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Form-Blindness and Its Implications: A Verification Study

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The University of Southern Mississippi

FORM-BLINDNESS AND ITS IMPLICATIONS: A VERIFICATION STUDY

by

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Approved by

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Abstract

Form-blindness is not an eye problem. It is a perceptual inability to distinguish the small differences between shapes, colors, and patterns. This research examines this phenomenon by using a previously-established exam to study form-blindness and its implications. Demographic variables such as age, major, GPA, and sex are also looked at to see what potential impact they might have on a person's performance on the exam. The form-blindness tests administered during this study were graded and then analyzed using descriptive statistics and multiple linear regression. In the end, no statistical significance was found for the demographic variables of age, GPA, major, 20/20 vision, LASIK eye surgery, and dyslexia. However, the demographic variables of sex, fingerprint training, and use of medication were found to have statistical significance in the study, meaning that a potential administrator of the test might want to more heavily consider these variables than the other demographic variables when determining whether or not to hire a potential fingerprint examiner.

Keywords: Form-blindness, Latent fingerprints, Perception, Vision, Aptitude

Acknowledgements

I would like to thank my thesis advisor and mentor, Dr. Dean Bertram, for introducing me to this fascinating topic and for guiding me through this process. A big thank you to Ron Smith & Associates for so graciously allowing me to use their form-blindness exam in the pursuit of my research. Thank you to Dr. Joshua Hill for his tremendous help with my statistics and also to Dr. Thomas Panko for his help during the data-collecting process. Thank you to Dr. Lisa Nored and the School of Criminal Justice for their gracious support. Thank you to my family and friends for supporting me and encouraging me in this endeavor. Lastly, thank you God for giving me the grace and strength to do this thesis and to do it well.

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Chapter 1—Problem Statement

Form-blindness is a problem that affects a very small percentage of the population. It is not a sight issue or an eye problem, rather it is a misfiring in the way that a person's brain perceives images and information. Perception is the issue, not sight. Since form-blindness is so rare, the people who have it are often unaware of it because this defect does not hamper day-to-day life. However, if a person has never undergone form-blindness testing or does not realize he or she has a perception problem when applying for latent fingerprint certification, this brain irregularity could pose a problem for both the person and the forensic science laboratory hiring them.

The average person has probably never heard of form-blindness, but he or she would most likely be familiar with perception issues. One example of this is when a car collides with a motorcycle, and the driver of the car claims that they never saw the motorcycle coming before they pulled out onto the road. Another example of a perception issue is a photo of a blue-and-black dress that went viral on the Internet about a year ago, sparking social media hashtags such as #TheDress, #Dressgate, #teamblueandblack, #teamwhiteandgold, and so on and so forth. When presented with the image, many people saw either a blue-and-black dress or a white-and-gold dress. Even though the designer of the much debated frock has released a statement saying that the dress is blue-and-black, there is still much sparring over the dress' actual color. This is not to say that those who see white and gold are wrong in what they see; their brain simply perceived the dress differently than those who see the dress as black and blue.

Take this concept, make it extremely rare, and apply it to the world of forensic science and fingerprint analysis, and one can appreciate the problem. For a person with form-blindness, his or her brain cannot tell the minute differences between shapes, color, and patterns but perceives them all as being the same because the person's brain is trying to make the image make sense. It is not that the person knows that they are viewing the image incorrectly; they genuinely believe that what they are seeing is actually correct. So if a latent fingerprint examiner with form-blindness is looking at two fingerprints for comparison, the fingerprints will look uniform. When a person's exoneration or incarceration hangs in the balance, mistakes in identification and comparison cannot be afforded, or there could be very grave consequences.

The purpose of this study is to demonstrate the applicability of form-blindness testing in forensic laboratory arenas by validating a form-blindness exam already being administered. Different variables such as eyesight, training, and age were studied to examine whether or not they have an impact on form-blindness. These variables were also looked at to determine their possible impact on aptitude and how capable of a fingerprint examiner a potential test-taker would be.

Chapter 2—Literature Review

Perception is something that has fascinated philosophers, doctors, and scholars for thousands of years. Plato theorized and reasoned about it, Aristotle observed it through experiments and analysis of the senses, and Galen studied it through dissections of the human body.[1] These men and others sought to understand perception and how it works because it gives an insight into the realm of the human mind, a feat of nature that many scientists seek to understand to this day. Discerning how perception works is vital [2] because of how it impacts day-to-day life. Without it, trying to make sense of a constantly changing world would result in chaos. [3] In order to adapt and respond to the changes in our environment, we must have something to interpret the information given us and to help guide us.

Perception is a process that all humans possess and make use of. It is "not only a basic psychological process, but also a very powerful one" and allows us to interact with our world. [1] For example, discriminating between colors is a form of perception. This ability may have developed from the need for organisms to be able to tell ripened fruit from unripe fruit, allowing humans to have better-tasting food and the potential capability of applying this skill to other areas for survival.[4] Perception also influences behavior. [1] If a person perceives a change in his or her environment, such as the presence of a possible predator, they will respond accordingly in order to resolve the situation. Perception involves the use of all five senses in order to make sense of the world so that humans can live comfortably in it.

One of the senses involved in perception—and arguably one of the most important—is vision. Visual perception is how "the brain interprets visual information sent to it by the eye."[5] The human eye is the pathway through which brightness, color, details, shapes, and textures can be seen and then perceived.[5] The Greeks and Egyptians believed that "the eyes were not only windows to the world, they were also through which the world was thought to be illuminated!"[1] They recognized the importance of eye sight and the role that it plays in defining the constancy of shapes, colors, etc. in our environment so that our perception of the world is stabilized.[3]

Since science has evolved, the path of an image from the eye to the brain can now be traced. When an image enters the eye, it must go through several orifices to make it to the brain. The iris determines how much light can enter the eye, which can influence how well the image is seen and retained. After this, the cornea, the ocular media, and an elastic lens focus the light coming from the iris and the image coming from the outside world onto the retina.[5] The retina, which is also a part of the brain, acts as the catalyst that starts the analysis of the image focused upon it and sends this information to the higher levels of the brain. It is also the site in which visual perception actually begins.[4] It is at the retina that information about the image—such as color, texture, and size—begins to be extricated by "electrical and chemical synthesizers" to be combined with other sensory information in order to create a visual perception.[5]

Most of the time this process works harmoniously and without issue. However, there are instances where something misfires and causes a problem in perception. This is where form-blindness presents an issue. It is a disturbance of the pathways from the eyes to the brain that renders a person unable to determine the small differences between

shapes, colors, and patterns. Most of the time, a person with form-blindness does not know that he or she has it because it does not impact day-to-day life. It is similar to color blindness in that the person with it becomes so used perceiving the world through such a lens that they adapt and take no notice of it. But this can also make such a problem extremely difficult to uncover. When there is an interruption or derailment in these visual pathways, perception *will* be affected.[6]

In 1885, the author of an article in the Christian Union noted an odd visual phenomenon—there were people who could not tell the difference between shapes, colors, and patterns. The author was amazed at this, for he knew that this anomaly was similar to color blindness yet completely different.[7] Several years later, A.S. Osborn observed a judge who could not tell the difference between pieces of evidence in a forged documents trial. [8] More recently, the case of a student studying to obtain her Ph.D. failing a latent fingerprint course due to having this same problem. [9] The phenomenon occurring in all three cases was later determined to be form-blindness, a problem that had nothing to do with a person's eyesight but with how his or her brain perceived incoming images. It was an interruption of visual pathways that affected perception.

The words *sight* and *vision* are used synonymously yet have two different meanings. Sight can be simply described as an image being viewed by the eye and made as clear as possible. The term *vision*, however, can be described as the way an individual senses changes in his or her environment via their eyes and responds to these changes accordingly. [10] For example, sight would be when a hiker is walking along a trail and sees a flash of brown movement out of the corner of his eye. Vision would be the hiker's eyes taking this movement in along with remembering the posted warning about grizzly

bears and responding to this change in his environment by either preparing to fight the possible threat or flee from it. When it comes to form-blindness, a person can have perfect eyesight yet still be affected by a vision problem. In the cases of form-blindness described above, the problem did not lie in whether or not any of these people were near-sighted, far-sighted, had perfect eyesight, or were blind. It lay in the fact that their brains were physically not able to process the information being visually presented to them and interpret it correctly.

In the case of an analyst who was examining two latent fingerprints for a possible match, their eyes would see the images and try to clarify them. Then, they would make a judgment about whether or not the two prints were a match based upon what they were seeing. If the analyst had form-blindness, any minute differences would be obscured by his or her brain due to their being unable to respond to a change in the images because the images look identical. These obscurities would make it extremely difficult for the examiner to conduct a proper comparison analysis and would contribute to the analyst ultimately making a decision that could negatively impact his or her career and reflect poorly on the agency that employed them. And it would also make it extremely difficult to meet the certification standards set forth by the International Association for Identification.

In their guidelines for certification as a latent fingerprint examiner, the International Association for Identification lays out several requirements. Before even being eligible to take the certification exam, the hopeful examiner must have a bachelor's degree with two years latent fingerprint analysis experience, an associate's degree with three years latent fingerprint analysis

experience. After this requirement has been met, the certification requires the successful completion of an exam comprised of three parts: (1) 12 out of 15 prints compared or eliminated, (2) 32 out of 35 prints identified, and (3) 85% true/false, multiple choice, etc. answered correctly. The applicant must also submit to an oral exam or present a case for review in order to qualify as an identification expert. [11]

The applicant must also be able to competently fulfill the duties of a latent fingerprint examiner. One part of being a latent print examiner is being able to analyze fingerprints and determine if the prints are a probable match, not a probable match, or inconclusive. In addition to comparing prints, a latent print examiner must be able to process crime scenes as well as gather and document inked prints.[12] A latent print examiner must also be able to testify in court and explain the analysis of the evidence to a jury in an easy-to-understand manner.

Due to these stringent requirements and standards, one could see how it would be problematic for a forensic laboratory who had invested a great deal of time, money, and resources into someone who would never be able to successfully and aptly complete their job, even if the person was willing and invested in becoming a latent fingerprint examiner. Case in point: a student who was studying to obtain her doctorate in criminal justice was unable to successfully pass a latent fingerprint examination training course due to having form blindness. She was a dedicated student who was diligent in her studies and always present in class but was unable to fully understand and grasp the material.[9] This student would never have been able to fulfill the International Association for Identification certification requirements and, if hired by a forensic laboratory to be a latent fingerprint analyst, would have failed. This scenario, along with

others, supports the argument set forth by Dean Bertram et al. that tests such as a form-blindness examination would help to prevent bad investments by law enforcement agencies and also keep potential examiners from feeling as if they have wasted two-plus years of their time, energy, and abilities. [13]

Even though the idea of perception can seem to be only theoretical, it is actually possible to measure it empirically. Noted scholars such as Hermann von Helmholtz developed ways of measuring "color, motion, and depth…experimentally…"[1] Leonard Zusne notes that "humans already seem to use curves, angles, and slopes of lines to identify patterns," an ability which can be tested.[14] There are already assessments in place that test a person's perception of form, tests such as Koh's blocks, perceptual speed, and picture completion. These assessments can be used to "imply or predict form perception as one aspect of intellectual functioning." [14] So it is neither impossible nor impractical to use something such as a form-blindness exam to test a person's perceptual capabilities and potential aptitude (or possible lack thereof) for something like latent fingerprint examination, especially since the stakes can be so high.

While there are those who argue that different forms of therapy can help a person to somewhat overcome form-blindness, more experts are claiming that the chances of overcoming form-blindness in order to successfully complete the job of a latent fingerprint examiner are next to none. When asked about the possibility of perception rehabilitation, ophthalmologist and retired military surgeon Dr. Woody Davis responded, "Either you have it or you don't." [15] Dr. R. Pharr and Dr. W.C. Ashford second this statement by agreeing that perception is not something that can be so easily fixed. [16] Since form-blindness is a perception issue rather than a physical eye problem, it cannot

be remedied simply by prescribing new glasses or contacts or by training the eye to make up for what it lacks. It is physically impossible. Due to this defect being permanent in those who possess it, it is vital to test for form-blindness in individuals desiring to be latent fingerprint examiners so that potential employers and employees both do not squander valuable time, efforts, and resources in a wasted endeavor.

Chapter 3—Methodology

Section 3.1—Overview

The question being asked in this study is, "Are there any demographic variables such as age, major, and sex that indicate how well a person performs on a form-blindness examination?" The purpose of this inquiry is to investigate whether or not form-blindness testing is a viable and helpful tool for forensic science laboratories to employ. It is the hope of this research to demonstrate that using a form-blindness test, such as the one used in this study, as a predictor of performance and aptitude in latent fingerprint analysis would be useful in determining if an applicant should be hired or not.

Permission to use this form-blindness test was granted by its creator, Ron Smith and Associates, and the test is broken into two parts. The first part is generally testing the test taker's ability to distinguish the minute details between shapes, colors, and patterns. It involves exercises such as a curved line test, ranking colors in the same color family from darkest to brightest, and matching images together. The second part is more tailored to latent fingerprint analysis. It involves tasks such as canceling out background noise in order to match one fingerprint to another, matching two fingerprints in the same row, and analyzing a palm print. In addition to the form-blindness test, a piece of paper asking questions about the demographic variables being studied in this research were given to each of the participants; these answers were used to analyze the demographic information. These demographic variables are age, sex, grade point average (GPA), science or non-science major, eyesight, type of corrective vision, possible fingerprint training, color-blindness, and use of medication. Care will be taken to ensure the privacy

of each of the participants by having them put their respective USM identifier instead of their name on the exam.

Section 3.2—Test Administration and Sample Collection

Adults ages 18 and over at the University of Southern Mississippi were sought to take part in this study, with there being 79 participants. The participants in this research were part of a convenience sample. In order to get as many participants as possible, the test was administered several times. The form-blindness test was administered on campus and the data collected from the test-taker by the researcher once he or she completed the exam. Consent forms were given to each of the participants and collected by the researcher as well. In addition to the actual test, the demographic variables being studied were collected on a separate sheet of paper attached to the exam. After the test was administered, it was collected—along with the demographic information and consent forms—and everything was stored in a locked cabinet in a secure office until needed for analysis. Once analysis was completed, the paper copies of the exam were destroyed while the electronic data will be kept on file for two years.

Section 3.3—Sample Analysis

Once the test were completely administered and collected, the results were graded and analyzed. They were graded using an answer key provided by the private company that created the form-blindness exam. Each score fell numerically in one of four categories—Poor, Below Average, Average, and Excellent. Poor was 0-69, Below Average was 70-79, Average was 80-89, and Excellent was 90-100. After being graded, the results were analyzed using multiple linear regression.

Linear regression is a type of analysis that can be used to predict the impact that one variable (the independent variable) will have on another (the dependent variable), an example of this being how a person's age might impact their score on the form-blindness exam. It is based off of slope of a line—y=mx+b—and uses something similar to a best-fit line. However, with regression, the equation is:

$$y=\alpha + \beta x.$$

Y represents the "predicted score", α represents the "Y intercept or place where the regression line crosses the Y axis," and β represents "the slope of the line (slope coefficient)." [17] In the case of multiple variables being analyzed, which is the case in this study, an analysis technique called multiple regression is used.

Multiple linear regression involves predicting the impact of multiple variables (the independent variables) onto another variable (the dependent variable). In this study, the independent variables are the different demographic variables, and the score on the form-blindness exam is the dependent variable. The formula used for multiple linear regression is:

$$Y=\alpha+\beta_1 X_1 + \beta_2 X_2 \ldots \beta_K X_K + e$$

In this instance, y represents the "estimated value of Y," α represents the "y intercept…where the regression line crosses the Y axis," β represents the "partial slope coefficient,", and e represents the "residual error term." The subscripts represent the number of variables that are studied in the analysis. [17] The line with the smallest number of residuals (or e) acts as the best-fit line. In addition to analyzing this data using multiple linear regression, descriptive statistics were also used to analyze this data. This type of

statistics show the frequency at which variables occur and show other statistical variables, such as standard deviation, mean, and range.

Chapter 4—Results

Multiple linear regression was used to analyze this data. The dependent variable was the score on the form-blindness exam. The independent variables were the different demographic values such as age, sex, major, etc. Before the linear regression was started, descriptive statistics were run on the data, as shown in Table I. The highest percentage of test-takers (91.1%) were between 18-22 years old. More women than men took this test. Most test-takers had a GPA between 3.0-4.0 (57%), and there was a higher percentage of science majors that took the test than non-science majors (51.9% and 46.8%, respectively). Most of the people who took this form-blindness exam used some form of corrective vision and did not have perfect eyesight (75%). Most of the people who took this exam also did not have any type of fingerprint training (68.4%). The majority of test-takers did not have dyslexia (94.8%) nor were on any medication (53.2%), and no one reported being color-blind. The highest percentage of test-takers also scored a 79 or below out of 100 (53.2%).

After the descriptive statistics were completed, linear regression was run on the data. The model was statistically significant, as shown in Table II. Age, GPA, major, 20/20 vision, LASIK eye surgery, and dyslexia were not found to have any statistical significance. Sex, fingerprint training, and use of medication, however, were found to have statistical significance. Sex had a statistical significance of $p=0.030$. A man taking the test did statistically 7.265 points better than a woman taking the form-blindness exam. Fingerprint training had a statistical significance of $p=0.002$. A person with fingerprint training did statistically 13.356 points better than a person with no fingerprint training on

the exam. Use of medication had a statistical significance of p=0.035. A person on medication did statistically 9.296 points better than a person not on medication while taking the test.

The Beta values in this model are standardized coefficients and can be interpreted to indicate which predictors contribute most to the overall model. They are interpreted in terms of their size, relative to one another. The beta values for sex of participant, fingerprint training, and use of medication were 0.263, 0.455, and 0.236, respectively. Fingerprint training was found to have the highest beta value, meaning it was the strongest predictor of scores in the model.

The R^2 value for this model was 0.270, and the adjusted R^2 value was 0.169. This study provided only a very weak model, meaning that there were things that would explain the variation yet were not being captured in the model.

Table I

Descriptive Statistics

Variable	N	Percent	Average	Minimum	Maximum
Score on Form-Blindness Exam			76.759	41	99
0-69	21	26.6			
70-79	21	26.6			
80-89	16	24			
90-100	18	22.8			
Age	79		20.722	18	46
GPA	79		3.1633	2.00	4.00
Sex					
Female	51	64.6			
Male	28	35.4			
Major					
Non-Science	37	46.8			
Science	41	51.9			
Eyesight					
Near-Sighted	42	46.2			
Far-Sighted	9	11.5			
20/20	28	35.9			
Corrective Vision					
None	49	62			
Contacts	25	31.6			
Glasses	33	41.8			
LASIK	1	1.3			
Other	0	0			
Any Fingerprint Training					
No	54	68.4			
Yes	25	31.6			
Dyslexic					
No	73	94.8			
Yes	4	5.2			
Color-Blind					
No	79	100			
Yes	0	0			
On Any Medication					
No	67	87			
Yes	10	13			

Table II

Regression Results

	B	**SE**	**Beta**	**t**
Age of Respondent	-0.684	14.408	-0.177	-1.541
Sex of Respondent	7.265*	0.444	0.263	2.218
GPA of Respondent	1.989	3.275	0.084	0.71
Major of Respondent	-2.699	2.802	-0.101	-0.688
20/20	-3.455	3.922	-0.123	-1.072
LASIK	1.434	3.222	0.012	0.112
Any Type of Fingerprint Training	13.356**	4.122	0.455	3.24
Dyslexic	2.514	6.508	0.042	0.386
Medication	9.296*	4.308	0.236	2.158
n=79, R^2=0.270, adj. R^2=0.169				

*p<.05; **p<.01; ***p<.001

Chapter 5—Discussion/Conclusion

The central question being examined in this study was whether or not any of these demographic variables influence how well a person performed on this form-blindness exam. During the course of this research, there was no statistical significance found for the variables of age, GPA, major, 20/20 vision, LASIK corrective eye surgery, and dyslexia. The variables of sex, fingerprint training and use of medication were, however, found to have statistical significance. Sex of participant was found to have a statistical significance of $p=0.030$. Fingerprint training was found to have a statistical significance of $p=0.002$. Use of medication was found to have a statistical significance of $p=0.035$. When looking at the overall performance on the form-blindness exam, there were scores low enough (69 and below) that could indicate either a person was form-blind or that he or she simply would not do well as a latent fingerprint examiner, something that should be kept in mind when screening potential latent print examiners.

The results of the study were interesting. It was not surprising to the researcher that the variables of age, GPA, major, 20/20 vision, LASIK eye surgery, and dyslexia were found to have no statistical significance regarding performance on the form-blindness exam. It, too, was no surprise to the researcher that fingerprint training was statistically significant and contributed the most to performance on the exam. It is logical to presume that a person who has had some sort of fingerprint training would perform better than someone without given that the trained person's brain is wired to analyze details, patterns, and small differences. It was unexpected, however, that the demographic variables of sex and use of medication were statistically significant predictors. While

unusual, one could reason that there might be something logical to account for this outcome. Functional processing in men and women, for example, might differ enough to account for this paradox. Concerning the use of medication, it is possible that drugs could cause a person's brain to work faster or focus better, helping them to score better on the form-blindness exam.

There were some limitations to this research. One was that there was a lower number of test-takers and thus a narrower data pool. Only 79 people participated in this research. Another limitation was that some of the variables were very disproportionate. For example, nearly two-thirds (64.6%) of the test-takers were women while an even higher proportion (87%) of people reported no present use of medication. Three, collinearity concerns necessitated the removal of the data concerning contact lens and glasses before producing the final multiple linear regression. Specifically, collinearity is when two variables are perfectly correlated and are not uniquely determined. [180p'] This statistical condition presents a problem in multiple linear regression because the analysis cannot reasonably differentiate between two variables. It is akin to trying to measure the same thing twice. Since the variables are so tightly intertwined, the regression cannot separate the two in order determine if there one variable has statistical significance over another, which is what happened in this case with contact lens and glasses.

Future research could further shed a light on form-blindness and its implications. One possibility could be replicating this study but on a much larger scale. It could also include administering this test again but with more proportionate variables, such as having a more equal ratio of men to women and science majors to non-science majors. Another future study could look at one demographic variable and its impact on

performance instead of several. Medication, for example, was shown to have some statistical significance on how high a person scored. Specifically looking at different kinds of medication (such as focus-enhancing drugs or allergy medication) and how they impact a person's score on the form-blindness exam could be helpful in determining why medication plays a possible role in aptitude on the form-blindness examination.

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Appendices

Appendix A: Institutional Review Board (IRB) Approval Letter

THE UNIVERSITY OF
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INSTITUTIONAL REVIEW BOARD
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NOTICE OF COMMITTEE ACTION

The project has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the "Adverse Effect Report Form".
- If approved, the maximum period of approval is limited to twelve months.
  Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: 15091001
PROJECT TITLE: Form-Blindness and Its Implications: A Verification Study
PROJECT TYPE: New Project
RESEARCHER(S): Meredith Moody
COLLEGE/DIVISION: College of Science and Technology
DEPARTMENT: Forensic Science
FUNDING AGENCY/SPONSOR: N/A
IRB COMMITTEE ACTION: Expedited Review Approval
PERIOD OF APPROVAL: 10/30/2015 to 10/29/2016
Lawrence A. Hosman, Ph.D.
Institutional Review Board

Appendix B: Approval Letter from Ron Smith and Associates

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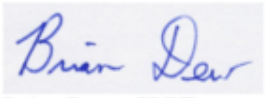
www.ronsmithandassociates.com

To Whom It May Concern:

We at Ron Smith & Associates give Meredith Moody the express and official permission for the use of our form-blindness examination to be used in the pursuit of her research for her Honors Thesis.

Sincerely,



Brian Dew, CLPE
Testing Coordinator / Senior Consultant

Appendix C: Consent Form

ORI | Office of Research Integrity

INSTITUTIONAL REVIEW BOARD

SHORT FORM CONSENT

SHORT FORM CONSENT PROCEDURES
This document must be completed and signed by each potential research participant before consent is obtained. • All potential research participants must be presented with the information detailed in the Oral Procedures before signing the short form consent. • The Project Information section should be completed by the Principal Investigator before submitting this form for IRB approval. • Copies of the signed short form consent should be provided to all participants. • The witness to consent must be someone other than the Principal Investigator or anyone else on the research team. Last Edited July 22nd, 2014

Today's date:		
PROJECT INFORMATION		
Project Title: Form-Blindness and Its Implications: A Verification Study		
Principal Investigator: Meredith Moody	Phone: 601-508-2502	Email: meredith.moody@eagles.usm.edu
College: Science and Technology, Honors College	Department: Forensic Science	
CONSENT TO PARTICIPATE IN RESEARCH		

Participant's Name: _____

Consent is hereby given to participate in this research project. All procedures and/or investigations to be followed and their purpose, including any experimental procedures, were explained. Information was given about all benefits, risks, inconveniences, or discomforts that might be expected.

The opportunity to ask questions regarding the research and procedures was given. Participation in the project is completely voluntary, and participants may withdraw at any time without penalty, prejudice, or loss of benefits. All personal information is strictly confidential, and no names will be disclosed. Any new information that develops during the project will be provided if that information may affect the willingness to continue participation in the project.

Questions concerning the research, at any time during or after the project, should be directed to the Principal Investigator using the contact information provided above. This project and this consent form have been reviewed by the Institutional Review Board, which ensures that research projects involving human subjects follow federal regulations. Any questions or concerns about rights as a research participant should be directed to the Chair of the Institutional Review Board, The University of Southern Mississippi, 118 College Drive #5147, Hattiesburg, MS 39406-0001, (601) 266-5997.

_____ _____

Research Participant **Witness to Consent**

_____ _____

Date **Date**

Appendix D: Glossary

- Age—how old a person is in years as reported by the test taker
- Form-blindness—the inability to determine the small differences between shapes, colors, and patterns.
- Grade Point Average (GPA)—grade based on a 4.0 scale as reported by the test-taker
- Institutional Review Board—ethical research board that reviews proposed methods in research in order to ensure that no humans are harmed during course of gathering data
- Latent fingerprint—a fingerprint that was not visible to the naked eye and has been developed and enhanced in order to be seen better
- Medication—over-the-counter or prescription drugs that were taken for long periods of time; excludes drugs such as Tylenol or Aleve
- Science—student enrolled in the College of Science and Technology at the University of Southern Mississippi with the exception of the majors of criminal justice, interior design, construction engineering, geography, and geology
- Training—having taken any form of latent fingerprint examination instruction, such as the course offered in the Department of Forensic Science at the University of Southern Mississippi
- Vision acuity—how well a person can see as reported by the test taker