Fingerprint Pattern Research: Salience Bias in Viewing Fingerprints

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INTRODUCTION

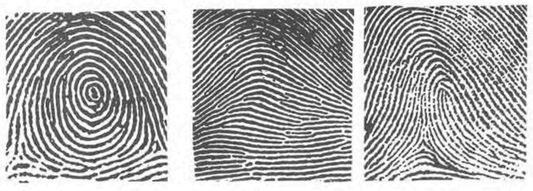
The FBI has been putting forward the same statistics on pattern distribution for 40 years (FBI, 1984). With the change in population density and biographic info related to the population, it would seem possible that those statistics could also change. While teaching fingerprinting techniques, the researcher noticed a higher level of arches and whorls than expected. This raised the question of change again. Were the statistics changing with the times?

RESEARCH QUESTIONS

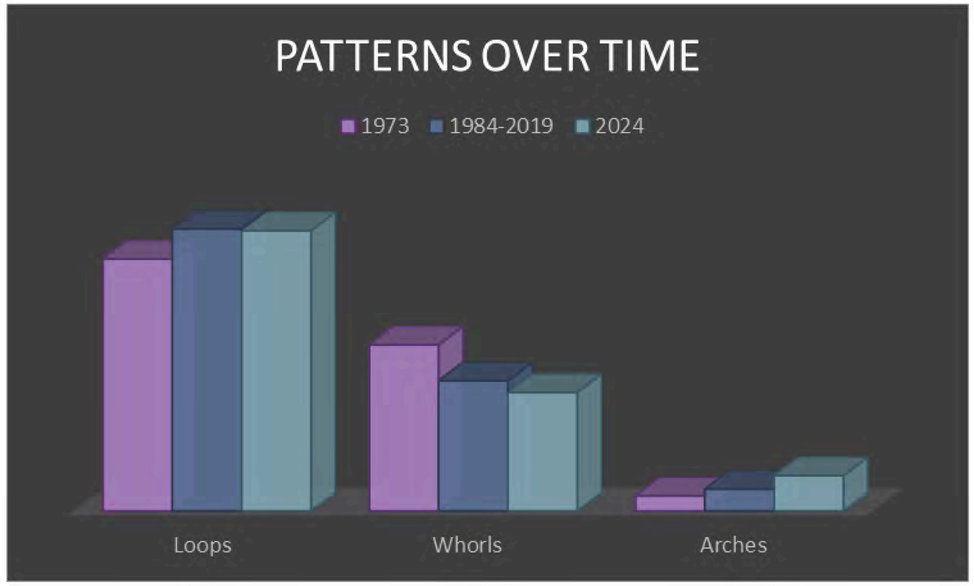
R1- Are the 3 pattern types represented in the current population in the same distribution as the State of NY and the FBI have been stating since 1973?
R2- If so, what are the new distribution statistics?
R3- If not, why does it seem so?

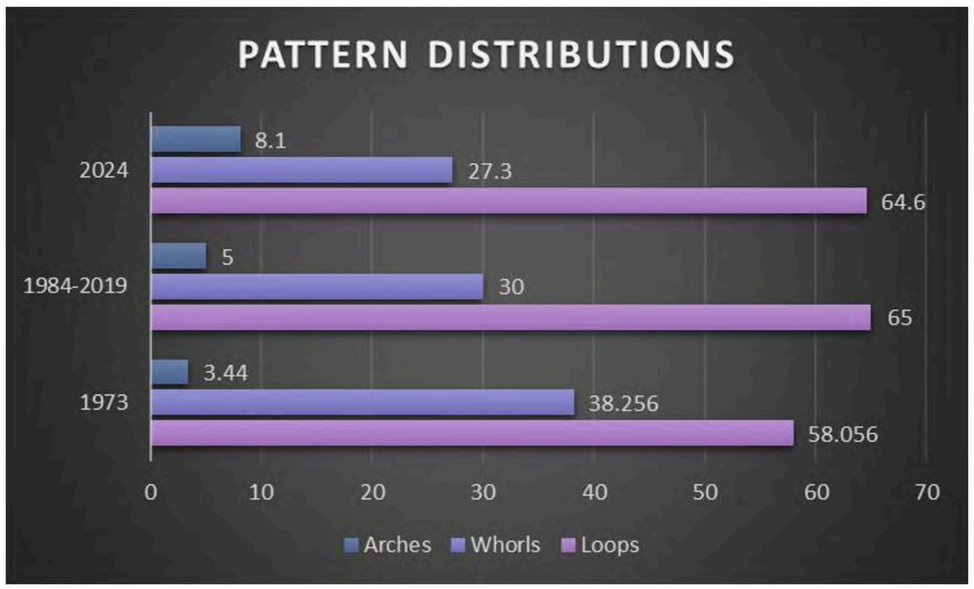
METHODS

Students in two courses collect inked 10 print cards as part of class work. Students in these two courses were asked to participate. Participation was voluntary. Those students who participated were not offered anything in exchange. Once consent was received, the biographical information was removed from the 10-print card as shown below. The impressions were analyzed, and the pattern type was recorded. Once recorded, the pattern types were counted, and percentage of the whole were considered.



Whorl Arch Loop





OUTCOMES

The outcome is that pattern distribution has changed only slightly over time. Not anything that should be noticeable by this researcher. The question was then, why did it seem to be that there were more arches and whorls than other pattern types in this population of participants?

DISCUSSION

The pattern distribution changed only slightly. This should not have caused the researcher to notice such a grand change as it had seemed. Salience bias was at work. The researcher was giving differential attention to those lesser seen patterns the arches and whorls. This differential attention led to the retention of information of those lesser seen patterns while discarding information on those patterns that were not given as much attention. Loops represented 64.6% of fingerprints yet it seemed to the researcher originally that there was an over representation of the other two pattern types and fewer than 65% would be loops.

Salience bias can influence decision making. In this case it led to research on pattern distribution. Among other fingerprint professionals there are a number of decisions it could influence. Knowing about this bias will limit the influence it has in the future for the researcher and her students.

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