

CRIMINAL PROFILING OF INTERIOR MINISTRY OFFICERS

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Abstract

Almost all societies in the modern world suffer from crime. Crime rates vary greatly from country to country and region to region. Criminal behavior remains a concern among many people because the fear of harm has a psychological impact on them (Ainsworth, 2000: 48). Public opinion in the Western world has become increasingly interested in criminal profiling associated with investigative officers, and despite its popularity in both historical and literary aspects, evidence of its accuracy and usefulness at various stages of subsequent criminal justice proceedings has been portrayed as a well-known science from its systematic practice of post-profiling (7 : 2004, Hicks). To enhance this work, the US Security Intelligence Agency has developed rules for searching for criminals from the criminal profiling method, which is based on explanations of psychological behavior as the criminal used to target his victims, the method of committing the criminal act, the forms of abuse, the tool used, the location and eyewitnesses are important factors in controlling the general characteristics of the suspect, then narrow the scope of the search and investigation accurately, to match them with the lists of former criminals to find out if the criminal is registered as a danger or a crime according to other criteria. In parallel, a range of methods was used to assist investigators in gathering evidence and information on the criminal event in general from interrogations, fingerprints profile drawings of the suspect (Ghaniya and Abd al-Hadi, 2021: 292).

Chapter one

The theoretical framework for research/criminal profiling

Theoretical approaches that explain criminal profiling

First: deductive profiling

Deductive profiling is based on logical and rational reasoning, in which physical evidence is the basis for thinking about the characteristics of the offender. These methods do not speculate on possible characteristics, and the profile itself consists of a relatively certain finding around a small number of traits that narrow the potential circle of suspects.

1. (Douglas et al. 1972 FBI) Criminal Investigation Analysis Model

This approach is rooted in early law enforcement attempts to understand patterns of criminal conduct developed by the FBI, which classified criminals of two types: (organized and socially unregulated), to formalize this classification and determine whether there are consistent advantages in crimes that may be useful in classifying future offenders (Burgess, & Ressler, 1985:44).

According to this approach, criminal profiling presents an effort based on experience, logic, and broad knowledge such as scientific philosophies, psychiatry, forensic medicine, criminological techniques, sociology, etc. (Nikolai,2020:12).

Brent refers to some methods that were abstract and general and some were specifically based on experiences and statistics of the group of perpetrators and specific analysis of specific cases focused on crime scene analysis (145: Brent et al, 2012).

According to Douglas and Burgess (1986), there were seven common procedures that the FBI used in conducting inferential profiling, including:

1. Assessment of the criminal act.
2. A comprehensive assessment of the crime scene.
3. Comprehensive analysis of crime victims.
4. Evaluation of the initial police report.
5. Evaluation of the autopsy protocols carried out by the forensic doctor.
6. Develop the profile using the main or important characteristics of the criminal.
7. Investigation proposals based on the construction of the crime file (Burgess & Ressler, 1985a:3)

In comparison, unorganized killers committed crimes that seem to have little preparation and planning, and the perpetrator tends to use all his weapons, and there is a slight attempt to hide some evidence at the crime scene, so the crime is in a state of chaos and confusion, and the unorganized killer may live alone and very soon From the place of the attack, he is socially inept, his intelligence is low and he has very serious psychological problems, including mental illness, and physical abuse as a child, and his crime tends to be in a state of fear or confusion, and his crime is spontaneous, and few of them engage in Alcohol or drugs (Douglas & Olshaker, 1995: 9)

2. The theoretical approach of Jackson and others (Jackson et al, 1997) (Dutch approach)

The Dutch curriculum is based on two main principles:

First: Criminal profiling is a combination of police experience and behavioral science knowledge.

Second: The offender profile is not an end in itself, but a tool to direct the investigation in a certain direction.

Jackson et al. (1997) based their approach on the fact that there are some important differences between their system and the system used in the United States of America, and the step of the Dutch approach was to merge the trainee investigator with the forensic psychiatrist, which is important because it acknowledges that psychologists are not the only ones who have the unique ability in analyzing the skills that a criminal investigator possesses, forensic psychologists are believed to have a wide range of skills that investigators already possess. Moreover, it points to an important issue (no profile should be viewed in isolation but rather

as an integrated unit), it clarifies many administrative tools, means, and techniques that may help investigators, unlike some other systems that are considered by collecting estimates based on the investigator's characteristics that the suspect possesses, besides, the practical and scientific advice that the investigator receives on the production of the psychological file, which includes suggestions, including deductive ones, personal assessments, and direct interview methods that are better used in identifying the suspect (Jackson et al, 1997: 126). This approach shows a useful distinction between (formal knowledge and implicit knowledge). Formal knowledge is that which can be expressed as knowledge of specific and general matters linked to fixed rules that emerge as a result of prudence and deliberation and are familiar to all as formal knowledge. It is opposed to tacit knowledge, which is concerned with knowing how to do something as a result of reconnaissance and tends to be gained from the increased experience of the investigator, i.e. (continuous training and specialized courses), which relates to insight and intuition that develops with the increase of extensive training and accumulated experience on the part of the investigator (Jackson et al. al,1997: 212).

3. Kocsis 1997 Theoretical Approach

This approach sees criminal profiling as an attempt to produce a description of the offender based on the results of the analysis of crime scene information and characteristics related to the offender's background and does not see it as a specific means, but it is the most preferred way to solve a crime (Stevens, 1995: 138). It can only refer to some of the personality and demographic features that the offender is likely to possess as it represents the process of analyzing and interpreting the behavior or action seen in the crime, and is an examination of the crime to explain the behaviors prominent during the time of their occurrence and from the analysis the investigator will be able to produce an image for the offender (17 Kocsis, 2006:). This CAP¹ approach took all aspects of crime into account when forming a criminal profile, meaning it was more open to the methods that analysts could use when conducting investigations to achieve the only main goal, which is to form a criminal image of the perpetrator involved, he did not focus on building the personality of the offender but was more focused on building the chronology of the event. At the same time, it relied on the branch of psychiatry, and criminal profiles were created to know the mental and demographic status of the offender as well as the reasons behind the commission of such crimes. The approach focused more on the background of the perpetrator, rather than on how the crime was carried out (20 Kocsis, 2006).

Second: The theoretical approach to inductive profiling

1. Rossmo's theoretical approach (geographical)

According to Rossmo, his approach examines the spatial behavior of criminals related to the location of crime scenes and the spatial relationships between those scenes, includes quantitative and numerical measures, and emphasizes psychological profiling of the offender to reconstruct and interpret his "mental map" (Rossmo, 1997: 161). It is a forensic investigation framework that analyzes the locations of a continuum of crimes to determine the most likely area of residence for the offender from a combination of quantitative and qualitative methods. It helps in understanding the spatial behavior of the criminal and focusing the investigation within the specific area of the suspect. Typically used in cases of serial murder, rape, arson, robbery, terrorism, and

¹ Classification of crime procedures

other crimes, this technology helps police investigators prioritize information in large-scale major crime investigations that often involve hundreds or thousands of suspects (23: *The Economist*, 2016). One of the methods most used in this approach is an analytical program called "geopro filing." This constitutes a three-dimensional layout of the potential areas that constitute the "risk zone" by placing the place where a crime was committed on this map, and this may lead to access to determine the place of residence or work of the person suspected of committing the criminal event (Petherick: 74, 2104a).

2. David Kanter Curriculum 1982 (investigative method)

David Canter, a British psychologist and founder of investigative psychology at the University of Liverpool, has drawn great interest in the methodological and scientific principles of research in criminal behavior analysis issues, his approach is categorized as Statistical Forensic Profiling, and his Environmental Psychology Program is developed by the interaction between society and their physical environment, looking in particular at the way the environment can influence or shape behavior. His early research in investigative psychology showed clear links with the major fields of environmental psychology (Canter & Youngs, 2003: 118).

Kanter believes that his approach is a branch of applied psychology and tried to put his approach within an acceptable psychological framework to understand what type of crime an individual is likely to be involved in and to determine whether the offender's behavior during the commission of the crime reflects his behavior in daily life (Canter, 2000: 90).

He suggested that criminal psychology is particularly applicable to the study of the behavior of criminals because in most cases a criminal act can be considered as a personal transaction in which the offender performs certain actions within a social context, and asserts that how individuals interact with others are so well trained and established that they will affect All their interactions with others, including the interaction between the perpetrator and the victim, and put two components in his approach between (Investigative Psychology and Social Psychology), which he explains from personal narrative theory, which is one of the most fundamental arguments in the field of criminology, that criminals are often experienced rather than amateurs (Porter, 2000:396). Kanter's criminal profiling practice is based on two main assumptions (consistency and symmetry):

1. Consistency: It is how the offender commits a crime on an occasion and will have some distinct similarities to how he or she commits crimes on other occasions (Canter, 1994:489).

Consistency consists of two components (the degree of variance in the actions of a single offender) and (the extent of variance across several offenders) (Canter & Godwin, 1997: 164).

Consistency is key because it explains how an offender continually behaves from one crime scene to another, thus distinguishing himself from other offenders. For example, in a series of burglaries where the alarm has been exceeded, an individual who has consistently and successfully deactivated the alarm indicates that the offender may have significant experience with alarm systems or that offenders who commit crimes together as a group are more likely to demonstrate consistent behaviors at a crime scene (Canter, 2004: 192).

Kanter (2006) has explained that all human activity is inherently variable, yet consistent offenders show a "form of career development" from mastering their performance, as he stated that consistency is the central way to develop the scientific basis for the classification of the offender, and provides a way to link to serial crimes, which is the basis for deducing his personality traits (Canter, 2006: 194).

Kanter argues that inference about personal characteristics usually includes consideration of the social context of the offender, because "the social processes that underlie groups, teams, and networks of criminals can reveal much about the consistency of criminal behavior (Canter, 2011: 133).

As a basis for consideration of the scientific explanatory frameworks for profiling: (Offender consistency and specificity of the crime), it assumes that there is consistency between the way an offender commits a crime on one occasion and the way he commits crimes on other occasions, and these similarities are attributable to the characteristics of the offender, not to features from the situation in which the crime was committed. Crime is thus an extreme form of criminal activity and is also likely to reflect differences that occur in the offender's daily personal activities (Stephenson, 2000:5).

From looking at criminal behavior, Kanter and colleagues identified five characteristics or groups that they believe are important and can help in criminal investigations (residential location, criminal history, local/social characteristics, personal characteristics, and educational and occupational history). (et al 2004: 130 (Canter)). Canter connects circle theory to test his theory of personal narrative, and his basic assumptions about offender consistency and crime specificity, that the offenders will travel some distance from their primary location before engaging in criminal activities, the base does not necessarily have to be the place of residence of the offender, it may be another place where the offender has psychological or physical inclinations. According to this theory, the area around the base and the area where the crimes were committed appear in the form of circles (Canter & Alison, 1999:29).

Third: The theoretical approach to analyzing behavioral evidence

1. Turco's 1990 Psychoanalytic Theoretical Approach (Profile)

Turco (1990) referred to the use of the psychoanalytic approach to profiling, it states that profiling should be directed 'about the basis of the offender's narcissistic personality disorders, and perceptions of violent behavior are interpreted as a process by which perpetrators attempt to deal with internal frustrations related to early relationships, he shows imitation of a child and the mother and suggests that profiling should incorporate "neural understanding" because neurological imbalances are an important factor in the tendency to commit murder. (Turco, 1990:149).

Its approach consists of four components:

First - the investigator must look at the crime scene from all its dimensions, and this entails looking at the scene as a manifestation of behavior, and more focused as "projections of the latent personality, lifestyle and accumulated experiences (maternal bonding) of the offender.

Second - the importance of integrating knowledge with neurological behavior. When developing a personal profile, there is an assumption that between (20-90%) of the perpetrators of violent acts suffer from weakness in the brain or structural abnormalities, referred to as a neurological phenomenon called "decontrol syndrome" and refers to Such a syndrome is relevant to the understanding of the sixth sense (Turco, 1990:150).

Third - characterization of the profile is a prerequisite from a dynamic and psychological perspective, and this is defined as "an understanding of social interactions and the importance of the first five years of his life, the so-called phase of separation and exclusivity, this is a skill that depends on the "level of psychological development" of the profiler (Turco, 1990:151).

Fourth - the study of the demographic characteristics of the criminal which is concerned with the collection of crime scene evidence, as well as information about the victim and the offender to assist the investigator in

building the profile, and allows the assessment of this characteristic for forensic analysts because they are experienced and have an inherent basic understanding of psychopathology, predictability, and ability on "entering the mind of the offender" and relying on a scientific approach without subjective bias (Turkish, 1990: 151).

2. Theoretical Approach of Turvey 1999

Turvey indicated in her approach to the interpretation of criminal profiling (an introduction to the analysis of behavioral evidence) that studies that rely on physical and behavioral evidence to make conclusions about the characteristics of the offender and the main methodological elements are:

1. Distinguish and classify between the concepts of analytical profiling and other patterns.
2. A description of the components of criminal profiling methods.
3. Describe and classify motivational behavior.
4. An analysis of the potential contributions of a profiling strategy to identify and apprehend an offender.

Turvey, 1999: 14, compares her approach (the profiles provided produced by most forensic analysts to their profiling method). Her approach refers to "the process of comparison, either associative or statistical, and depends on subjective experience (Turvey, 1999: 16)). Turvey asserts that there are four basic components to her profiling method. The first three components are those that Turvey describes as being "mostly based on the scientific principles of crime scene reconstruction and established forensic science." (Turvey, 2011: 33).

1. The first component includes forensic and behavioral evidence as crime events are reconstructed, including behaviors between the victim and the perpetrator, and require the use of victim survivor and witness statements, crime scene photographs, bloodstain analysis, and any other relevant forensic analyzes performed on physical evidence.
2. The second component includes an analysis of the victim's characteristics, physical characteristics, habits, lifestyle, relationships, and level of risk.
3. The third component includes characteristics of the method of attack, the nature and sequence of sexual or violent acts, verbal behavior, precautionary actions, and other characteristics "identified from forensic evidence and the victim".
4. The fourth component, which is understanding the characteristics of the offender from the first three components, as this fourth component describes it as "very important, and therefore it is a matter of experience and not knowledge" as these characteristics relate to asking the right question about the offender's behavior, and accordingly the question "Correct" involves identifying a characteristic and identifying the behaviors that demonstrate that trait. If these behaviors were identified during the commission of the crime Turvey, 1999: 85). Torvi refers to the concept of motivational behavior or motives, which drive human criminal behavior and remain essentially the same for all criminals, despite their behavioral expression that may include various criminal acts (such as kidnapping, child molestation, terrorism, sexual assault, murder, and arson Turvey, 1999: 170).

Chapter two

Research Methodology and Procedures

Research Methodology: The current research is based on the correlative descriptive method as its method, which means a description of what is an object and includes an accurate description of the current phenomenon, its composition, processes, and prevailing conditions. It is one of the forms of organized scientific analysis and interpretation to describe a specific phenomenon or problem and depict it quantitatively by collecting codified data and information about the phenomenon or problem, classifying and analyzing it, and then subjecting it to a careful study (Melhem 2010: 370). This is to diagnose it, reveal its aspects, and determine the relationships between them and other phenomena, in addition to that descriptive research is not limited to predicting the future, but rather it is carried out from the present to the past to gain insight into the present (Al-Azzawi 2008: 98).

First: the research community

The research community is defined as the total group with the elements that the researcher seeks to generalize the results related to the problem (Awda and Malkawi 1992: 159). They are all the individuals whom the researcher studies the phenomenon or event they have (Melhem 2000: 219) and who possess one observable characteristic. Society is the main objective of the study, as the researcher generalizes, in the end, the results he obtains (Abu Allam, 2011: 163). The current research community consists of officers of the Ministry of Interior.²⁻³

Second: the research sample

The sample defines the subset of the original population, which is selected according to special rules to properly represent the community (Al-Nasir and Marzouk 1989:10) and the sample is any subset of the population. We note that the term sample does not place any restrictions on the method of obtaining the sample, as the sample is simply a molecular group of a population with common properties (Abu Alam 2011:162). Therefore, the basic research sample was chosen from the original population, so the sample amounted to (300) controls, and the sample was chosen by the available random, proportional, stratified sampling method. According to their distribution on the following shown in Table (2)

Table (2)

The research sample for investigation officers, distributed by ranks

General Directorates	Ranks		total
Baghdad Crime Control Directorate	8	10	18
Directorate of Intelligence and Counter-Terrorism	29	33	62
Organized Crime Directorate	41	44	85
Drug Control Directorate	33	42	75
Baghdad Governorate Police Directorate	27	33	60
Total	138	162	300

Third: the search tool:

² According to a letter facilitating the task from the College of Arts, University of Baghdad, number 5660, dated 04/13/2022.

³ The researcher was not able to count the number of investigating officers due to the difficulty of obtaining data.

To achieve the objectives of the current research, the researcher built a scale (criminal profiling), and to complete the construction of the scale, the researcher performed the procedures according to their sequence: The first scale: the criminal profiling scale.

1. Defining the concept of criminal profiling:

The researcher reviewed the literature related to the concept of criminal profiling, which was previously clarified in the theoretical framework, and opinions differed regarding the existence of a definition or a fixed text to define the concept of criminal profiling. Therefore, the researcher will adopt the definition of Siniša Sili 2019 who tried to collect some theoretical approaches in the interpretation of criminal profiling, as she defined them as the process of analyzing, deducing, and extrapolating some personality traits and analyzing behavioral evidence that identifies and sheds light on those who committed criminal acts by clear scientific methods. This information is a glimpse and an image of the perpetrator of the crime, which narrows the potential circle of suspects and helps their arrest and detention (8: Siniša Sili, 2019).

2. Determining the components and paragraphs of criminal profiling in its primary form

Having determined the theoretical definition of criminal profiling, and based on previous literature that examined the concept of criminal profiling. According to the theoretical approaches, three areas were identified:

First Domain: Inductive criminal profiling:

It involves creating a picture of a suspect based on the characteristics of already known perpetrators who have committed a similar or identical crime, which is primarily statistical, but assumptions play a fairly large role as statistical methods do not always allow certain conclusions to be drawn, and describe it in one case with complete accuracy. (14: Siniša Sili 2019). Identified (15 verbal declarative paragraphs).

Second domain: Deductive Criminal Profiling

This approach depends on logical and rational thinking, and the physical evidence is the basis for thinking about the characteristics of the suspect, and these methods do not speculate on the possible characteristics, it includes conclusions that logically derive from the given premises. If the premises are true, the subsequent conclusion must be true. (15: Siniša Sili 2019). Identified (15 verbal declarative paragraphs).

The third domain: Profiling behavioral clues

This approach depends on psychological analysis, physical evidence, and personal files under similar circumstances. It integrates knowledge and mental disorders and is based on forensic and behavioral evidence and inferring the personality traits of individuals responsible for committing criminal acts. (15: Siniša Sili 2019). Identified (15 verbal declarative paragraphs).

7- Statistical analysis of forensic profiling scale items

The process of statistical analysis of the scale items is one of the basic operations in building scales (Anastasi1988:192). It aims to reveal the psychometric properties that depend largely on the properties of its items. Moreover, this procedure is necessary to distinguish between individuals in the measured trait (Imam et al., 1990: 114). The following are the procedures for checking the psychometric properties:

a. Discriminating Power of Items

The researcher verified the discriminatory power of the paragraphs using the Contrasted Groups method by applying the scale items to the statistical analysis sample, which amounted to (300) controls, and then determining the total score for each of the respondents' forms, then arranging the forms in descending order according to the total score, from the top degree to the lowest degree, then assigning the percentage of (27%) of the applications with the highest marks, and the percentage of (27%) of the applications that have the lower marks. The number of members of each of the upper and lower groups was (81) controls, and after applying the t-test for two independent samples, to find out the significance of the differences between the upper and lower groups for the scores of each item of the scale, all items of the scale were compared with the tabular t-value of (1.96) are distinct at the significance level (0.05) and the degree of freedom (160). Thus, the number of paragraphs for this procedure has reached (38) paragraphs, distributed among the three components.

b. Validity indicators of the criminal profiling scale:

It consists of the following procedures:

- Relationship of the paragraph score to the total score of the scale:

The researcher performed this procedure to extract the amount of the correlation between the score of each paragraph and the total score of the scale by using the Pearson Correlation Coefficient, and by using the same analysis sample referred to in the previous paragraph as the statistical analysis sample, which amounted to (300) controls. After using a correlation coefficient and comparing it with the tabular critical value of (0.113) at the significance level (0.05), and the degree of freedom (398), the scale was considered constructively valid according to this indicator. It became clear that all the paragraphs achieved a statistically significant correlation that ranged between the level (0.05), which was represented in each of the paragraphs in succession. Table (5) shows that:

Table (5)

The values of the correlation coefficients between the paragraph score and the total score of the criminal profiling scale

No.	The correlation coefficient of the paragraph with the total score	No.	The correlation coefficient of the paragraph with the total score
1.	0.14	20	0.57
2.	0.63	21	0.72
3.	0.62	22	0.63
4.	0.56	23	0.57
5.	0.63	24	0.36
6.	0.58	25	0.28
7.	0.53	26	0.51
8.	0.60	27	0.55
9.	0.55	28	0.49

10.	0.58	29	0.56
11.	0.41	30	0.60
12.	0.55	31	0.33
13.	0.53	32	0.57
14.	0.29	33	0.58
15.	0.28	34	0.54
16.	0.49	35	0.49
17.	0.24	36	0.48
18.	0.29	37	0.60
19.	0.61	38	0.60

* The critical value of Pearson's correlation coefficient (113) at the level of significance (0.05) and the degree of freedom (398).

- The relationship of the paragraph's score to the total score of the field to which it belongs:

Table (6)

The values of the correlation coefficients between the score of the paragraph and the total score of the domain to which the paragraph belongs to the criminal profiling scale

inductive profiling			Deductive profiling			Analysis of behavioral evidence		
item	correlation coefficient	Sig.	item	correlation coefficient	Sig.	item	correlation coefficient	Sig.
1.	0.21	Sig.	13	0.50	Sig.	26	0.54	Sig.
2.	0.71	Sig.	14	0.36	Sig.	27	0.57	Sig.
3.	0.68	Sig.	15	0.33	Sig.	28	0.53	Sig.
4.	0.62	Sig.	16	0.55	Sig.	29	0.62	Sig.
5.	0.68	Sig.	17	0.42	Sig.	30	0.64	Sig.
6.	0.62	Sig.	18	0.41	Sig.	31	0.46	Sig.
7.	0.60	Sig.	19	0.69	Sig.	32	0.59	Sig.
8.	0.65	Sig.	20	0.56	Sig.	33	0.63	Sig.
9.	0.59	Sig.	21	0.68	Sig.	34	0.57	Sig.
10.	0.63	Sig.	22	0.62	Sig.	35	0.55	Sig.
11.	0.49	Sig.	23	0.58	Sig.	36	0.56	Sig.

12.	0.59	Sig.	24	0.47	Sig.	37	0.64	Sig.
			25	0.35	Sig.	38	0.54	Sig.

Relationship of the field score to the total score of the scale:

Table (7) matrix of internal correlations between sub-domains and the total score of the scale

Domain	Inductive profiling	Deductive profiling	behavioral evidence analysis	criminal profiling
inductive profiling	1	0.72	0.75	0.90
Deductive profiling	--	1	0.78	0.91
behavioral evidence analysis	--	--	1	0.93

c. Confirmatory Factor Analysis

After conducting the confirmatory factor analysis of the criminal profiling scale as shown in Figure (1) and Table (8). It turns out that all the items on the scale are statistically significant because all the standard regression weights are statistically significant in terms of (t) test values, which were all higher than the tabular (t) value (1.96) at the (0.05) level, the standard regression weights are intended to estimate the significance of the relationship between the paragraph and the factor to which it belongs, and that this result to be accepted must exceed the value of the corresponding critical ratios of (1.96) (Al-Barq et al., 2013: 143).

The theoretical framework adopted for several approaches explains the nature of the criminal profiling work referred to by the researcher, with the presence of three components within a theory. The researcher hypothesized that criminal profiling includes three components of the theory. Therefore, the researcher resorted to using confirmatory factor analysis to verify the validity of its assumption.

Based on the statistical program (Amos)* to extract the results from the model, which is represented by three latent factors:

(Inductive profiling, deductive profiling, analysis of behavioral evidence) and the extent to which the paragraphs are saturated on their factors can be judged in light of the critical ratio (standard regression weights) (C.R), the items whose saturation is more than (1.96) were kept, and those whose saturation was less than (1.96) were excluded at a significance level (0.05). The results of the preliminary analysis of the paragraphs of the criminal profiling scale, which included three independent dimensions, numbered (38) paragraphs, indicated that all paragraphs are significant within their dimensions, and table (8) shows that:

Table (8)

Paragraph saturations values on their factors and critical ratios for the significance of saturations for the criminal profiling scale

No.	Paragraph sequence in scale	Domain	Estimate Saturations	Critical Ratios C.R.	Significance 0.05
1.	v12	inductive profiling	0.54	7.13	Sig.
2.	v11	inductive profiling	0.40	5.88	Sig.
3.	v10	inductive profiling	0.60	7.94	Sig.
4.	v9	inductive profiling	0.54	7.35	Sig.
5.	v8	inductive profiling	0.61	8.01	Sig.
6.	v7	inductive profiling	0.56	7.52	Sig.
7.	v6	inductive profiling	0.59	7.65	Sig.
8.	v5	inductive profiling	0.65	8.14	Sig.
9.	v4	inductive profiling	0.57	7.65	Sig.
10	v3	inductive profiling	0.64	8.24	Sig.
11	v2	inductive profiling	0.64	8.33	Sig.
12	v1	inductive profiling	0.22	3.11	Sig.
13	v13	Deductive profiling	0.53	7.13	Sig.
14	v14	Deductive profiling	0.21	3.30	Sig.
15	v15	Deductive profiling	0.21	3.39	Sig.
16	v16	Deductive profiling	0.48	6.77	Sig.
17	v17	Deductive profiling	0.15	2.37	Sig.

18	v18	Deductive profiling	0.23	3.59	Sig.
19	v19	Deductive profiling	0.58	7.7	Sig.
20	v20	Deductive profiling	0.60	7.89	Sig.
21	v21	Deductive profiling	0.77	9.01	Sig.
22	v22	Deductive profiling	0.67	8.31	Sig.
23	v23	Deductive profiling	0.57	7.68	Sig.
24	v24	Deductive profiling	0.31	4.67	Sig.
25	v25	Deductive profiling	0.22	3.4	Sig.
26	v38	behavioral evidence analysis	0.56	7.28	Sig.
27	v37	behavioral evidence analysis	0.57	7.94	Sig.
28	v36	behavioral evidence analysis	0.45	6.50	Sig.
29	v35	behavioral evidence analysis	0.45	6.54	Sig.
30	v34	behavioral evidence analysis	0.54	7.59	Sig.
31	v33	behavioral evidence analysis	0.53	7.37	Sig.
32	v32	behavioral evidence analysis	0.54	7.61	Sig.
33	v31	behavioral evidence analysis	0.28	4.24	Sig.
34	v30	behavioral evidence analysis	0.61	8.24	Sig.
35	v29	behavioral evidence analysis	0.58	7.98	Sig.
36	v28	behavioral evidence analysis	0.52	7.31	Sig.
37	v27	behavioral evidence analysis	0.56	7.7	Sig.

38	v26	behavioral evidence analysis	0.51	7.21	Sig.
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To ensure that the paragraphs of the list measure what they have been developed for, the conformity quality indicators indicate that there are three theoretical components of criminal profiling, as their values were among the parts' values specified for them. (Costello & Osborne,2005, p. 7)

In addition, the researcher obtained several important quality fitting indicators, which show the extent to which the theoretical model adopted by the researcher matches the sample included in the study. (Tegza, 2012:229-239). Table (9) shows that:

Table (9)

Indicators of the quality of congruence with the criminal profiling scale

No.	Indicator	Indicator value	Parts
1.	The ratio between the values of χ^2 and the degrees of freedom DF	2.41	less than (5)
2.	Root Mean Square Error Approx. (RMSEA)	0.06	between 0.05–0.08
3.	Comparative fit Index (CFI)	0.87	between 0-1
4.	Good Fit Index (GFI)	0.86	between 0-1
5.	Adjusted Good Fit Index (AGFI)	0.84	between 0-1
6.	Pratio indicator	0.91	between 0-1

8- Psychometric Characteristics of the Forensic Profiling Scale

The psychometric (standard) characteristics of the whole scale indicate its ability to measure what it was intended to measure, and that it measures the characteristic with acceptable accuracy and with the least possible error (Abd al-Rahman 1998: 335). For the psychological or educational measurement tool to be effective in measuring the psychological or educational phenomenon and give us a quantitative description of that phenomenon, it should be characterized by some standard characteristics, the most important of which are validity and reliability (Imam et al. 1990: 241). These two characteristics of the criminal profiling scale have been verified as follows:

- Validity Scale

Validity is one of the most important psychometric characteristics that should be available in psychological measurement, as it indicates the scale's ability to measure what should be measured (Harrison1983: 11). Therefore, the validity of the current scale was confirmed by three types of validity:

a. Face Validity

This indicator is considered valid as the general appearance of the scale or its external image in terms of the type of paragraphs, how they are formulated and the extent of the clarity of these paragraphs (Al-Jalabi 92: 2005), the researcher verified this from the procedures referred to in the paragraph related to the investigation

of the validity of the paragraphs of the scale, its fields and alternatives. Table (3).

b. Construct validity

It means analyzing the scale's scores based on the psychological structure of the characteristic to be measured, that is, it shows the extent to which the scale contains a specific theoretical construct or a specific feature (Stanley & Hopkin 1972:111). Or it is the extent to which we can determine that the scale measures a specific theoretical construct or specific characteristic (Anastasi 1988:151). It means the ability of the scale to verify the validity of a hypothesis, derived from the theoretical framework of the scale and previous studies (Abu Hatab 2008: 196).

Scale Reliability

Evaluation and measurement literature indicates that stability is one of the conditions that should be met in psychological and educational standards and tests. These metrics should be consistent and consistent in what they measure. Alken (Alken, 1988) confirms that the stability of the scale indicates its freedom from irregular error (Alken, 1988:58). The stability of psychological scales and tests can be verified in several ways, including:

a. External consistency method (test-retest)

The researcher applied the criminal profiling scale to extract stability in this way on a sample of (40) officers. Two weeks after the first application of the scale, the researcher re-applied the same scale again on the same sample, and after using the Person Correlation Coefficient.

To identify the nature of the relationship between the first and second application scores, it appeared that the value of the scale's stability coefficient was (0.89). This value was considered an indicator of the stability of individuals' responses on the criminal profiling scale, as well as the degree of stability, as seen by Likert if it reached (0.62 - 0.93).

This reliability coefficient is also high compared to the stability of the scale used in the study of (Trager & Brewster 2001), which reached (0.88) and compared to the scale of the study of (Pinizzotto and Finkel 1990), which reached (0.90) and the study of (Van der Heijden et al, 1990), which has a stability coefficient of (0.89).

b. Cronbach Alpha method:

The (Alpha Cronbach) equation measures the consistency of an individual's performance from one paragraph to another and indicates the degree to which all the paragraphs of the scale share in measuring a particular characteristic of the individual (Thorndike and Higgin, 1989:79), and this method leads to the internal consistency of the scale structure, and it is called the coefficient of homogeneity (Allam, 2000: 165).

This reliability coefficient is also high compared to the reliability of the scale used in a study by (Trager & Brewster 2001), where the reliability coefficient was (0.90), as well as compared to the scale of a study by (Pinizzotto and Finkel 1990), which has a reliability coefficient of (0.91) and a study of (Van der Heijden et al, 1990), which has a stability coefficient of (0.93).

Chapter three

Results interpretation

The first objective

Criminal profiling of Ministry of Interior officers:

The results of the research showed that the average degrees of criminal profiling for the research sample of (300) investigative officers affiliated with the Ministry of Interior reached (151.20) degrees, with a standard deviation of (22.09) degrees, the hypothetical mean, was (114), and to find out the significance of the difference between them, the t-test for one sample was used. Freedom (299), and this result indicates that the investigating officers in the Ministry of Interior have criminal profiling, according to the data available in Table (15).

Table (15)

One-sample T-test in criminal profiling of officers in the Ministry of Interior

Variable	Sample	arithmetic mean	Standard deviation	Hypothesis mean	D. of F.	T value		Sig.
						Calculated	Tabular	
criminal profiling	300	151.20	22.09	114	299	29.16	1.96	0.05 sig

Table (15) shows that investigative officers in the Ministry of Interior have criminal profiling while performing investigative work. The researcher explains that specialized investigators officers are characterized by several cases, including Their ability to control, organize and control their cognitive resources to reach the goal and accomplish the special task in the face of all kinds of distractions, or interference in their affairs. The researcher used the t-test for each field separately, and table (16) illustrates this:

Table (16)

T-test for the difference between the arithmetic mean of the scores of the whole sample and the hypothetical mean of the scale domains

Profiling	arithmetic mean	Standard deviation	hypothetical mean	Calculated T-value	Sig.
Inductive	47.276	8.26000	36	23.646	Sig.
Deductive	52.456	7.36176	39	31.660	Sig.
behavioral evidence analysis	51.463	8.57752	39	25.167	Sig.

The second objective

The significance of the differences in the relationship of criminal profiling among officers of the Ministry of Interior according to rank (major and below - lieutenant-colonel and above):

To achieve this goal, the t-test was used for two independent samples to know the differences in professional competence according to the rank (major and below - a lieutenant and above) and table (17) illustrates this:

Table (17) T-test for two independent samples to know the differences in criminal profiling according to rank (major and below - a lieutenant and above)

Sample	Rank	No.	Mean	Standard deviation	Calculated T	T-tabular	Sig.
300	major and below	138	150.18	22.33	0.73	1.96	Not sig.
	lieutenant and above	162	152.06	21.91			

It is clear from Table (17) that there is no difference in criminal profiling according to the rank variable (the rank of major and below - the rank of lieutenant colonel and above) because the calculated T value of 0.73 is less than the tabular T value of 1.96 at the level of (0.05) and the degree of freedom (298).

The researcher explains that the investigation officers have a renewed image of the nature of the criminal profiling fee, and there are no differences between them that are toward reaching a competitive level. We can attribute this to the richness of sources, information, and training that contributes to the building (criminal profiling) such as specialized courses and the application of updated methods from international practice according to the image of criminal profiling, and the possibility of reaching them by raising the level of their positive attitudes and increasing the motivation of their work, leading to distinctive criminal profiling.

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