

Deadline of Submission of Comments:

20-Aug-20

Document Number:

ANSI/ASB Std 014

Document Title:

Standard for Friction Ridge Examination Training Program

#	Section	Updated Section	Type of Comment	Comments	Proposed Resolution	Final Resolution
120	Foreword		E	Of course the criminal justice system relies on friction ridge examiners to render reliable conclusions. But, at least as importantly, so too does it rely on practitioners to articulate their conclusions in a manner that is clear, scientifically defensible, and balanced. Given that the "science" of friction ridge comparisons exists almost exclusively to serve the criminal court this foreword should not overlook that vital aspect.	After the first sentence add "Attorneys and factfinders also rely on friction ridge examiners to articulate their conclusions, whether in reports, during pretrial consultations, or in the course of testifying, in a manner that is clear, scientifically defensible, and balanced." Additionally, change the final sentence of the first paragraph to: "This means examiners should be well trained in established scientific methods; the methodological strengths, weaknesses, and limitations of friction ridge comparisons grounded in published research literature; and the procedures and protocols regarding the overall handling and interpretation of friction ridge evidence."	Reject: Original text conveys the same meaning more concisely.
11	Title		E	The title of the document is somewhat misleading. The content of the standard is heavily geared towards desired learning outcomes and does not provide specific details of the actual training program. How are the materials presented to the trainee? Who is responsible for the administration of the training program? How long does the training program last? What happens during retraining? These are just a few of the questions that are left unanswered by this document. As written, there is an expectation these questions would be answered in this standard and they are not.	Consider the changing the title to Standard Content and Training Outcomes for Friction Ridge Examination Training Programs or something similar that accurately covers the content of the standard.	Reject. Title is appropriately descriptive, additional information provided in Scope for the content and intent of the document.
10	General		E/T	This standard needs additional explanation on the use of should and shall throughout this document. There are numerous instances where modules start off saying "the training program shall include" only to be followed by "the trainee should." It makes no sense that the training program is required to cover a topic but it is a best practice or optional for the trainee to meet the desired level of comprehension. If a module starts with a "shall" statement, why isn't the trainee required to meet the specified comprehension level? This point is further complicated by the fact that you also have "if a required job function" as the only caveat for why a learning objective would be optional and not mandatory. An individual going through the training program doesn't have an excuse for not knowing this information.	Please clarify, possibly in an annex, the correspondence between a general "shall" statement used at the beginning of a learning module i and the content and structure of subsequent statements concerning with the actions the trainee should be able to do. There are also instances where all but one or two of the trainee objectives are "shall" statements. What makes these learning objectives less important than the others in the module? There are modules where the learning objectives of the trainee are mixed "shall" and "should" Lastly, there are circumstances where a module starts with a "should" statement but there are "shall" learning objectives. Please provide some context so a non-practitioner would be able to read and understand the intention behind the standards.	Reject: This information is included in the forward "The following applies to all ASB documents: the term 'shall' indicates that a provision is mandatory, and can be audited for compliance the term 'should' indicates that a provision is not mandatory, but recommended as good practice.". The working group and the ASB Consensus Body had reviewed and approved all requirements "shalls" and recommendations "should" included in this document.
63	Throughout document		T	Until a valid statistical model is available for our discipline, requiring statistical and probability training is overreach.	Delete all references to statistics and probability until a useable model is developed.	Reject: Consensus has been firm that training in statistical concepts is necessary even if not generally used in practice at this time.
12	Scope			The focus on learning outcomes is unclear when there is no indication of the method on how these outcomes are intended to be met. This document fails to plainly state the content that needs to be covered, indicate how the material in each module is supposed to be covered and name the competency testing method needed to display the desired level of comprehension. Competency testing is only mentioned once in the document, standard 7.11.2.3. Yet it is never stated that the trainee has to take competency tests for each module. The last sentence almost invalidates the purpose for having this document considering basic statements such as passing a competency test, which is a performance measure, are not stated.	The scope of this document is heavily skewed towards the learning objectives of the trainee. The requirements for the training program are sparse and need to be fleshed out. This document should be re-titled and another document dedicated to the requirements of the training programs exclusively should be written. If this is the only document aimed at the training program, the document needs to communicate when and where practical, oral, and written examinations are expected and that there is an expectation for performance. The questions asked in our comment need to be answered and the last sentence of the scope needs to be removed or edited.	Reject: Both learning objectives and training program requirements are necessary for a training standard, and consensus has been that they should be in the same document to facilitate continuity.

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121	Scope		E	Nearly a decade ago, in its Document #102, SWGFAST "recognize[d] the need for a standard test available to the general latent print community that accurately assesses the competency of individuals to perform latent print casework." And the Working Group on Human Factors similarly recommended that "A standardized test should be written with input from specialists in test design and validation.". Given the significant variation in the quality and rigor of training for friction ridge examiners that has plagued the discipline, the authors of this standard should at least consider creating a few template assessments that agencies can use as models. Finally, this standard makes no mention of the length of time a training program must span or whether it must include an apprenticeship program. It may well be that OSAC / ASB are developing other standards to deal with the minimum qualifications of a trained examiner and the structure, length of time, and so forth of an apprenticeship or mentorship. If so that division would be fine, but this standard should specify as much. This standard, unless it wishes to require less rather than more rigor in the training of friction ridge examiners, must outline such requirements.	Include sample assessments as appendixes to the standard, and then edit the second to last sentence of the scope to read: "This document does not provide lesson plans, practical exercises, or performance measures for successful completion of each module, but samples of each are included as appendixes to this document. Agencies should model the thoroughness and rigor of their own practical exercises and assessments on these models." Add caveat that the minimum qualifications of a trained friction ridge examiner and the structure of a mentorship will be discussed in other standards (or rework this standard to discuss those topics).	Reject: It is well beyond the scope of this 60 page standard to include the actual training materials or performance measures. They could be submitted separately as a Best Practice Recommendation and therefore exist as their own document.
66	1/Scope		E/T	This document provides the "requirements"	"Requirements" needs to be changed to "Recommendations" or "Standards" or "Expectations". ASB can not "Require" anything as a body and the terms "Expectations/Recommendations" is in line with the wording in 4.1. and the document is "STANDARD" for Friction Ridge Examination Training. Be consistent.	Reject: The purpose of this standard is to set requirements. Enforcement of any standard comes from institutions other than the SDO.
109	1		E	Requirements for FSP's but then it says recommended learning for trainee. So, what is required? All items included in this document are learning objectives for examiner and/or trainee by FSP.	First sentence should read "This document provides recommended learning outcomes by forensic service provider's (FSP's) training program for friction ridge examiners and trainee's.	Reject with modification: This document covers the standard for the training program and also learning objectives. "Shall" means required and "Should" means recommended. Remove "recommended" from the scope.
13	3.2		E/T		FSP is an acronym that can apply to an individual or an organization. Spelling out the acronym is not defining the term. Please define the term.	Accept: Define FSP in terms and definitions
151	3.3			class characteristics are not mentioned	reconsider microcopic can be misleading since we do not examine using a microscope	Accept with modification current terms and definitions from ASB TR-16 used instead.
152	3.4			level 1, 2, 3 are not mentioned	reconsider microcopic can be misleading since we do not examine using a microscope	Accept with modification current terms and definitions from ASB TR-16 used instead.
14	4.1		T	The levels of comprehension and learning outcomes is a new and ambitious way of communicating a training standard; however it misses the mark and causes confusion in many places. The learning outcomes of the trainee are largely dependent on the trainer and how the material is presented, and this standard does not provide that guidance. Furthermore, the metrics for reaching these levels are not defined. Designated activities and examples are needed in order to make it clear to the reader what the trainee is doing to meet the learning objectives.	This document is a new style for how a training program should be administered. Training program standards are usually a syllabus of material that needs to be covered. This is unlike anything we have seen before and for that reason an explanation for why the friction ridge group chose this style should be given in an additional annex. The benefits of a learning outcomes based training program are lost on us and it would be beneficial for us and for future readers to understand why this was the chosen communication style.	Reject: This is normal format for a standard. This standard is not intended to be a syllabus but a set of requirements.
16	4.2		T/E	The trainee is remembering this information for what activity? Is there an opportunity for the trainee to access information from a reference for any of the remember activities?	Provide and activities or examples that explain why and what the trainee is remembering this information for during training.	Reject: Section 4.2 only deals with the general learning objectives defined by Bloom's Taxonomy. An appendix has been added further describing Bloom's.
15	4.2, 4.3		E		The red and green color scheme for standards 4.2, 4.3 and subsequent standards using these colors should be reconsidered. Please ensure that any coding used does not present barriers to individuals with colorblindness	Reject: Color coding is provided for convenience but color is not necessary to interpret the language of the standard.
17	4.3		T/E	The definition for the understand level of comprehension is not clear and overlaps with the integrate definition. Evaluating strengths and weaknesses and predicting arguments are the same thing as constructing meaning. For example, a trainer provides multiple resources for a trainee to constructing meaning could be comparing or contrasting the information.	The definition of the understand level needs to be clarified so it can be distinguished from the other comprehension levels. Provide activities or examples that explain how and when a trainee is meeting the level.	Accept with modification. New Annex A added with Blooms Taxonomy pyramid and additional information

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19	4.3, 4.4, 4.5		T/E	There are too many synonymous words and phrases shared between the levels of comprehension. The levels cannot be clearly demarcated. Discuss, describe, and explain could easily be interpreted as recall, articulate, communicate, support, or debate. Formulate can be interpreted as constructing meaning. Comparing and contrasting can be interpreted as evaluate strengths and weaknesses. Indicate is used in both Remember and Demonstrate. These are just some examples. The point is without specific tasks or proper context on how one meets the desired level of comprehension these words mean very little.	Provide examples of what activities are needed to meet the desired level of comprehension in the first statement of each module. If there is an expected level of comprehension the tasks that allow for that action should be stated. If that cannot be done all synonymous language between the defined levels of comprehension needs to be removed to avoid overlap and confusion.	Reject: These terms are derived from Bloom's Taxonomy. Although not perfect, the working group has tried and cannot find a better model for this document to follow. Blooms is an established model used by educational programs for decades.
18	4.4		T/E	The definition for the demonstrate level of comprehension needs clarification. "Apply this information in novel circumstances" does not capture the colloquial understanding of the word demonstrate. The language used should be plain and simple.	The sentence should be edited to "...apply this information in practical exhibition and explanation."	Accept
1	5.1		T	The requirement of a Bachelor's degree is discriminatory and reinforces the systemic racism and classism prevalent in the United States. Low income minority populations are far less likely to be able to afford a 4 year university. In addition, education in low income areas tend to show a lesser focus on STEM which keeps minority populations out of job opportunities that they may be well suited for. No research has ever shown that a Bachelor's degree is needed for the Friction Ridge Discipline. A well run training program can teach new examiners regardless of degree what they will need to know and be able to articulate and be effective in their job. This requirement ensures that only those in privileged communities will have access to friction ridge jobs and removes the diverse perspective that would be beneficial to the discipline at large.	Either remove completely or make a should	Accept with modification: Section modified to read: All friction ridge examiners shall have successfully completed training prior to conducting independent friction ridge examinations according to FSP policy.
51	5.1		T	18 months is not long enough to require a Bachelor's degree.	If you are going to require a Bachelor's degree, consider changing the timing to 48 months after publication to allow new students to complete the full Bachelor's degree along the guidelines proposed.	Accept with modification: Section modified to read: All friction ridge examiners shall have successfully completed training prior to conducting independent friction ridge examinations according to FSP policy.
64	5.1		T	Do not require "24 semester hours...", Bachelor degree sufficient for entry level.	Remove or change from "shall" to "should"	Accept with modification: Section modified to read: All friction ridge examiners shall have successfully completed training prior to conducting independent friction ridge examinations according to FSP policy.
104	5.1		T	Public speaking	Coursework should include "X" semester hours of public speaking or you can add to the NOTE portion as a recommendation	Reject: Consensus is the public speaking is well beyond the intent of basic examiner training.
110	5.1		E	Recent Presidential Executive Order for Federal Government hiring indicates employers that an over-reliance on college degrees may exclude capable candidates and undermines labor-market efficiencies.	I believe under this section should include an "or" have successfully taken (?) hours of IAI approved courses in the discipline or have successfully obtained "IAI Certification" in the discipline.	Accept with modification: Section modified to read: All friction ridge examiners shall have successfully completed training prior to conducting independent friction ridge examinations according to FSP policy.
111	5.1		E	Qualifications, before hiring someone only with a bachelors degree? Shouldn't there be a statement that the agency hiring someone without any experience has a qualified training program.	A note that there needs to be some sort of approved training program exists and the length of the training program.	Accept with modification: Section modified to read: All friction ridge examiners shall have successfully completed training prior to conducting independent friction ridge examinations according to FSP policy.

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122	5.1		E	This standard already limits itself to new trainees, thereby grandfathering in examiners hired before the publication of the standard whose education did not originally and has never since, lived up to what OSAC would now define as the minimum criteria necessary. Having done that, the standard should offer no additional leeway to applicants without education as robust even as a BA or BS, or even worse to agencies that would hire such individuals. Most legitimate laboratories would already require applicants with such degrees and with similar levels of scientific coursework, and no rational justification exists to give agencies that have long flouted scientific rigor (by hiring examiners without significant education in science to be scientists) more time to follow the wrong approach. And that is without mentioning that, given public comment periods and the like, these agencies have been and will be on notice of the standards that will likely exist for trainees. More substantively, this draft standard is itself a testament to the wide range of knowledge and robust ability to navigate complex science and mathematical topics (especially statistics) required of legitimate friction ridge examiners. But though the ASB has clearly acknowledged the importance of providing training on said topics it has not translated that realization into its educational requirements. Given the high-level and scope of understanding required of examiners by this standard, the ASB should at least consider adding rigor to background educational requirements by specifically requiring or recommending coursework in statistics or flat out requiring an advanced degree in an applicable field.	Eliminate the 18-month grace period and have the requirements of the standard go into immediate effect upon publication. Increase the educational requirements to include coursework in statistics and/or an advanced degree in a STEM field.	Accept with modification: Section modified to read: All friction ridge examiners shall have successfully completed training prior to conducting independent friction ridge examinations according to FSP policy.
20	5.2		T/E		It needs to be stated that instructors and mentors shall provide lectures and demonstration of the materials and skills trainees are expected to learn. Add this statement or something that captures this message to this section.	Accept
52	5.2		T	A certified Instructor's Development course is highly recommended. This is too prescriptive. You already have a requirement for each FSP to have a written policy.	Remove note.	Reject with modification: The word "highly" was removed, but the note remains in this document as additional information.
112	5.2		E	Not all FSP's have a training program as some hire only experienced certified examiners.	I recommend this sentence read: "Each FSP, with a training program, shall have a written policy for selecting qualified instructors and mentors."	Reject: This is already implied in the standard. If the agency does not have a training program then this standard does not apply to them.
113	5.2		E	Also, some FSP's send their new hires or trainees to a third party instructor course. So, an addition to this paragraphs.	I recommend: "Or, each FSP shall have accessible documentation of an accredited instructor course for their procedures in selecting a qualified instructor or mentor."	Reject: This standard implies that a new trainee will go through a training program that meets these requirements. If that is through one or more external training programs that can be documented in the FSP SOP and is outside the scope of this standard.
123	5.2		E	There is no reason to believe that a mere one year of proficiency is sufficient to enable an examiner to adequately instruct others to proficiency in their field. And really, such a lax requirement would be laughable in other fields (imagine having a third-year student still pursuing their BS teaching college level courses in physics or epidemiology to other students merely because they had course work in the subject area a year or two earlier). Standards should necessarily be higher for teachers than practitioners, as should training. All the worse, some of the areas covered by this training program standard are highly complex (statistics and modeling programs for example) and likely not suitable to be taught by non-specialists.	The standard should require instructors for most units to be certified by the IAI, and for highly specialized units involving complex mathematics, the agency should be required to bring in specialists (if none are employed by that agency) with relevant advanced degrees (i.e. at least a masters). So, the standard would require a certified friction ridge examiner for the instruction of say "Analysis" and a graduate-level-educated statistician for sections such as "Introduction to Error Rate Calculations and Confidence Intervals." A separate course certifying instructors as instructors should also be mandatory.	Accept with modification: This section was edited to read: "Instructors and mentors shall have acquired the minimum competencies themselves. Each FSP shall have a written policy for selecting qualified instructors and mentors."
153	5.2			min of 1 year is ridiculous. 2 years to train and receive formal class training then years 3-5 should be working caseload and qualify in court otherwise this opens up the door for Simon Cole to instruct and mentor in this discipline qualify as an expert to	increase the time to at least 3 years preferably 5 years for an expertise to develop with some experience to fall back on	Accept with modification: This section was edited to read: "Instructors and mentors shall have acquired the minimum competencies themselves. Each FSP shall have a written policy for selecting qualified instructors and mentors."
21	6		T		Making it mandatory that the FSP conduct competency testing (oral, written, practical) needs to be established before saying the FSP shall have a policy for passing criteria for these examinations.	Reject: This is better suited for a best practice recommendation and therefore is out of scope for this standard.

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124	6		E	This standard admirably requires agencies to maintain a training record of assessments. But as written that requirement is too vague to be of much assistance to stakeholders in the criminal justice system. For example, it would appear that merely keeping a list of the names of assessments alongside of indication of whether a trainee passed would satisfy this standard. But such a record would be close to useless to attorneys and judges evaluating or litigating an examiner's qualifications.	Require that FSPs maintain a training record of assessments including at least (1) copies of the actual assessments themselves, (2) copies of the policies and procedures outlining passing criteria, and (3) copies of the evaluation of each friction ridge examiner tested by the assessments. In other words a clean copy of the assessment (or a description thereof, a document defining passing vs. failing scores and criteria, and then a copy of the assessment as-taken by the friction ridge trainee. Such documentation would allow attorneys and judges to meaningfully compare the rigor of training and testing between agencies, and would encourage rigor and uniformity overall. It would also allow attorneys and others experts to assess how an examiner's training and performance measures up to the degree of difficulty presented by any specific case (i.e. assessments only covered full prints without distortion and yet a case involves a partial print that is badly smudged).	Reject: The intent of the standard is to include what goes into a training program and not how agencies each track the training of their employees and therefore is out of scope. Agencies can always augment these standards in their FSP policies and procedures.
22	7		E	The moot court is the only competency test described in this document. Without stated required displays of competency it's not clear how any of the levels of comprehension will be met. The moot court is described as the training exercise where the trainee shall "communicate their FSP casework practices, the foundation of the friction ridge discipline, and the basis for conclusions to the trier of fact." Does this one exercise encompass all of the training modules?	Provide examples in the learning activities that can be used to meet the levels of comprehension.	Reject: The intent of this standard is to define the basic requirements, but not prepare those training materials, and therefore this is out of scope.
154	section 7			misleading terms Firearms and tool mark examiners actually do use microscopes to compare and examine	level 1, 2, 3 are not mentioned reword this section to reflect historical otherwise it sounds like a new science	Accept with modification current terms and definitions from ASB TR-16 used instead.
114	7.1		E	Here it states completion of training program but no time frame and I don't suggest adding a time frame but state somewhere in this paragraph that completion of the training is determined by the FSP.		Accept
171	7.1		E	"who's" used as possessive	change to "whose"	Accept
118	7.2		E	I think until the statistical topics are universally accepted in the fingerprint community they should not be interjected in training programs.		Reject: This comment does not reflect consensus. Most of the sections under statistics are already listed as "should" statements and therefore not a requirement but are a recommendation.
119	7.2		E	Change "shall" to "should"		Reject: Does not indicate a specific subsection.
23	7.2.1		T/E		The use of healthy friction ridge skin is not clear. Does this apply to healed friction ridge skin only? Please clarify what is meant.	Accept: Delete "healthy"
67	7.2.1		E	"healthy" friction ridge skin	Delete "healthy". Unnecessary qualifier and is subjective.	Accept: Delete "healthy"
68	7.2.1.3		T	Predict	Change to discern as it falls directly in line with observation and the visual sense.	Accept with modification. changed to describe
115	7.2.1.3		E	I believe instead of "predict" it should state "describe"		Accept
165	7.2.1.3 & 7.2.1.5		T	There are so many variables to how ridges, furrows, and flexion creases record when contacting a surface it is near impossible to predict the outcome. It is critical for experts to understand and assess this variance, however, predicting the outcome is beyond an experts ability.	Substitute "assess" or "consider" for the word "predict" in these two sentences	Accept with modification. changed to describe
69	7.2.1.5		T	Predict	Change to discern as it falls directly in line with observation and the visual sense.	Accept with modification. changed to describe
116	7.2.1.5		E	I believe instead of "predict" it should state "describe"		Accept
2	7.2.1.6		T	It is not always possible to determine what is or isn't an incipient ridge	Make a should statement instead of a shall statement	Accept
24	7.2.2		T/E	The last sentence of the macroscopic and microscopic requirements mentions "the relationship between macroscopic and macroscopic features (ridge count, distances, and angles). There is seems to be a comma missing in the second paragraph. More importantly, there is no standard that requires the trainee to understand the uncertainty in measurements of distance and angle.	This is the only place where measurements are mentioned in the document. Please add a standard addressing the trainees need to understand the uncertainty in measurement.	Accept with modification current terms and definitions from ASB TR-16 used instead.
3	7.2.2.4		T	the list for macroscopic features is problematic given this proposed wording. While scars and other occasional features may be used to include an individuals; the other features listed should never be used solely for inclusion. This standard would allow for inclusion decisions to be based solely on pattern type and other features common among individuals which is extremely dangerous and detrimental to the communities we serve	Either redo the list of "macroscopic features" to only include broad features or remove "include" from 7.2.2.4	Accept with modification: Section deleted

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70	7.2.3		E	merkel	Capitalize Merkel	Accept
71	7.2.3.11		T	"Theory of persistency"	Remove theory. Persistency is not theory	Accept: The word" theory" was removed.
125	7.2.4		E	<p>this section (and multiple following section such as 7.3.6, 7.9.1, 7.9.10, 7.10, and 7.11) admirably require training for future examiners on complex scientific concepts draw from fields like biology, software engineering, statistics, and psychology. While training in these areas should rightly be viewed as essential to any friction ridge examiner's understanding and ability to communicate findings, this standard should not create an unwarranted impression of expertise on the part of those trained. There is simply no way that a trainee (especially one who meets only the minimum requirement of 24 credit hours of STEM coursework without even a STEM degree) could reach the level of knowledge and expertise possessed by specialists in these areas who have achieved a bachelors much less advanced degrees. Examiners must therefore be given some idea of the limits of their training and expertise, should, in other words, be taught to distinguish between their own limited education and that of a specialist. For example, an examiner testifying about error rates should obviously understand concepts like the false positive rate, confidence interval, etc...but should not purport to be an expert in the calculation of these rates and so forth. Moreover, examiners testifying about these areas must be trained to recognize the authorities from those fields. If an examiner is going to testify about statistics they must be prepared for learned treatise impeachment, not just on fingerprints, but on statistics as well.</p>	<p>each section of this standard that requires training on complex mathematics and scientific concepts should include (1) a caveat that the training is not intended or capable of replicating the more thorough and exhaustive education of specialists in that area, (2) a requirement that examiners be instructed about what the more rigorous training fo specialists in those areas looks like, i.e. what degrees they can achieve, the coursework that typically goes into such degrees, etc...., and (3) a requirement that examiners be educated about the primary and respected sources, organizations, and journals associated with each specialty (for example knowing about the I.E.E.E. for software engineers, its standards and journals).</p>	<p>Reject: No proposed resolutions provided that are within the scope of this document.. The complexity of this statement is beyond the scope of this basic training standard.</p>
72	7.2.4.5		T	"Theory of persistency"	Remove theory. Persistency is not theory	Accept: The word" theory" was removed.
25	7.2.5		T		Are burns considered wounds? The document does not address burned skin. If burns are considered a wound, can they be addressed in this section or in another appropriate section of the document?	Reject: Burns are considered wounds, but this document does not define every type of wound. The intent of this document is image analysis and not wound diagnosis.
166	7.2.5.3 & 7.2.5.6		T	What research is there to show experts reliably identify healing skin and/or scars in impressions? Is this an achievable or trainable skill?	Remove this expectation. Other sections in this area give sufficient training to understand and interpret the formation and apperance of scars.	Reject: The intent of this section is to provide examiners with information about general skin conditions that could affect image comparison, not necessarily to train them in wound identification or medical diagnosis.
167	7.2.6.2		T	What research is there to show experts reliably recognize effects of aging as compared to overuse or wear/breakdown of the skin (e.g., excessive washing of hands)? Is this achievable and/or a trainable skill? These differences can be seen or explained when comparing known exemplars to known exemplars captured decades apart, however this knowledge is limited in its application to the analysis of impressions. This documentation makes no clarification of this difference.	Remove this expectation (section 7.2.6.7 has this concept covered) or use following suggested rewording: " The trainee shall be able to recognize through a comparison of known exemplars the three common characteristics of late age ...."	Accept: " The trainee shall be able to recognize through a comparison of known exemplars the three common characteristics of late age ...."
26	7.2.7		T/E		Here's an example of when the explanation of the module starts with a "shall" statement yet all of the learning objectives are "should" statements. Why is this mandatory for the training program to cover this material when the expectation of the trainee is well below the standard? Please clarify this in an annex.	Reject: An FSP may increase "should" to requirements (shalls) in their own program. This consensus body thinks it is appropriate to require a training program cover certain topics and also to make recommendations, but also allow for deviations on subjective topics where appropriate.
168	7.2.7.1, 7.2.7.2 & 7.2.7.3		T	It is important to be familiar with disorders that cause disruptions in the recording of Friction Ridge Skin, causing poor quality impressions and difficulties in analysis, however, being able to specifically identify which disorder is represented is beyond the expertise of examiners. What research is there that supports an examiner can tell the difference between psoriasis, versus other skin conditions (e.g. systemic lupus erythematosus or epidermolysis bullosa etc.) versus aging effects? Is this even a trainable skill?	Remove these expectations.	Reject: Section 7.2.7 defines the most common skin disorders and since these are subjective in their identification they are recommendations rather than requirements.
169	7.2.7.7		T	Same argument listed above applied to "split ridges and smoothing of friction ridges due to chemotherapy drug administration"	Remove these expectations.	Reject: Section 7.2.7 defines the most common disorders and since these are subjective they are recommendations rather than requirements.
73	7.2.8 and throughout		E	"recite"?	When did this become an oral report? The expectation SHOULD be that they KNOW the sequences and processes. At some point in the training the expectation would be to verbalize their answers/reasons. Change to "discribe". A recitation is exact oration of something. Sequence, timing and processes are "ranges of dates": not exact.	Reject with modification: An annex describing how this standard uses Bloom's Taxonomy has been included to cover this comment.

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27	7.2.9		T/E		Here is another example of a module that starts with a "shall" statement but all of the learning objectives are "should" statements. Please clarify in an annex.	Reject: Any agency can increase "shoulds" to requirements (shalls) in their own program. This consensus body thinks it is appropriate to require a training program cover a topic and also to make recommendations that allow for deviations on subjective learning objectives.
4	7.2.10		T	Most of this section is not needed in a training program. if an LPE intends to do research in embryological development of friction ridge skin it is important but it is not needed as a function of their job.	Either make a "should" instead of a "shall" or reword to only include a requirement to be able to articulate why patterns and features can differ in general	Accept: Section 7.2.10 and all sub-sections are now recommendations (should).
53	7.2.10 through 7.2.10.9		T	These topics should have been covered in the trainee's college education. This is the whole purpose of requiring a Bachelor's degree.	Remove sections that discuss general biological knowledge.	Reject: Working group consensus has been consistent that training in the development of friction ridge skin is appropriate. Most of these sections are recommendations rather than requirements (should statements) in order to facilitate flexibility in the preparation of training material.
170	7.2.10.10, & 7.2.10.11		T	It is unclear what is meant by "relate" in these two sections - Is the expectation for experts to be able to compare two impressions and determine if there are enough similarities to make the claim that they came from opposite fingers of the same person? Or to just have the experience of observing these similarities and/or differences?	Substitute "assess" or "consider" for the word "relate" in these two sentences	Accept
126	7.2.10.12		E	This section mentions that examiners should be able to support that arrangements of friction ridge features are discriminating. But it does not require (nor does this standard elsewhere ever appear to address) how examiners are to evaluate the difference in discriminating power between different arrangements of features. Nowhere for example does this standard discuss training examiners on areas where discriminating power is lower (whether due to pattern force in delta and other regions or otherwise). Whether in this section or elsewhere (perhaps in the comparison or evaluation sections) this standard must address how examiners are trained to assign weight to particular arrangements of features.	Add language to this section requiring examiners to be able to evaluate the discriminating power of feature arrangements and weigh the impact of concepts such as pattern force. Or, create or add to a later section to accomplish the same.	Reject with Modification: This training standard includes topics for training. Please refer to the ASB STD 15 for further clarification.
28	7.3		T	This standard concerns the history of fingerprint analysis, and seems to be written to encourage memorizing events and limited information regarding specific historical figures in the field. There are no requirements relating to understanding concepts and the maturation of the field, including understanding of limitations, errors, and assumptions that have been undermined over time. This section should include lessons from documented mis-identifications (e.g., Mayfield); which are included in a later section but should be part of the history that shapes the field.	Add objectives relating to critical understanding of historical developments in the field of fingerprint analysis (e.g., using terms such as describe, discuss, explain, and summarize).	Reject: Consensus has been to have history play a lesser role in this document compared to practical applications. Individual agencies can increase these requirements in their own programs if they see fit.
54	7.3.1		T	Juan Vucitich is mentioned in following sections.	Add "Venezuela" to the list of geographical locations.	Accept with modification: Add "South America" and "North America"
117	7.3.1		E	why be specific? In 7.3.1.2 Juan Vucetich is mentioned and his work pioneered in Argentina which is not Asia, Europe or the US. Also, David Ashbaugh was Canadian.	Recommend: "This history shall cover the earliest uses in Asia, Europe and the Americas."	Accept with modification: Add "South America" and "North America"

#	Section	Updated Section	Type of Comment	Comments	Proposed Resolution	Final Resolution
127	7.3.1		E	If friction ridge examiners are to be taught history it should happen in a manner that is balanced and truthful. As it stands this standard's treatment of history (for example its call to support the current use of friction ridge comparisons through a historical lens) is vague and ambiguous to the point of being meaningless. And, it would appear to suggest teaching an overly rosy picture of fingerprint history. For example, it says that trainees should be able to support the use of friction ridge evidence. But it does not require examiners to acknowledge or debate the problems that have plagued the discipline: i.e. the history of outside criticisms, misidentifications, etc... It is probably far more important that trainees, who we hope will recognize the gravity of their findings and the consequences of errors on the liberty of others, learn about the Mayfield misidentification than that they learn about the heroes of the discipline's past. On that note also, when teaching about individuals (this standard later mentions Francis Galton) trainees should not be allowed to falsely conclude they were essentially perfect people. If Galton will be mentioned, in other words, this standard should require training of his faults as well as his contributions. It is simply not right, that a trainee would learn that Galton pioneered a classification system for fingerprints without also learning about his love for and role in eugenics. Doing anything else is racially insensitive, historically unsound, and especially problematic given the close connection between forensic science and a criminal justice system that disproportionately incarcerates communities of color.	Require instruction for trainees to the "integrate" level on prominent misidentifications, past antagonism to outside scientists / previous failures to engage in properly-designed research studies, and the dangerous failings of individuals like Francis Galton. If not willing to engage in such a balanced approach, remove anything masquerading as historical education outright.	Reject: Out of scope. Original wording has been reviewed by the consensus body and interpreted as not intended to focus on only positive history.
74	7.3.1.2		T	So Grew, Galton and Faulds don't get any love for their contributions???? The list, as written is painfully incomplete and limiting. There is danger in limiting to JUST those individuals as you have now.	Have to add these two or put "shall be able to list AT LEAST the following..." This would fall in line with the the repetition in 7.3.2	Accept with modification. Added suggested individuals and added that the list is examples
172	7.3.1.3		E	"Troupe" is misspelling	change to "Troup"	Accept
29	7.3.1.4		T	This standard can be interpreted as a trainee being able to testify in a criminal or civil procedure before completing training and being deemed competent. Is that the intention? This type of evaluation seems like it would need to take place after training is complete. Trainees should not be in court.	Please clarify when and how a trainee is supposed to perform this task. At best this seem like something that should be done in the moot court, but this would not take place in a civil or criminal courtroom.	Reject: This applies to the overall training program which can be done in different sequences. Individual FSP's will eventually decide when their employees are deemed competent to testify, therefore this request is outside the scope of this standard.
5	7.3.2		T	Classification is no longer used in most latent units and should not be a requirement of a Latent Training Program	Make a should statement instead of a shall statement	Accept
6	7.3.3		T	none of these should be a "shall" statement	Make a should statement instead of a shall statement	Accept
30	7.3.3		T/E		The description of the module has a "should" statement but there are "shall" learning objectives. Is this information really optional? Please clarify in an annex.	Accept with modification: The learning objectives are recommended. Will downgrade the introduction to should as well to satisfy a comment on lack of relevance.



#	Section	Updated Section	Type of Comment	Comments	Proposed Resolution	Final Resolution
128	7.3.3		E	<p>This standard appears to falsely assume that IAI, OSAC, and ASB are the only professional organizations whose stances, publications, etc... matter. But certain organizations, now defunct, have had importance influence on friction ridge and other forensic disciplines. Even if they are being replaced, trainees should be educated on SWGFAST, and of course, given how many standards it released, NCFs would be vital as well. This standard mentions PCAST, NAS, and AAAS documents elsewhere are foundational, so trainees should also need to be equally educated about those groups and their empirical observations and opinions. And the same applies to AAFS and the American Statistical Association. Beyond just mentioning other professional organizations and providing more robust overviews of those groups, however, this standard neglects to discuss the importance of journals and peer review. JFI is only one source for studies on friction ridge examinations and other topics. Should examiners not be familiar with JFS, FSI, PNAS and other publications? More generally, examiners should be able to vigorously discuss the concept of peer review (and its variations, double blind and so forth) as well as how to vet the credibility of a journal, i.e. its impact factor, its review process, whether it is publicly indexed, whether and how it is available to the general public etc...). These topics are vital for fairly engaging with attorneys during trials and hearings, as well as to the ability of examiners to vet future publications and studies.</p>	<p>Include equal coverage of other forensic and scientific groups (SWGFAST, AAAS, PCAST, NAS, NCFs, AAFS). Expand this section to cover scientific journals or create a new section that deals with issues like impact factor, types of peer review, and so on.</p>	<p>Accept with modification: Listed organizations have been included in the 7.3.3 introductory statement for consideration by the reader.</p>
31	7.3.3.5, 7.3.3.6		E		<p>The word "recall" should be red in both standards.</p>	<p>Accept</p>
7	7.3.4.1- 7.3.4.4		T	<p>none of these should be a "shall" statement</p>	<p>remove from document or make a "should" statement</p>	<p>Accept: Changed to "should"</p>
157	7.3.5			<p>which published research?</p>	<p>mention which published research</p>	<p>Reject: As there is a wide array of research on this topic, and that research is ongoing, this consensus body believes it is outside the scope of this standard to specify exactly which research is included in training material.</p>
65	7.3.5.1- 7.3.5.7		T	<p>Requirement too specific. Should have knowledge and understanding of fingerprint pattern/minutiae distribution</p>	<p>Change "shall" to "should" for all</p>	<p>Reject: This consensus body has determined that the information in this section is both available and has enough importance to justify "shall" statements.</p>
129	7.3.5.9		E	<p>This section (hopefully inaccurately) appears to suggest that not only will friction ridge examiners reach source conclusions, but that they will report "identifications." Numerous critics and authoritative bodies (Simon Cole, AAAS, and PCAST to name but a few) have discussed the problematic history of the term identification (and its association with absolute source attribution). And research shows the term is misleading. H.J. Swofford &amp; J.G. Cino, "Lay Understanding of "Identification": How Jurors Interpret Forensic Identification Testimony," 68 J. Forensic Identification 29 (2018) (study concluding that "71% of potential jurors may be expected to interpret expert testimony containing the word 'identification'...to imply a single source attribution 'to the exclusion of all others'"). This document should therefore not make use of the term, especially by suggesting it is an appropriate conclusion. Additionally, there remains robust scientific debate even regarding whether a sufficient foundation exists scientifically for source conclusions of any kind. And the ASB should not attempt to resolve that debate in offhand comments in a training standard.</p>	<p>Change the wording of the section to: "The trainee shall be able to support the International Association for Identification's stance that there is no scientifically valid minimum feature count necessary to support an examiner's opinion that two prints cannot be excluded as having originated from the same source using findings from published fingerprint pattern and minutiae studies."</p>	<p>Reject with modification: The statement has been expanded past the narrow wording that only included the IAI.</p>
8	7.3.6		T	<p>Examiners should have a general understanding of the findings and limitations of published articles related to statistical models but do not need an in depth knowledge of statistics</p>	<p>reword to be a more general understanding of research studies related to our discipline, remove completely, or make a "should" instead of "shall"</p>	<p>Reject: The consensus body has carefully reviewed the shall and should statements in this topic area and believe those requirements and recommendations are appropriate for each sub-section.</p>

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32	7.3.6		T/E	This section on Statistics and Fingerprint Probability Models doesn't make sense in that the concepts of sensitivity, specificity, PPV, NPV etc are presented as concepts for probability models, but they are just as applicable when doing any comparison between a known and an unknown. It also doesn't make sense to start with parameters used for continuous measures and using a sample to estimate a population parameter, which are not necessarily the central to the analysis conducted by the fingerprint examiner.	Revise this section to better represent the statistical concepts and measures used by an examiner in their standard procedures.	Reject: Related content is covered in section 7.10.1.3. This document cannot control individual FSP variances.
75	7.3.6		T	From 7.3.6.1 to 7.3.6.11 delete as it is beyond cumbersome. Seriously jumped the shark.	Can all be summarized by 7.3.6.12	Reject: The consensus body has carefully reviewed the shall and should statements in this topic area and believe those requirements and recommendations are appropriate for each sub-section.
55	7.3.6 through 7.3.6.5		T	If you are going to require basic statistical knowledge, make it part of the Bachelor's degree requirement.	Remove the sections that discuss basic statistical knowledge, add a required statistics class to section 5.1.	Reject: The document has required STEM education. This section offers further specification. Also refer to section 5.1.
158	7.3.6.1			a model hasn't been validated yet how does this fit to expert testimony when asked	suggested concept answers may help to clarify this area	Reject: This section covers general statistical concepts. Concepts directly relating to fingerprint models appear at section 7.3.6.6.
159	7.3.6.11			when using an AFIS/ABI system or software agencies don't yet have?	which approved software	Reject: We believe this comment is in reference to 7.9.10. That section offers a general statement regarding any software an examiner may use to generate a probability that will be used as an input in the examiner decision making process.
130	7.3.6.13		E	Same as for 7.3.5.9		Reject with modification: Statement has been broadened beyond the narrow wording of the IAI to accommodate this comment.
33	7.3.6.14		T	This standard can be interpreted as a trainee being able to testify in a criminal or civil procedure before completing training and being deemed competent. Is that the intention? This type of evaluation seems like it would need to take place after training is complete. Trainees should not be testifying in court unless they've been deemed competent to do so.	Please clarify when and how a trainee is supposed to perform this task. At best this seem like something that should be done for the moot court, but this would not take place in a civil or criminal courtroom.	Reject: This standard covers an overall training program with flexibility for sequencing activities allowing variations per FSP preference.
34	7.4.1		T/E	Section 7.4.1 and its learning objectives overlap with those in section 7.8. Why are these separate?	Section 7.8 is redundant and should be removed and integrated into 7.4.1. Standard 7.8.1.3 can be added to section 7.6.1 since that's where palm prints are first introduced.	Reject with modification: Rename this section to 7.8 to avoid confusion. Also rename 7.4.1. Modified naming scheme throughout 7.4 and 7.8 to clarify differences in those sections.
35	7.4.1.1		T/E	What is mean by the trainee "should be able to describe" the size and shape of rolled fingerprints. Is it optional for an examiner to know how to measure and document what a print looks like? This is an essential skill for performing this job. How is this not a requirement?	Provide clarity on this statement and ALL others (e.g. 7.4.2.1, 7.4.3.1, etc.) that are similar where it is optional to describe basic characteristics of a print. The "should" needs to be turned into a "shall" in this standard and all of standards like it.	Accept: changed to shall statements.
9	7.4.1.6		T	Rolled prints are typically placed in boxes that already note handedness. The knowledge of handedness isn't needed for rolled prints specifically.	remove completely or reword to only be needed when rolled prints are taken on non-standard tenprint cards and don't have handedness already noted	Reject: It has been deemed important for trainees to understand hand geometry basics in order to compare partial impressions. AFIS algorithms in many cases can determine left or right handedness, including probability of sequence errors with limited information (i.e. no slaps present but rolled impression patterns are in improbable locations).
36	7.4.1.7		T/E		Why is this a "should" statement and not a "shall?" If there is a restriction based on job requirements the "if required by job function" statement should be added.	Accept: Changed to shall.
78	7.4.3.2		T	Predict	Change to discern as it falls directly in line with observation and the visual sense.	Reject: Predict is grammatically correct and is the correct application of Bloom's Taxonomy
79	7.4.3.3		T	Predict	Change to discern as it falls directly in line with observation and the visual sense.	Reject: Predict is grammatically correct and is the correct application of Bloom's Taxonomy
81	7.5.2.2 & 3		T	Predict	Change to discern as it falls directly in line with observation and the visual sense.	Reject: Predict is grammatically correct and is the correct application of Bloom's Taxonomy
37	7.6		T/E	Is there a reason there are more "shall" statements in the learning objectives for partial exemplar palm prints than full exemplar palm prints? It seems that a trainee should have a mastery of full palm prints to be able to complete the requirements for partial palm prints.	The learning objectives in this section should all be changed to "shall" unless an annex with a more detailed explanation the use of "should" and "shall" is provided.	Reject with Modification: Sections 7.6.1.1, 7.6.1.2 & 7.6.2.1 changed to shall.
83	7.6.1		T	Three major palmar creases	The expectation SHOULD be that they can identify the three main/major flexion creases. 7.6.1.9 is inadequate in it's definition. Describe should be identify.	Reject: The standard as written in 7.3.1.9 requires knowledge of all flexion and secondary creases.

#	Section	Updated Section	Type of Comment	Comments	Proposed Resolution	Final Resolution
160	7.6.1.3			frequency from which published research referenced?	mention which published research referenced	Reject: Since research is both voluminous and continuous, this would end up being too restrictive. The intent of this standard is to offer some degree of flexibility.
82	7.6.1.4		T	Recall	Change to discern as it falls directly in line with observation and the visual sense.	Reject: Recall is grammatically correct and is the correct application of Bloom's Taxonomy
161	7.6.1.6			range of variation - as above	mention which published research referenced	Reject: Specific published research is not necessary and could prove being inflexible for the trainer. For example the trainer could simply capture a month's worth of palm acquisitions and observe the actual data.
85	7.6.2.2 through 4		T	Predict	Change to discern as it falls directly in line with observation and the visual sense.	Reject: Predict is grammatically correct and is the correct application under the Bloom's Taxonomy model.
38	7.7		T/E	Is there a reason there are more "shall" statements in the learning objectives for partial exemplar footprints than full exemplar footprints? It seems that a trainee should have a mastery of full footprints to be able to complete the requirements for partial footprints.	The learning objectives in this section should all be changed to "shall" unless an annex with a more detailed explanation the use of "should" and "shall" is provided.	Reject with Modification: Sections 7.7.1.2 & 7.7.2.1 changed to shall.
56	7.7		T	Not every FSP examines feet.	Add "If comparison of footprints are an expected job of the trainee, ..." to 7.7.1 and 7.7.2	Reject: Consensus is this to be a requirement on the training program.
87	7.7.1		T	See above	The expectation SHOULD be that they can identify the main/major flexion creases. 7.7.1.9 is inadequate in it's definition. Describe should be identify.	Reject: Consensus is that the trainee is required to have knowledge of all types of creases.
86	7.7.1.4		T	Recall	Change to discern as it falls directly in line with observation and the visual sense.	Reject: Recall is grammatically correct and is the correct application of Bloom's Taxonomy
89	7.7.2.2 through 4		T	Predict	Change to discern as it falls directly in line with observation and the visual sense.	Reject: Predict is grammatically correct and is the correct application of Bloom's Taxonomy
90	7.9.1.4 & 5		T	Debate	Change to explain or recognize. Debate gives weight to one or the other. Shouldn't be biased.	Reject: Debate is intended to function as training exercise, and not intended to promote any type of bias.
91	7.9.2		T	Apocrine secretions not recognized	Should add apocrine. Further explain deposition medium as it relates to "contaminates: residues that the human body doesn't produce, (examples, paint, grease, environmental debris, etc.) Definitions as presented are far too limiting.	Reject: Consensus bodies have determine the minimum requirements for this section and that adding these elements adds risk of improper interpretation.
92	7.9.2.4		T	Predict	Change to discern as it falls directly in line with observation and the visual sense.	Reject: Predict is grammatically correct and is the correct application under Bloom's Taxonomy
93	7.9.3.4 & 8		T	Predict	Change to discern as it falls directly in line with observation and the visual sense.	Reject: Predict is grammatically correct and is the correct application under Bloom's Taxonomy
131	7.9.7		E	Multiple bodies have recommended documenting all features during Analysis before moving on to comparisons (AAAS, the Human Factors Working Group, PCAST, OIG discussing the Mayfield error, etc...). And both in studies and the real-world, circular reasoning from doing otherwise has been problematic to say the least. Examiners must therefore be able to reason through different approaches to Analysis, the costs and benefits of those approaches, etc...	Add a section requiring that trainees be capable of communicating the various approaches to Analysis (linear and non-linear) and that examiners be capable of assessing the costs and benefits of each approach using published studies and articles. Examiners should also be able to explain the role of circular reasoning and non-linear ACE-V in prominent fingerprint misidentifications (i.e. the Mayfield case).	Reject: The consensus body believes this depth goes beyond the scope of this training standard.
58	7.9.7.13, 7.9.7.14		T	AFIS is described as "ABIS" in other areas of the document	Change "AFIS" to "ABIS"	Accept
94	7.9.7.2, 9 & 10		T	Predict	Change to discern as it falls directly in line with observation and the visual sense.	Reject: Predict is grammatically correct and is the correct word under the Bloom's Taxonomy model.
95	7.9.7.3		T	Evaluate	Change to explain or recognize as evaluate can be confusing in the Analysis portion of ACE-V methodology.	Accept with modification: Changed to "describe"
162	7.9.8.2			exploit the diagnostic macroscopic and microscopic information sounds medical with symptoms associated	evaluate the data? Are we going away from ACE V? Is this referencing locating a focal point to find sufficient minutiae to exclude or include a subject while Analyzing the data	Accept with modification current terms and definitions from ASB TR-16 used instead, and "exploit" was replaced with "interpret" throughout the document.
132	7.9.8.7		E	Fully outlining the scope of necessary documentation is obviously beyond the scope of this standard. But nowhere does the document grapple with teaching examiners about why documentation is important to the methodology or its use in court.	Either here or elsewhere in the standard this document must address training on documentation more robustly. Trainees should be able to reach the "integrate level" regarding the importance of documentation to ensuring (1) that other examiners can replicate their work and understand their conclusions, (2) that stakeholders in the criminal justice system can fully consult with independent experts, (3) that stakeholders in the criminal justice system can fully evaluate the quality and correctness of an examiner's work.	Reject: This will be addressed in the reporting standard. This basic training standard is 60 pages in length and therefore some administrative functions must be accomplished through other means.

#	Section	Updated Section	Type of Comment	Comments	Proposed Resolution	Final Resolution
39	7.9		T	Human factors, specifically cognitive bias, directly impact the analyst's work at the bench. The examiner needs to be aware of cognitive bias while they are performing their analysis and not only as a quality assurance measure. Yes, there are quality assurance policies and quality control mechanisms that an organization can implement to mitigate cognitive bias, but the examiner has to be aware of this when they are making their decisions.	Insert learning objectives that address human factors into the examination method section (section 7.9) of the document, possibly in section 7.9.7 Analysis.	Accept with modification: Human Factors covered in Section 7.11. Reference added to introduction of 7.9 to refer the reader to 7.11
57	7.9		T	These topics should have been covered in the trainee's college education. This is the whole purpose of requiring a Bachelor's degree.	Remove section.	Reject: Cannot assume these topics were covered in previous courses.
133	7.9.9		E	Whatever OSAC and ASB ultimately deem to be the appropriate range of conclusions for fingerprint examiners, they will be dipping into one of the most contentious areas of forensic science. Authors have long expounded on the multiple shifts made by past standard-setting bodies and the confusion and other problems arising therefrom. Simon Cole, "More than Zero: Accounting for Error in Latent Fingerprint Identification," 95 J. Crim. L. & Criminology 985, 1029-30 (2005). Given that history and the discipline's flirtation with now outmoded concepts of absolute source attribution, examiners should be required to learn about the range of source conclusions possible (both recently and historically). Knowing that may be highly relevant to admissibility contexts, cross examination at trial, and an examiner's ability to appropriately cabin conclusions.	Include here, or elsewhere, a section on educating trainees about the history of conclusions in the field of latent print, the criticisms of past range of conclusions, and so on.	Accept with Modification. Section 7.9.9.7 added: "The trainee shall be able to articulate the differences between absolute conclusions compared to range of conclusions". Additional information on the history of conclusions contained in section 7.12.6
40	7.9.9.3		T/E	It is not clear what is meant by the trainee shall be able to predict debatable conclusions that require consultation. What is this prediction based on and what level of comprehension should the analyst have to know that another examiner would not agree with their conclusion? The FSP should have a policy on when examiners should consult other examiners. This statement neglects the potential for bias among analysts.	7.9 should be edited to "The training program shall include the inferential process, threshold, and policies for consult for rendering source conclusions as required by the FSP." Can the working group also provide additional insight in its response as to how the trainee is going to predict when another colleague will disagree with their conclusion?	Reject: Per consensus body review, training on inferential process, threshold, and policies for consultation are beyond the scope of this section of the document. Predict is an interchangeable synonym for anticipate which subject matter experts should be able to achieve.
96	7.9.9.3		T	Predict	Change to discern as it falls directly in line with observation and the visual sense.	Reject: Predict is grammatically correct and also the correct usage under Bloom's Taxonomy
134	7.9.9.3		E	It is not enough to merely say that examiners must be able to predict difficult conclusions. For example, nowhere does this standard mention close non-matches or the level of incidental similarity possible in prints from different sources.	Include a section here or elsewhere addressing close non-matches and requiring instruction on historical and known examples of close non matches, the relationship between the close non-match problem and the Mayfield misidentification, the largest numbers of features found in common in close non matches between prints from different people, etc...	Accept. New section 7.9.9.4 added "The trainee shall be able to describe a close non-match comparison and list published examples."
97	7.10.1.4 though 6		E	Recite	Not an oral report. Change to describe or explain	Reject: Recite is appropriate under Bloom's Taxonomy. An annex has been added describing Bloom's
41	7.10.1.4, 7.10.1.5		T/E	Being able to recite the application and significance of confidence intervals does not address the larger sources of error identified in error rate testing studies. Discussions on confidence intervals address sample variation only. Additional sources of error such as the selection of participants, degree of blinding, selection of cases are not covered in the standard.	In addition to reciting the application and significance of confidence intervals, statements need to be added that address the trainees ability to understand and recite how additional sources of error affect the interpretation of error rate studies.	Reject: This adds complexity to this basic training standard and therefore is beyond the scope of this section that some feel is already too complex.
42	7.10.2		T/E	This section is written as if knowledge is set in stone, and the purpose of a training program is to ensure that a trainee can describe what is currently known about a question. But any knowledge base should be viewed as non-static; it will change. What the trainee needs to learn is how to evaluate a set of studies on a given topic.	The "evaluate strengths and limitations" standard (7.10.2.4) should be the first standard in 7.10.2 and should be a requirement (a "shall" statement). This should be followed by a standard requiring he trainee to be able to articulate the basis for determining if a sufficient level of quality and quantity of studies are available from which inferences can be drawn regarding differences between novices and experts can be drawn. If this can be demonstrated, the standards described in 7.10.2.1, 7.10.2.1.2, 7.10.2.1.3, 7.10.2.1.5 and 7.10.2.1.6 can be addressed.	Reject: This adds complexity to this basic training standard and therefore is beyond the scope of this section that some feel is already too complex.
59	7.10.2, 7.10.3		T	Not sure of the purpose of these sections. Is it part of court testimony? Is it intended to keep novice examiners from reaching too far?	Remove sections.	Reject: Consensus has been that these studies have been and continue to be an important part of courtroom testimony
43	7.10.3		T/E	The structure of 7.10.3 is better than that of 7.10.2, but the last standard in this section (7.10.3.9) is written with an assumption that there has been a sufficient quality and quantity of studies to "support the use of trained examiners in the rendering of source conclusions for friction ridge impressions with findings from the examiner performance studies.	7.10.3.9 should be replaced with a standard requiring the trainee to be able to articulate the basis for determining the sufficiency of the research with respect to its ability to be used to draw sound inferences regarding "use of trained examiners in the rendering of source conclusions for friction ridge impressions."	Reject: This adds complexity to this basic training standard and therefore is beyond the scope of this section that some feel is already too complex.

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135	7.10.3.2		E	This section needs to include far more detail. Just by way of example, PCAST laid out multiple issues with the structure of certain fingerprint studies. And more recently commenters like Dror and Langenburg in their article "Cannot Decide": The fine line between appropriate inconclusive determinations VS. unjustifiably deciding not to decide" have addressed the problem of inconclusive results. These are issues the standard should require be addressed.	This section should cover strengths and weaknesses of study design specifically and robustly including: the treatment of inconclusives, the effect of soliciting volunteers, the Hawthorne effect, set based study designs vs. black box designs, sample selection (hard prints vs. easy prints), and so on.	Reject: This adds complexity to this basic training standard and therefore is beyond the scope of this section which some feel is already too complex.
136	7.10.3.7		E	While this standard admirably asks examiners to reach high levels of competence regarding the applicability of error rates from study design to casework, it should go just a bit further. Questionable examiners have long engaged in the base rate fallacy to explain away the relevance of error in studies of accuracy. Given that history the concept merits specific mention.	Include language requiring examiners to debate the significance of the base rate fallacy.	Reject: This adds complexity to this basic training standard and therefore is beyond the scope of this section which some feel is already too complex.
44	7.11		T/E	All of the learning objectives in human factors are "should" statements.	All of the learning objectives in section 7.11.1 should be "shall" statements. Specific human factors should also be listed, as examples of what need topics need to be covered.	Reject, the consensus body has determined that these are appropriate as "should" statements due to the level of subjectivity in Human Factors
137	7.11.1		E	in other areas of this standard, trainees have been required to engage robustly with studies. Yet, despite the multitude of studies on cognitive bias and circular reasoning from Itiel Dror, among others, this section nowhere requires trainees to do the same.	Require trainees to communicate the findings and significance of various studies on cognitive bias and consider the impact of such findings on their work and include these sources in the bibliography.	Accept, Section 7.11.1.20 added: "The trainee should be able to describe cognitive bias and list the major studies and their applicability to friction ridge examinations."
60	7.11.2		T	This section does not belong in this document. It is part of the quality assurance training of the FSP and is redundant in this document.	Remove section.	Reject: Examiners do need to know about quality assurance in order to arrive at the strongest conclusions and in order to diminish errors.
98	7.11.2.14		E	Process	Change to processes or process/processes	Reject: The same meaning is conveyed with fewer words
140	7.11.2.14		E	Accreditation is an important part of quality assurance whether a lab is accredited or not (in fact, NCFSS said it should be mandatory for all FSPs). Even examiners working at labs without accreditation should be required to understand the importance of the requirement and explain why their lab does not meet it. At the same time, accreditation is far from a cure all. Multiple labs with accreditation across the country have nonetheless been plagued by scandal. Thus examiners must also be able to discuss the limits of accreditation (i.e. it does not validate methodologies, does not involve large scale re-examinations of casework, etc...)	Remove "of an FSP is accredited" add to the end of the sentence: "as well as the importance of accreditation to quality assurance and the limitations of accreditation reviews."	Reject: Training on accreditation adds to the complexity of this standard and therefore is out of scope for a basic training standard.
138	7.11.2.4		E	the most common available proficiency tests (from Collaborative Testing Services) have long been decried as far too simplistic. Really they are so easy they cannot arguably replicate casework or even distinguish lay people from experts. See Luby, A. S.; Kadane, J. B. Proficiency Testing of Fingerprint Examiners with Bayesian Item Response Theory. <i>Law, Probability, &amp; Risk</i> 2018, 17 (2), 111–121; Koertner, A.; Swofford, H. Comparison of Latent Print Proficiency Tests with Latent Prints Obtained in Routine Casework Using Automated and Objective Quality Metrics. <i>J. For. Ident.</i> 2018, 68 (3), 379–388; Max, B.; Cavise, J.; Gutierrez, R. Assessing Latent Print Proficiency Tests: Lofty Aims, Straightforward Samples, and the Implications of Nonexpert Performance. <i>J. For. Ident.</i> 2019. 69(3) 281-298. If trainees will be discussing proficiency tests as important they must be prepared to discuss their limits and research relevant to their probative value.	Include requirement for training examiners on the limits of proficiency testing and the relevant research on their lack of rigor. Include the associated resources in the bibliography.	Reject: This adds complexity to this basic training standard and therefore is beyond the scope of this section which some feel is already too complex.
139	7.11.2.7		E	Debate currently rages across several forensic science disciplines regarding the appropriate way to conduct verification (i.e. blind vs. not-blind as well as whether verifications should be done of exclusions). An examiner must be able to understand and discuss not just the types of verification used by their agency, but the full range of verification approaches used in the field. This should also include the costs and benefits and dangers of each type of verification as supported by published research.	Include language requiring examiners to demonstrate an understanding of the range of verification approaches in the field and the weaknesses and benefits of each based on published research.	Accept. "FSP" modified to "discipline"
61	7.12		T	This section is far too prescriptive. Each FSP will have its own requirements and needs.	Cut out sections that do not relate specifically to friction ridge knowledge.	Reject: Section is intended to impart knowledge of general courtroom procedures, not specifically friction ridge

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141	7.12		E	This standard requires wide ranging education for examiners on fields as far flung from friction ridge comparisons as statistics and software engineering. Examiners who have education in those areas (but nowhere near the level of specialists) must be tested on their ability to distinguish their expertise from that of specialists and recognize authoritative treatises from such fields in order to provide fair and balanced testimony.	Include requirements in this section as well as the mock trial process requiring examiners to (1) distinguish themselves and their expertise from those of specialists, (2) predict arguments and impeachment on specialist areas such as statistics and software engineering, and (3) fairly respond to articles treatises, etc... from outside the field of friction ridge comparison.	Reject. This information is covered in 7.12.4.4, 7.12.4.7, and 7.12.6.6.
99	7.12.1		E	Recite	Not an oral report. Change to describe or explain	Reject: Recite is an appropriate term in Bloom's Taxonomy.
45	7.12.2		E		The importance of remaining neutral as an expert needs to be impressed upon the trainee. Their demeanor is important. The sentence should be edited to "...preparation and demeanor for trials or hearings, and testimony."	Reject. "demeanor" is covered in section 7.12.2.10.
46	7.12.2		T/E		A learning objective requiring the trainee to know and understand the legal and ethical responsibilities of the prosecutor, defense attorney, and the judge needs to be added to 7.12.2.	Reject. The roles of the judge, jury, court reporter, prosecution, and defense are covered in 7.12.2.6.
142	7.12.2		E	The US Constitution requires the prosecution to tender to the defense all exculpatory and impeachment information. This section must address that rule (Brady / Giglio) and the examiner's responsibilities in order to prepare examiners to conduct their work in a manner that does not trample constitutional rights. It may not be obvious that an examiner must tender documents of past errors and failed proficiency tests, testimony and other material/statements inconsistent with what they will opine in a current case, etc...	Add a section requiring training on disclosure requirements under the US Constitution.	Accept with modification, example of Brady/Giglio added as a reference.
100	7.12.2.1		T	Recall	Change to explain or describe	Reject: Recall is appropriate for friction ridge examiners relative to the Bloom's taxonomy model (in contrast to legal professionals which would require a deeper understanding).
143	7.12.2.3		E	This section rightly addresses the importance of pretrial conferences but does not specify that such conferences should be held with both sides, defense and prosecution. Given the history of many departments (and the current practice of some) of refusing to meet with defense counsel, that is a gross oversight.	Add language indicating the importance of testimony and pretrial meetings with both defense and prosecution.	Accept.
101	7.12.2.4		E	clothing	Change to professional attire	Accept
173	7.12.3.1		E	"vitea" is misspelling	change to "vita"	Accept with modification: changed to vitae
144	7.12.3.6		E	As with accreditation, NCFSS thought certification was important enough to make mandatory. Thus this standard should not limit training on certifications and the ability to discuss certifications only to examiners who have achieved those honors. An uncertified examiner must be able still to discuss what certifications are, and justify why they have not obtained them.	Change the word received to "available."	Accept: Changed word received to available.
146	7.12.4		E	This standard does not discuss the use of visuals at trial. Though not all examiners have historically chosen to use powerpoints or otherwise display images of the friction ridge areas they compared, visual aids may be useful to allowing factfinders to assess the strength of an opinion and allow as well for adequate cross examination. Relatedly this standard does not deal with laying an appropriate foundation by discussing the basis of an opinion. Cases like People v. Safford in Illinois have actually excluded evidence on this ground. All that said, visual aids may be subject to abuse and may be misleading if used inappropriately. Examiners could use editing to clean up the appearance in a print, and examiners might also use powerpoint animations to fill in gaps (by tracing ridges for example). Examiners must be trained to use caution so as not to mislead factfinders or create any undue impression of a comparison's strength.	Include a section on the use of visual aids and the practical and legal considerations that go along with a decision to do so or not (rules for laying foundation, incorporation of powerpoints, etc...) as well as how to present visuals in the most balanced and true to reality fashion	Reject. This document is not intended to address the legal considerations and resources that may or may not be available in every courtroom.

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145	7.12.4 / 7.12.5 / 7.12.6		E	This section as well as the ones that follow on cross-examination and mock trial appear to display a bias by the draftors against scientific views critical of friction ridge comparisons. It should not be the business of examiners to predict what lines of attack defense attorneys will use to be able to swiftly refute them. Instead, training on testimony should focus on how to provide the most-scientifically supportable and balanced answers about the field possible. When dealing with literature the focus should not therefore fall on learned treatise impeachment, but on how to fairly discuss scientific studies and opinions with attorneys while maintaining objectivity and balance. So too should examiners be forced to demonstrate their ability (when pushed by either side of the adversarial system) to maintain their objectivity and balance. Prosecutors cannot be allowed to sidestep or minimize limitations in the field by pushing an examiner around or asking confusing questions. As written, however, this section as well as 7.12.5 and 7.12.6 seem to imagine that only defense attorneys wielding treatises critical of the field pose such a threat.	Remove language regarding examiner's ability to predict learned treatise impeachment and formulate responses. Instead include language on training examiners to provide fair and balanced testimony (meaning testimony that incorporates potential rates of error, limitations, weaknesses, and sources of uncertainty). Additionally, include language indicating that examiners must be prepared to discuss literature bearing on the field of friction ridge examiners with attorneys from all sides in a fair and balanced manner.	Accept with modification. Predict replaced with anticipate. Impeachment and learned treatises removed.
47	7.12.4. 7.12.5		T/E		These sections are written as if the prosecutor will always perform the direct examination and the defense will always do the cross. These sections need to be written perspective neutral. A cross examination from the government may not look to impeach expert testimony.	Reject. The document has the two sections separated in order to reduce redundancy. Mention of impeaching testimony was also removed for clarification.
48	7.12.4.6	7.12.4.7	T/E	What isn't witness' ethical obligation to transparency something that is expected during direct examination? Why isn't the trainee looking to explain methods used to control testimony during direct examination? Words like "develop", "promote" and "employ" sound lot more positive than "control" when both parties are trying to present their theories while attempting discredit one another..	The language used in 7.12.4.6 and 7.12.5.5 needs to be neutral in the description of each side's job. Additionally, being transparent is something the trainee should learn no matter who is asking the questions. The language in these two standards needs to mirror one another.	Accept with modification. Both sections revised to "the trainee should be able to recognize..." in order to make them consistent
147	7.12.5		E	Whether or not an examiner chooses to use images during their direct testimony, an attorney on cross may attempt to do so. This section should deal with how examiners can fairly and accurately answer questions about the latent prints themselves (i.e. what should an examiner do if asked about smudging in a print, what answers are fair and appropriate and more than just "you can't see what I saw").	Add a section about formulating fair, balanced, and accurate responses to cross examination using images of latent prints.	Reject. This document is not intended to address the legal considerations and resources that may or may not be available in every courtroom.
102	7.12.5.2		T	Predict	Change to explain. You shouldn't predict anything. We are not meteorologists! Prepare yourself to explain	Reject with modification: Predict is a valid term for any occupation and a necessary term in Bloom's Taxonomy. A driver can predict that a hole in a tire will cause a flat. The driver is not a meteorologist.
49	7.12.5.4		T/E		Prosecutors ask leading questions. The standard is implying this is a cross-examination tactic and it is not. This standard needs to be added to section 7.12.4 since it also happens during direct examination.	Accept: This wording was also added to 7.12.4.6
103	7.12.6		T	four mock trails	Not sure I would place an exact number or limit of 4. Just say a "series" and eliminate the 4 as "series" means more than one. 4 is redundant	Reject: four is simply a recommendation determined through consensus and as such can be changed by the FSP.
148	7.12.6		E	Absent from the mock trial or other sections is a discussion of teaching examiners about the importance of distinguishing friction ridge comparisons from other uses of fingerprints. It is not fair for jurors to assume or be prompted to assume that because ten print comparisons or biometric scanners are in use, comparisons of partial prints are the same or equally reliable.	Include a requirement that the examiner be tested on their ability to distinguish comparisons of partial or distorted prints from other fingerprint systems.	Reject: This information is covered in 7.12.6.6 and other areas of the document.
105	7.12.6.1		T	Dress code	Implication that the agency has a "code". Change to professional attire.	Accept
50	7.12.6.22		T/E		This standard implies that QA addresses human factors, but that's not always true; some human factors aren't going to be addressed by whatever QA system is in place. Although these two areas have been grouped together in this standard, the trainee should be able to talk about human factors and QA independently and also where they intersect. This should be split into two learning objectives.	Reject. Human factors is its own subsection that could stand alone. It has been determined through WG consensus that it is closely aligned with quality assurance and therefore is included in that section.
62	7.13		T	Not every FSP performs ABIS searches.	Add "If ABIS is an expected job of the trainee, ..." to 7.13.1 and 7.13.2	Accept with modification. "if trainees will perform these job functions." added to end of 7.13.1 and 7.13.2

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149	7.13		E	Authors have long warned about the increased chance of incidental similarity when using AFIS and other databases. Itiel E. Dror & Jennifer Mnookin, "The use of technology in human expert domains: challenges and risks arising from the use of automated fingerprint identification systems in forensic science," 9 Law, Probability, & Risk 47 (2010) ("the chances of finding by [through an AFIS search] pure coincidence a lookalike print, a print originating from another person but that is nevertheless extremely similar to the latent print, is much higher than when comparing the latent print to just as a few dozens, hundreds or even thousands of prints prior to the introduction of AFIS"); Itiel E. Dror et al., "The Impact of Human Technology Cooperation & Distributed Cognition in Forensic Science: Biasing Effects of AFIS Contextual Information on Human Experts," 57 Journal of Forensic Science 343, 351 (2012) (empirical study of examiner performance using AFIS discovered that "when false identifications occur, they are closely centered at the top of the list, further showing the biasing effects of position. Such false identifications occurred even when a more similar print (the actual matching one) was present in a lower position on the same list" and "false identifications are more likely as the comparison print is more similar to the latent"). Yet this standard does not require training on this important issue.	include discussion of limitations associated with database use, including accounting for an increased chance of incidental similarity, and cite appropriate papers in the bibliography.	Accept with modification. Addition made, new 7.9.9.4 added to cover this issue. References added to bibliography
106	7.13.2.20		T	Recite	Change to Articulate	Reject: Articulate implies a deeper understanding of the inner workings of AFIS than this section requires. Recite only implies the trainee knows the inputs and outputs and therefore is more appropriate for this statement.
107	7.14.1.6 & 7.14.3.6		T	Interpret	Change to read and understand. Interpret is subjective and when dealing with hazardous chemicals could prove deadly. Interpretation has no place here.	Reject: Interpret is an appropriate term in relation to Bloom's Taxonomy and this standard, and applies to this section.
150	7.14.4		E	This standard seemingly fails to address the use of various software tools to edit digital photographs of friction ridge skin. For example examiners routinely turn to photoshop to reverse the color of ridges, add clarity, etc...Some techniques may not ultimately alter the evidence in any material way, but others may do so.	Add a section requiring training on photo editing techniques, their dangers, appropriate uses, and limitations.	Reject. Section 7.9.6 covers digital imaging. Reference to OSAC Training Guidelines for Video Analysis, Image Analysis and Photography, added to Bibliography
108	7.14.4.1		E	Recite	Change to explain or describe	Accept
155	?			section is board for recommended reading	be spetic so agencies know which book and editions to buy	Reject: No section
156	?			which pioneers in particular and which research cited for study and future recommended reading	be spetic so agencies know which book and editions to buy and what subject matter needs to be covered in future training	Reject: No section
163	?			quantity and quality and arriving to a conclusion seem elusive	bench notes to support conclusions and those of any consultations can show the work	Reject: No section
164	?			Report writing needs to be clear	I suggest to list conclusions and define them with examples	Reject: Not every agency is using the same conclusion scale which is defined in a separate standard.