Mug Books and Mugshot Exposure

This paper explains what mug books are, how they differ from lineups, and what research reveals about the risk that viewing mug shots will distort a later identification. The central concern is straightforward to state: when a witness sees a face in a mug book and then sees the same face again in a lineup, the earlier viewing — not the witness's memory of the crime — may drive the second identification. Decades of experiments have separated the several mechanisms that can produce this effect, and the findings are more nuanced than the familiar one-line warning suggests. This overview is offered to help the trier of fact understand both the genuine dangers and their limits, and the procedural safeguards that contain them.

What a Mug Book Is, and How It Differs From a Lineup

On the surface, mug books and lineups (the term lineup is used here to cover both live lineups and photographic arrays, or photospreads) appear similar: in both, an eyewitness examines photographs of faces and tries to identify a perpetrator. Because of that surface similarity, research on mug books has been comparatively limited, and mug books are sometimes treated as nothing more than very large photospreads (McAllister, 2007). The procedures differ in a way that matters.

A lineup is used when the police already have a suspect. The lineup contains that one suspect together with a number of fillers — known-innocent people included to test whether the witness is genuinely recognizing the suspect rather than guessing. Most lineups contain only about six members, and the fillers exist to protect an innocent suspect from being singled out. A mug book search is the opposite situation: the police have no suspect. The witness looks through mug shots — sometimes hundreds or thousands of them — in the hope that the perpetrator was photographed during a prior arrest and will be recognized. The mug book is an investigative tool for generating a suspect, not a test of one (Lindsay, Nosworthy, Martin, & Martynuck, 1994; McAllister, 2007).

That difference in purpose has a practical consequence. Because a mug book search comes first, a witness who later views a lineup arrives having already studied many faces. The question that has occupied researchers is whether that prior exposure contaminates the later identification, and if so, how.

Exposure Without Overlap: Limited Danger

The simplest case is one in which the mug book and the later lineup share no faces in common — the witness looks through mug shots, none of whom is the perpetrator, and is later shown a lineup containing no one from the mug book. One might worry that the sheer act of studying many faces would interfere with the witness's original memory of the offender (a "retroactive interference" hypothesis). The experiments that have directly tested this do not bear the worry out. Across the studies addressing it, viewing an unrelated set of mug shots produced no increased danger to an innocent suspect, and only one study found any reduced ability to identify the guilty suspect (McAllister, 2007). No study supported the interference hypothesis. At most, viewing a mug book appears to make witnesses adopt a somewhat more cautious, stringent standard before they are willing to identify anyone in the later lineup.

This is consistent with the largest quantitative review of the field. Deffenbacher, Bornstein, and Penrod (2006) combined 32 independent tests in two meta-analyses and found that simple retroactive interference — where the perpetrator is absent from the mug book and no one from the mug book appears in the later lineup — did not significantly impair correct identification of the perpetrator. The dangers of mug book exposure, in other words, are not generalized memory damage. They are specific, and they arise from overlap.

Overlap: Commitment and Familiarity

The real concern arises when the same face appears in both the mug book and the lineup. Two distinct mechanisms can cause a witness to identify that face the second time for reasons unrelated to the crime: commitment and familiarity.

Commitment refers to the pull of a prior choice. When a witness has already picked a particular face out of a mug book, that witness is more likely to pick the same face again from a later lineup — in part to remain consistent with the earlier decision. Familiarity is different and does not require any prior choice: simply having seen a face in the mug book can make it feel recognizable later, and the witness may misattribute that feeling of familiarity to the crime rather than to the mug book. This last error is closely related to unconscious transference, in which a person encountered in one innocent context is mistakenly identified as the offender from another.

On the favorable side of the ledger, overlap involving the actual perpetrator does not appear to hurt. In both Brown, Deffenbacher, and Sturgill (1977) and Lindsay et al. (1994), witnesses who had seen the perpetrator in the mug book were more likely to select him from the lineup than witnesses who saw him only in the lineup — an effect attributable to increased familiarity or to commitment, but in either case not a harm to accurate identification.

The danger runs the other way. When an innocent person who was viewed in the mug book reappears in the lineup, that person is at elevated risk of being identified as the perpetrator. The evidence for the commitment mechanism is strong and consistent: every study to examine it found that selecting an innocent person from a mug book increased the likelihood that the witness would identify that same person again in a later lineup (McAllister, 2007). Gorenstein and Ellsworth (1980) demonstrated this directly — witnesses who had picked an incorrect photograph were drawn back to that wrong choice days later — and Brigham and Cairns (1988) found that witnesses who had committed to a mug shot showed significantly fewer correct identifications of the real perpetrator afterward, because some remained loyal to their original, mistaken pick. Dysart, Lindsay, Hammond, and Dupuis (2001), using a live staged-crime procedure, likewise found that a "commitment" group made significantly more false identifications than control or transference groups.

Familiarity is the more contested mechanism. Brown et al. (1977) read their data as evidence of a familiarity effect, but did not separate familiarity from commitment. Memon, Hope, Bartlett, and Bull (2002) found support for familiarity, but chiefly among witnesses who had actually made a choice during the mug book task. By contrast, Dysart et al. (2001) found a clear commitment effect and no evidence of familiarity at all. A likely explanation for the conflicting results is procedural: the studies that found familiarity effects used very small mug books (fifteen photos or fewer), while Dysart et al. (2001) — the lone study to use large mug books, up to 600 photos — found none. Whether mug book size is the decisive variable remains to be settled, but the practical implication is reassuring: with realistically large mug books, mere exposure without a choice appears to pose little danger.

Goodsell, Neuschatz, and Gronlund (2009) sharpened the same conclusion. Examining mug shot commitment in both younger and older adults, they argued that most errors flowing from a prior identification procedure are best explained by commitment rather than by source confusion: choosers tend to re-select their earlier pick and to reject a lineup that does not contain it — even when the true culprit is present — while non-choosers tend to reject the later lineup as well. Like the researchers before them, they concluded that although mug book viewing is a legitimate way to develop a suspect, a witness who has been through that process should not afterward be asked to make further identifications for the purpose of building a case.

Why the Effect Is Largely Controllable

The most important practical point is that the principal danger — commitment to an innocent face — is a product of procedure and can be controlled by procedure. The recurring advice from this literature is that a witness who identifies someone during a mug book search should not then be asked to identify that same person in a lineup. A second identification of a person the witness already chose adds little: it is largely foreordained by the first choice and tells the investigator almost nothing new about whether the original pick was correct. The only genuinely informative outcome would be a failure to identify (McAllister, 2007; Goodsell et al., 2009).

It follows that when the suspect being tested in a lineup did not appear in the mug book, the lineup should not include the photograph of anyone the witness saw in the mug book. Doing so converts a risky overlap situation back into the no-overlap case, where the research shows little effect on accuracy. These are concrete, administrable safeguards, and their availability is the reason the field's overall assessment is cautious rather than alarmed: mug book exposure is a real source of error, but its most potent form is one that good practice can prevent.

A Related Source of Contamination: Other Witnesses

Mug shot identifications rarely occur in isolation, and a witness's decision can be shaped by influences beyond the photographs themselves. One such influence is the behavior of a co-witness. Douglass, Smith, and Fraser-Thill (in Douglass et al., 2020) found across three experiments that the speed of another witness's identification altered participants' own choices from target-absent photospreads: witnesses paired with a fast-deciding co-witness made more identifications — including more mistaken ones — than those paired with a slow-deciding co-witness, whether the co-witness had identified someone, rejected the array, or given an ambiguous response. The finding is a reminder that the conditions surrounding a mug shot or photospread procedure, and not only its contents, can affect what a witness reports. It also points toward a safeguard the authors suggest: standardizing the duration of identification procedures so that incidental cues like decision speed do not leak from one witness to another.

Mug Books, Mugshot Exposure, and the Law

The law has long recognized that a pretrial photographic identification can taint the identification a witness later offers in court. The foundational decision is Simmons v. United States (1968), in which the Supreme Court addressed the dangers of identification by photograph and held that a conviction based on eyewitness identification at trial following a pretrial photographic identification will be set aside only if the photographic procedure was "so impermissibly suggestive as to give rise to a very substantial likelihood of irreparable misidentification." The Court declined to forbid photographic identification, recognizing its investigative value, and instead directed courts to evaluate each case on its own facts under the totality of the circumstances — the same case-by-case, suggestiveness-focused framework later elaborated in Neil v. Biggers (1972) and Manson v. Brathwaite (1977).

That constitutional framework targets suggestiveness arranged by the State. The mug book research describes a partly different problem: contamination that arises from the structure of the identification process itself — a witness committing to a face and then being shown that face again — even when no officer does anything suggestive. Perry v. New Hampshire (2012) marks the boundary. There the Supreme Court held that the Due Process Clause requires a pretrial judicial screening of identification reliability only when the suggestive circumstances were created by improper police action; absent that, the reliability of an identification is for the jury to weigh through the ordinary tools of the adversary system. Mug-book commitment effects that flow from procedure rather than from deliberate suggestion will therefore often fall outside the due-process screen and into the domain of cross-examination, expert testimony, and jury evaluation.

Some courts have responded by strengthening those ordinary tools. In State v. Henderson (2011), the New Jersey Supreme Court conducted an exhaustive review of the identification research and revised the State's framework for evaluating eyewitness evidence, expressly recognizing mug shot exposure among the system and estimator variables that can undermine reliability and directing that juries be instructed about such influences. Whether a memory expert may explain mug-book commitment, familiarity, and transference to a jury is governed by the generally applicable standards for expert testimony — Daubert v. Merrell Dow Pharmaceuticals (1993), as extended to non-scientific expertise in Kumho Tire Co. v. Carmichael (1999), or the Frye general-acceptance standard still followed in some jurisdictions (Frye v. United States, 1923). Because the underlying findings rest on decades of peer-reviewed, replicated experiments and a published meta-analysis, the commitment effect in particular is among the better-supported phenomena in the eyewitness literature.

Special Issues in Legal Practice

The principles described above apply with equal force to every party in a legal proceeding. Memory operates the same way regardless of who is asking the questions, and the science summarized here favors no side. What differs between the parties is not the science but the vantage point — the particular places where memory issues tend to surface, and the particular errors each party is best positioned to guard against. The two summaries below identify those recurring issues. They are offered for orientation, not as litigation strategy; in every case the controlling question is what the evidence in that case will, and will not, support, and the expert's role is to inform the trier of fact rather than to advocate for either side.

Special Issues for Prosecutors

For the State, the strength of an identification depends in part on what came before it. An identification is most persuasive when the lineup was the witness's first and only encounter with the suspect's face, and the issue most likely to surface is whether a mug book search preceded it. The error best guarded against is presenting a confirmatory second identification as if it were independent corroboration: when a witness picked a face from a mug book and is then shown that same face in a lineup, the later identification is largely a product of the earlier choice and adds little probative weight. Documenting whether and how the witness viewed mug books — what was shown, whether a selection was made, and whether anyone from the mug book reappeared in the lineup — allows the State to present identification evidence whose reliability can withstand scrutiny, and to avoid building a case on an identification that the research predicts would have followed regardless of guilt.

The corresponding safeguard is procedural discipline at the investigative stage. Where the suspect did not appear in the mug book, keeping mug book faces out of the subsequent lineup preserves the no-overlap conditions under which exposure has little effect on accuracy. These are the same practices the research recommends, and adhering to them tends to strengthen, not weaken, the evidence the State ultimately offers.

Special Issues for Defense

For the defense, the recurring task is to learn the full identification history before the in-court identification is taken at face value. The issue most likely to surface is an undocumented or under-documented mug book search: whether the witness saw the accused's photograph before the lineup, whether the witness made a selection at that stage, and whether the same face carried over from mug book to lineup. The error best guarded against is allowing a second identification that merely repeats a prior commitment to stand as if it independently confirmed the first. Because the commitment effect is well supported, an identification preceded by a mug book choice of the same person warrants careful examination of the procedure rather than reflexive acceptance.

The corresponding safeguard is to ensure the jury understands the difference between recognizing the offender and recognizing a face from an earlier photograph. Cross-examination on the sequence of viewings, and, where admissible, expert explanation of commitment, familiarity, and transference, can help the trier of fact weigh the identification accurately. The aim is not to assume that every prior exposure produced error — the research shows that exposure without overlap, and exposure to the actual perpetrator, generally does not — but to give the factfinder the information needed to tell a reliable identification from a contaminated one.

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