anxiety or tension	17
Depression	19
Paranoia	26
5. Pinpoint feelings before experiencing a flashback?	
Anxiety and stress	28
Hypnosis	5
Depression	0
Avoid unpleasantness	5
Deep thought	5
Boredom	5
Don't know	55
6. Are flashbacks pleasant or unpleasant?	
Always pleasant	10
Usually pleasant	25
Half and half	20
Usually unpleasant	30
Always unpleasant	15
7. Are they predictable?	
Yes	27
No	73
8. Do you have any control over them?	
Yes	37
No	63
9. Your own personal theory about flashbacks—why do they occur?	
Unconscious material	23
Release stored drug	5
Brain defect	27
Guilt	10
Learning or conditioning	10
Recall past drug experience	18
Own volition	10

Note. $n = 22$.

the subjects felt that LSD exclusively was the drug producing the flashback effects; 45% experienced the effect within a few days after ingesting the drug, another, 18% within a week. In terms of specific flashback effects, hallucinations were experienced most frequently, followed by paranoid feelings, depression, anxiety, and depersonalization, in that order. Most subjects (55%) could not pinpoint any one feeling triggering off the flashback, although 28% mentioned stress or anxiety. Thirty-five percent said the flashbacks were usually or always unpleasant. Twenty-seven percent claimed they could somehow predict when a flashback would occur, and 37% felt they could achieve control over the flashbacks. Finally, when asked for their own personal theory about flashbacks, 27% believed they were due to some sort of brain defect, 23% felt they were caused by the release of unconscious material, and 18% felt they had something to do with cues recalling an earlier trip.

We thought it would be interesting to investigate any possible relationship between degree of psychopathology and the "pleasantness" or "unpleasantness" of one's flashbacks. A post hoc analysis was done on MMPI scores comparing those flashback subjects usually experiencing *pleasant* flashbacks versus those subjects usually having *unpleasant* flashbacks. No difference was found on the overall clinical scores between the two subject groups ($t = .58$, ns). We also explored the relationship between number of drug trips taken and how pleasant flashbacks tended to be. Here again no differences were found ($t = .56$, ns). Another concern was a possible relationship between frequency of experiencing flashbacks and degree of psychopathology. A post hoc statistical comparison between those subjects *frequently* experiencing flashbacks versus those *infrequently* experiencing flashbacks revealed no significant differences in overall clinical scores ($t = .91$, ns).

DISCUSSION AND CONCLUSION

It is always tempting to explain psychological phenomena we do not understand as somehow a manifestation of "mental illness"

or of some psychological deficit. Those who wish to explain the flashback phenomena as psychopathological manifestations or as attentional deficits have not received substantial empirical support from this study.

The finding that flashbackers may tend more toward paranoia than nonflashbackers may have some support in Bottrill's (1969) work. Bottrill investigated possible personality differences between LSD takers and non-takers. He found that shortly after ingesting LSD, drug takers scored significantly higher on MMPI scales indicating hypochondriasis and paranoia. These changes were not long term, however.

There is evidence other than Bottrill's (1969) to suggest that LSD users in general score differently on the MMPI than controls. Smart and Jones (1970) found that a group of LSD users exhibited significantly higher mean *T* scores than non-drug-using controls on four MMPI clinical scales: *Pd*, *Ma*, *Sc*, and *Hy*. It is difficult to say if such clinical elevations are a cause of LSD use or another unfortunate product of drug use. Studies to find relevant pre-drug-use personality traits are often disappointing. However, if LSD users in general do differ on some psychopathological dimensions when compared to nonusers, it is not relevant to this research. We were concerned here with psychopathological differences between psychedelic drug users *experiencing flashbacks* versus those users *not experiencing the effects*.

Very few biographical factors studied differentiated psychedelic drug users experiencing flashbacks from those not experiencing them. These were paternal occupation, the last time a psychedelic drug was taken, and the degree to which the drug experience is felt to increase one's awareness. This last finding suggests that flashbackers were apparently experiencing several things through drugs unavailable to the nonflashbacker. Given the large number of chi-square analyses, some of these differences may be due to chance factors.

Details of the flashback experience itself produced some interesting findings. Anxiety or stress was mentioned as the main precipitating condition, which supports current

thinking. The fact that 35% of the subjects said flashbacks were pleasant compared with 45% saying they were not may surprise many clinicians who heretofore saw flashbacks basically as an adverse reaction to psychedelic drugs. For many, flashbacks were viewed as "free trips" or favorable reactions and not as symptoms requiring treatment. Twenty-seven percent to 35% felt they could somehow predict or control flashbacks, which suggests that this behavior was not totally outside the realm of personal manipulation.

In conducting this study, we had an opportunity to become well acquainted with persons having flashbacks. We would like to share with the reader several subjective impressions that emerge from this interaction. Most people who had flashbacks felt that what they experienced during flashbacks was "in the mind" all along. They felt that these thoughts, images, and sensations were in everyone's minds, but that somehow LSD or another psychedelic drug releases them during trips and intermittently afterwards during flashbacks.

These subjects more or less accepted their flashbacks. Those who found them usually unpleasant tolerated the discomfort like others adapt to the inconvenience of wearing glasses or the fear of talking in front of an audience. Flashbackers were not necessarily depressed or joyous about their experiences; they accepted their fate as an inevitable consequence of their life style. At times, however, they felt strange or frightened when realizing that they knew more or could feel more than others. Finally, quite a few expected to take some form of psychedelics on and off for most of their lives and would accept the inevitable flashbacks.

Testing did not reveal significant differences in psychopathological behavior. However, many flashbackers, especially those experiencing *unpleasant* flashbacks, felt that they were "screwed up." They simply had no other way to explain what was happening to them. Yet, they preferred living with this feeling rather than seeking help. Most did not feel professionals could solve their problem.

The flashback experience is a complex and often misunderstood phenomena. We must

not be tempted to fall back on notions denoting shortcomings in personality or deficits in psychological functioning when other concepts are not readily available. Those who wish to explain flashbacks as manifestations of psychopathological or attentional malfunctioning did not receive empirical support from this study. Research presently being conducted in our laboratory seeks to repeat the results of this study. Perhaps then we can begin looking for other theoretical explanations of this unusual and perplexing experience.

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(Received May 20, 1974)